

2017 MURATA PRODUCTS Lineup

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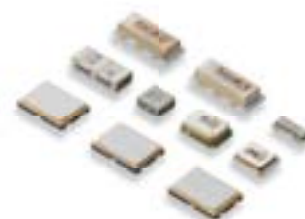
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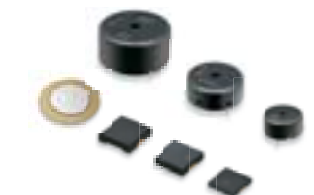
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Capacitors

The most comprehensive product lineup in the industry, providing ideal solutions, responding to all possible requirements.

Summary

Using Murata's unique material technology, we offer a variety of capacitors covering a wide range of voltages. Murata also offers technical support that includes design kits and a comprehensive set of software tools to simulate virtually any circuit condition, satisfying the demands of many applications.

Lineup

- Ceramic Capacitors (SMD, lead type, mold type)
- Polymer Aluminum Electrolytic Capacitors
- Ceramic Trimmer Capacitors ● Supercapacitors (EDLC)



<http://www.murata.com/en-global/products/capacitor>

WEB Product Search Engine



1 Search by part number

The applicable capacitors can be searched by alphanumeric characters.



2 Search by specifications

Capacitors can be searched by various specifications, such as the capacitance, rated voltage, and temperature characteristics.



3 Search by features

The applicable capacitors can be searched by the shape, maximum operating temperature, applications, benefits, and mounting.



4 Search in the lineup

Capacitors applicable to the conditions can be searched from the lineup of each series.



5 Cross reference

The Murata part number applicable to the assumed specification can be found using a competitor's part number for chip monolithic ceramic capacitors.



Search results

It is possible to compare characteristics. **<New>**

The number of cases applicable to the current search conditions is always displayed in real time.

Click each search condition button to display the menu. The search results will change in real time with the selected conditions.

Clicking the "Current search conditions" opens a menu, and the current narrowed down conditions can be checked.

The results can be sorted by clicking the ▲ button above the search results items.

Clicking the product name opens the details page, and more detailed information can be acquired.

Detailed specifications sheets can be downloaded without opening the details page.

The icons clearly indicate the status and the features of the product.



Icons

	For applications that do not require a particular reliability, such as general equipment.
	Infotainment for Automotive Products for entertainment equipment like car navigation, car audio, and body control equipment like wipers and power windows.
	Powertrain/Safety for Automotive Products used for applications (running, turning, stopping, and safety devices) that particularly concern human life, such as in devices for automotive.
	Medical-grade products for Implanted Medical Devices These products are intended for use in implanted medical devices such as cardiac pacemakers, cochlear implants, insulin pumps, and gastric electrostimulators. They are suitable for use in non-critical circuits.*1 *1 Non-critical circuits This term refers to circuits in implanted medical devices that are not directly linked to life support, i.e., circuits that will not directly endanger the life of the patient should the functionality of the device be reduced or halted by failure of the circuit.
	AEC-Q200 compliant product
	Safety Standard Certified Product Products that acquired safety standard certification IEC60384-14 and products based on the Electrical Appliance and Material Safety Law of Japan.
	Low dissipation for high frequency By devising ceramic materials and electrode materials, low dissipation is achieved in frequency bands of VHF, UHF, and microwave or beyond.
	Low inductance This capacitor is designed so that the parasitic inductance component (ESL) that the capacitor has on the high frequency side becomes lower.
	Fail safe product This capacitor is designed to prevent failures as much as possible by short mode.
	Product resistant to deflection cracking This capacitor is designed to prevent failures as much as possible by short mode caused by cracking when there is board deflection.
	Product with solder cracking suppression This capacitor is configured with metal terminals and leads connected to the chip. The metal terminals and leads relieve the stress from expansion and contraction of the solder, to suppress solder cracking.
	Product suitable for acoustic noise reduction and low distortion This product suppresses acoustic noise, which occurs when a ceramic capacitor is used, by devising the materials and configuration.
	No DC bias characteristics Polymer capacitor is no capacitance change with DC bias due to aluminum oxidized film for dielectric.
	Low-inductance product suitable for noise suppression. This product has extremely low ESL and is suitable for suppression of noise, including high frequencies. This product can also be used as a low-ESL, high-performance bypass capacitor.
	Product for bonding Since gold is used for the external electrodes, the capacitor can be mounted by die bonding/wire bonding.
	Limited to Conductive Glue Mounting Since silver palladium is used for the external electrodes, the capacitor can be mounted by conductive adhesive.

Capacitors

Product Lineup

			AEC-Q200	Safety standard	High Q	Low ESL	Anti-noise	Fail safe	Deflecting crack	Soldering crack	Effective Cap	EMI FIL®	Other
General	GRM	P5											
	GRM	P7											For LED backlight only
	GA2	P7											
	GA3	P8											
	GJM	P8											
	GMA	P8											Wire bondable
	GMD	P9											Wire bondable
	GQM	P9											
	GR3	P9											
	GR4	P10											For communication / information devices
	GR7	P10											Limited to camera flashes
	GRJ	P10											
	KR3	P11											
	KRM	P11											
	LLL	P12											
	LLR	P12											
	LLA	P12											
	LLM	P13											
	NFM	P13											
	DE1	P21											
	DE2	P21											
	DEJ	P21											
	DHR	P21											
	RDE	P22											
	DHK	P26											
	DHS	P26											
	ECAS	P27											
Info-tainment	GRT	P13											
Power-train	GCM	P15											
	GC3	P16											
	GCD	P16											
	GCE	P16											
	GCG	P17											
	GCJ	P18											Limited to conductive glue mounting
	KC3	P19											
	KCA	P19											
	KCM	P19											
	NFM	P19											
	DE6	P24											
	RCE	P24											
	RH	P25											
Medical Device	GCH	P20											For Implanted Medical Devices

Chip Monolithic Ceramic Capacitors For General Purpose

For General Purpose

Temperature Compensating Type



GRM

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GRM02	0.4X0.2 <01005>	50	0.20pF				100pF							
		25				120pF	220pF							
		16				120pF	220pF							
GRM03	0.6X0.3 <0201>	100	0.10pF				15pF							
		50	0.10pF				220pF							
		25				270pF	1000pF							
GRM15	1.0X0.5 <0402>	100	0.10pF				100pF							
		50	0.10pF				1000pF							
		10				1200pF	4700pF							
GRM18	1.6X0.8 <0603>	100	0.50pF				1500pF							
		50	0.50pF				10000pF							
		10				5600pF	22000pF							
GRM21	2.0X1.25 <0805>	250			10pF				5600pF					
		200			10pF				5600pF					
		100				100pF				3300pF				
		50					1200pF				47000pF			
		10						56000pF	0.10μF					
GRM31	3.2X1.6 <1206>	2k			10pF	68pF								
		1k			10pF				1000pF					
		630			10pF				4700pF					
		500			10pF				4700pF					
		250				390pF				22000pF				
		200					2700pF				10000pF			
		100					1800pF				0.10μF			
		50						12000pF				0.10μF		
		25							0.12μF					
		16							0.12μF					
GRM32	3.2X2.5 <1210>	2k				82pF	220pF							
		1k					1200pF	220pF						
		630					1200pF	10000pF						
		500					1200pF	10000pF						
		250						27000pF	47000pF					
GRM42	4.5X2.0 <1808>	3.15k			10pF	100pF								
GRM43	4.5X3.2 <1812>	1k					2700pF	4700pF						
		630					12000pF	22000pF						
		500					12000pF	22000pF						
GRM55	5.7X5.0 <2220>	1k					5600pF	10000pF						
		630						27000pF	47000pF					
		500						27000pF	47000pF					

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Capacitors

■ High Dielectric Constant Type



GRM

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRM02	0.4X0.2 <01005>	16				100pF	1000pF						
		10				100pF	10000pF						
		6.3					1000pF	0.10μF					
		4					15000pF	0.10μF					
		2.5						0.10μF					
GRM03	0.6X0.3 <0201>	50				100pF	1500pF						
		35						0.10μF					
		25				100pF	0.10μF						
		16					2200pF	0.10μF					
		10					4700pF	0.22μF					
		6.3					4700pF	0.22μF					
		4						0.22μF					
GRM15	1.0X0.5 <0402>	100				220pF	4700pF						
		50				220pF	0.47μF						
		35						0.22μF	1.0μF				
		25					2200pF	2.2μF					
		16					3300pF	2.2μF					
		10					15000pF	4.7μF					
		6.3						0.10μF	4.7μF				
		4						0.10μF	10μF				
		2.5						0.10μF	10μF				
GRM18	1.6X0.8 <0603>	250				220pF	2200pF						
		200				220pF	2200pF						
		50						0.47μF	2.2μF				
		35						2.2μF	4.7μF				
		25						1.0μF	10μF				
		16						1.0μF	10μF				
		10						2.2μF	10μF				
		6.3						4.7μF	22μF				
		4						10μF	22μF				
GRM21	2.0X1.25 <0805>	500				1000pF	10000pF						
		250				1000pF	22000pF						
		200				1000pF	22000pF						
		50						1.0μF	4.7μF				
		35						2.2μF	10μF				
		25						1.0μF	22μF				
		16						1.0μF	22μF				
		10						2.2μF	47μF				
		6.3						10μF	100μF				
		4						10μF	100μF				
		2.5							47μF	100μF			
GRM31	3.2X1.6 <1206>	1k				470pF	10000pF						
		630				1000pF	22000pF						
		500					15000pF	47000pF					
		250					15000pF	0.10μF					
		200					15000pF	0.10μF					
		100						1.0μF	2.2μF				
		50						1.0μF	10μF				
		35							10μF				
		25							4.7μF	22μF			
		16							4.7μF	47μF			
		10							22μF	47μF			

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Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRM31	3.2X1.6 <1206>	6.3									22μF	150μF	
		4									47μF	220μF	
		2.5									150μF	220μF	
GRM32	3.2X2.5 <1210>	1k					6800pF	22000pF					
		630					22000pF	47000pF					
		500					68000pF	0.10μF					
		250					68000pF	0.22μF					
		200					68000pF	0.22μF					
		100							1.0μF	4.7μF			
		80								4.7μF			
		63									10μF		
		50								4.7μF	10μF		
		35									10μF		
		25								10μF	22μF		
		16								22μF	47μF		
		10									47μF	100μF	
		6.3									47μF	100μF	
		4										100μF	
GRM43	4.5X3.2 <1812>	1k					33000pF	47000pF					
		630					68000pF	0.10μF					
		500						0.15μF	0.22μF				
		250						0.15μF	0.47μF				
		200						0.15μF	0.47μF				
GRM55	5.7X5.0 <2220>	1k					68000pF	0.10μF					
		630						0.15μF	0.22μF				
		500						0.33μF	0.47μF				
		250						0.33μF	1.0μF				
		200						0.33μF	1.0μF				

For LCD Backlight Inverter Circuit Only



GRM

General

Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRM42	4.5X2.0 <1808>	3.15k			5.0pF	47pF							

Safety Standard Certified

The Electrical Appliance and Material Safety Law of Japan



GA2

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA242	4.5X2.0 <1808>	AC250 (r.m.s.)					470pF	1000pF					
GA243	4.5X3.2 <1812>	AC250 (r.m.s.)					2200pF	47000pF					
GA255	5.7X5.0 <2220>	AC250 (r.m.s.)							0.10μF				

Continued on the following page. ↗

Capacitors

■ Type GF (IEC60384-14 Y2, X1/Y2 Class)



GA3

General

Safety standard

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA342	4.5X2.0 <1808>	AC250 (r.m.s.)			10pF		1000pF						
GA352	5.7X2.8 <2211>	AC250 (r.m.s.)				100pF		1500pF					
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)					1800pF		4700pF				

■ Type GD (UL60950-1 Certified Product)



GA3

General

Safety standard

Series	LXW (mm) ◁Size Code (inch)▷	Rated Voltage (V)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GA342	4.5X2.0 ◁1808▷	AC250 (r.m.s.)			10pF		1500pF							
GA343	4.5X3.2 ◁1812▷	AC250 (r.m.s.)					1800pF	4700pF						

■ Type GB (IEC60384-14 X2 Class)



GA3

General

Safety standard

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)					10000pF	56000pF					

■ High Q Type for High Frequency



GJM

General

High Q

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GJM02	0.4X0.2 <01005>	25	0.20pF	22pF									
GJM03	0.6X0.3 <0201>	50	0.20pF	3.9pF									
		25	1.0pF 33pF										
GJM15	1.0X0.5 <0402>	50	0.10pF	47pF									

■ Top & Bottom Electrode Type for Bonding



GMA

General

Bonding

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GMA0D	0.38X0.38 <015015>	10					1000pF	10000pF					
GMA05	0.5X0.5 <0202>	100				100pF	1000pF						
		25					1500pF	4700pF					
		10					6800pF	22000pF					
		6.3							0.10μF				
GMA08	0.8X0.8 <0303>	100					1500pF	6800pF					
		25						10000pF	22000pF				
		10						33000pF	0.10μF				
		6.3								0.47μF			

Product for Bonding/AuSn Soldering



GMD

General

Bonding

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GMD03	0.6X0.3 <0201>	25				100pF	1500pF						
		16					1800pF	3300pF					
		10					3900pF	10000pF					
		6.3						56000pF	0.10μF				
GMD15	1.0X0.5 <0402>	50				220pF	4700pF						
		25					5600pF	47000pF					
		16						56000pF	0.10μF				
		10							0.12μF	0.47μF			

High Q Type for High Frequency and High Power



GQM

General

High Q

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GQM15	1.0X0.5 <0402>	200	0.10pF			33pF								
		100				36pF	47pF							
GQM18	1.6X0.8 <0603>	250		1.0pF			47pF							
		100		1.0pF	6.8pF									
		50			7.0pF			100pF						
GQM21	2.0X1.25 <0805>	500		1.0pF			22pF							
		250		1.0pF			100pF							
		100		1.0pF			18pF							
		50			20pF			100pF						
GQM22	2.8X2.8 <1111>	500		1.0pF			100pF							

High Effective Capacitance & High Ripple Resistance



GR3

General

Anti-noise

Series	LXW (mm) ◁Size Code (inch)▷	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GR321	2.0X1.25 ◁0805▷	250						10000pF	22000pF				
GR331	3.2X1.6 ◁1206▷	630						10000pF	15000pF				
		450						10000pF	47000pF				
		250						33000pF	68000pF				
GR332	3.2X2.5 ◁1210▷	630						22000pF	47000pF				
		450						68000pF	0.10μF				
		250							0.10μF	0.15μF			
GR343	4.5X3.2 ◁1812▷	630							68000pF				
		450								0.15μF			
		250							0.22μF	0.33μF			
GR355	5.7X5.0 ◁2220▷	630							0.10μF	0.22μF			
		450							0.22μF	0.47μF			
		250							0.47μF	1.0μF			

Capacitors

For Ethernet LAN & Primary-secondary Coupling of DC-DC Converters



GR4

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GR442	4.5X2.0 <1808>	2k				100pF	1500pF						
GR443	4.5X3.2 <1812>	2k					1800pF	4700pF					
GR455	5.7X5.0 <2220>	2k						10000pF					

For Camera Flash Units Only



GR7

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GR721	2.0X1.25 <0805>	350						10000pF	27000pF					
GR731	3.2X1.6 <1206>	350						10000pF	47000pF					

Resin External Electrode Type



GRJ

General

Deflecting crack

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GRJ18	1.6X0.8 <0603>	100					1000pF		0.10μF					
		50					1000pF		0.22μF					
		35								1.0μF				
		25						47000pF		1.0μF				
		16								0.47μF				
		6.3								2.2μF	4.7μF			
GRJ21	2.0X1.25 <0805>	250					1000pF		22000pF					
		100				220pF				1.0μF				
		50				470pF				1.0μF				
		25								1.0μF	2.2μF			
		16									4.7μF			
		10										10μF		
GRJ31	3.2X1.6 <1206>	1k					470pF		10000pF					
		630					1000pF		22000pF					
		250						15000pF		0.10μF				
		100							0.10μF		1.0μF			
		50							0.10μF		4.7μF			
		25								2.2μF		10μF		
		16								2.2μF		10μF		
		10									10μF		22μF	
		6.3											22μF	
GRJ32	3.2X2.5 <1210>	1k						6800pF		22000pF				
		630							22000pF		47000pF			
		250							68000pF		0.22μF			
		100									2.2μF		4.7μF	
		50									4.7μF		10μF	
		25										10μF		
		16											22μF	
		10											22μF	47μF

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Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GRJ32	3.2X2.5 <1210>	6.3											47μF	
GRJ43	4.5X3.2 <1812>	1k						33000pF	47000pF					
		630						68000pF	0.10μF					
		250							0.15μF	0.47μF				
GRJ55	5.7X5.0 <2220>	1k						68000pF	0.10μF					
		630							0.15μF	0.22μF				
		250							0.33μF	1.0μF				

Metal Terminal Type

High Effective Capacitance & High Ripple Resistance



KR3

General Deflecting crack Soldering crack Anti-noise

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KR355	6.1X5.3	630							0.10μF	0.56μF				
		450							0.22μF	1.2μF				
		250							0.47μF	2.2μF				

High Effective Capacitance



KRM

General Deflecting crack Soldering crack Anti-noise

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KRM21	2.2X1.25	25										10μF	22μF	
		16										10μF		
KRM31	3.5X1.7	100									1.0μF			
		50									4.7μF			
		35										10μF		
		25										10μF		
	3.6X1.7	50									2.2μF			
	3.7X1.85	100									2.2μF			
KRM55	6.1X5.3	1k						68000pF	0.22μF					
		630							0.15μF	0.47μF				
		250								0.68μF	2.2μF			
		100									4.7μF	22μF		
		63									4.7μF	22μF		
		50									4.7μF	33μF		
		35									10μF	47μF		
		25										15μF	68μF	

Capacitors

Low ESL Type

■ LW Reversed Type



LLL

General

Low
ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
LLL15	0.5X1.0 <0204>	6.3							0.10μF	0.22μF			
		4							0.47μF	1.0μF			
LLL1U	0.6X1.0 <02404>	4									4.3μF		
LLL18	0.8X1.6 <0306>	50					2200pF	4700pF					
		25					10000pF	22000pF					
		16					22000pF	47000pF					
		10						0.10μF	0.22μF				
		4						0.22μF	2.2μF				
LLL21	1.25X2.0 <0508>	50					10000pF	22000pF					
		25					22000pF	0.10μF					
		16					47000pF	0.22μF					
		10						0.22μF	1.0μF				
		6.3							0.47μF				
		4							1.0μF	2.2μF			
LLL31	1.6X3.2 <0612>	50					10000pF	0.10μF					
		25					47000pF	0.47μF					
		16						0.22μF	1.0μF				
		10						0.47μF	2.2μF				
		6.3							2.2μF	10μF			

■ Controlled ESR Type



LLR

General

Low
ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	ESR (mΩ)				Capacitance
			100	220	470	1000	
LLR18	0.8X1.6 <0306>	4					1.0μF

■ 8 Terminal Type



LLA

General

Low
ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
LLA18	1.6X0.8 <0603>	4							0.10μF	2.2μF			
LLA21	2.0X1.25 <0805>	25						10000pF	47000pF				
		16						47000pF	0.22μF				
		10							0.22μF	0.47μF			
		6.3							0.47μF	1.0μF			
		4								1.0μF	4.7μF		
LLA31	3.2X1.6 <1206>	16							0.22μF	1.0μF			
		10							0.47μF	2.2μF			
		6.3								1.0μF	2.2μF		

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■ 10 Terminal Type



LLM

General

Low ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
LLM21	2.0X1.25 <0805>	6.3							0.22μF	0.47μF			
		4								1.0μF			
LLM31	3.2X1.6 <1206>	16							0.10μF	0.22μF			
		10								0.47μF			
		6.3									2.2μF		

■ 3 Terminal Low ESL Type



NFM

General

Low ESL

EMI FIL®

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
NFM15	1.0X0.5 <0402>	16					2200pF		47000pF				
		10					2200pF		0.22μF				
		6.3							0.10μF	0.47μF			
		4							0.47μF	1.0μF			
		2.5								4.3μF	9.1μF		
NFM18	1.6X0.8 <0603>	16				100pF			0.10μF				
		10								2.2μF			
		6.3							0.22μF	2.2μF			
NFM21	2.0X1.25 <0805>	50				220pF		22000pF					
		25							0.10μF				
		16							0.22μF	1.0μF			
		10							1.0μF	4.7μF			
		6.3							2.2μF	10μF			
NFM3D	3.2X1.25 <1205>	50				220pF		22000pF					
NFM31	3.2X1.6 <1206>	100					10000pF		0.10μF				
		50					10000pF		0.10μF				
		6.3									27μF		
NFM41	4.5X1.6 <1806>	100				470pF		22000pF					
		50							0.20μF	1.5μF			
		25								1.5μF			

Chip Monolithic Ceramic Capacitors For Automotive

■ Meet AEC-Q200 for Infotainment

■ Temperature Compensating Type



GRT

Info-tainment

AEC-Q200

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRT15	1.0X0.5 <0402>	100		1.0pF		100pF							
		50		1.0pF			1000pF						

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Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRT15	1.0X0.5 <0402>	25			10pF		1000pF						
GRT18	1.6X0.8 <0603>	100		1.0pF			1500pF						
		50		1.0pF			10000pF						
		25				560pF	10000pF						
GRT21	2.0X1.25 <0805>	50					18000pF	22000pF					
GRT31	3.2X1.6 <1206>	50						56000pF	0.10μF				
		25							0.10μF	0.12μF			
		16								0.12μF			

High Dielectric Constant Type



GRT



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRT03	0.6X0.3 <0201>	35								0.10μF			
		25				100pF			0.10μF				
		16					10000pF		0.10μF				
		10					2200pF		0.22μF				
		6.3					2200pF		1.0μF				
		4							0.22μF	1.0μF			
GRT15	1.0X0.5 <0402>	50				220pF			0.10μF				
		35							0.22μF	1.0μF			
		25					10000pF		2.2μF				
		16					10000pF		2.2μF				
		10							0.22μF	2.2μF			
		6.3					22000pF		4.7μF				
		4							1.0μF	4.7μF			
		2.5									10μF		
GRT18	1.6X0.8 <0603>	50							1.0μF	2.2μF			
		35							1.0μF	4.7μF			
		25							1.0μF	10μF			
		16							1.0μF	10μF			
		10							1.0μF	10μF			
		6.3							1.0μF	22μF			
		4							1.0μF	22μF			
		2.5									22μF		
GRT21	2.0X1.25 <0805>	50							1.0μF	4.7μF			
		35							2.2μF	4.7μF			
		25							2.2μF	22μF			
		16							2.2μF	22μF			
		10							4.7μF	22μF			
		6.3							4.7μF	47μF			
		4									47μF		
GRT31	3.2X1.6 <1206>	50							2.2μF	10μF			
		35								10μF			
		25								10μF	22μF		
		16									22μF		
		10								22μF	47μF		
		6.3								22μF	47μF		
		4								22μF	47μF		
GRT32	3.2X2.5 <1210>	50								4.7μF			
		25									10μF		
		16										47μF	
		10										47μF	
		6.3									33μF	100μF	

For Automotive (General Purpose)

Temperature Compensating Type



GCM



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCM15	1.0X0.5 <0402>	50		1.0pF	1000pF								
GCM18	1.6X0.8 <0603>	100		1.0pF	10000pF								
		50		1.0pF	10000pF								
GCM21	2.0X1.25 <0805>	250			10pF	5600pF							
		100				100pF	3300pF						
		80						15000pF	22000pF				
		63						15000pF	22000pF				
		50						4700pF	22000pF				
GCM31	3.2X1.6 <1206>	1k			10pF	1000pF							
		630			10pF	4700pF							
		250			10pF	15000pF							
		100						3900pF	10000pF				
		80							33000pF				
GCM32	3.2X2.5 <1210>	1k					1200pF	2200pF					
		630						1200pF	10000pF				
GCM43	4.5X3.2 <1812>	1k					2700pF	4700pF					
		630							12000pF	22000pF			
GCM55	5.7X5.0 <2220>	1k						5600pF	10000pF				
		630							27000pF	47000pF			

High Dielectric Constant Type



GCM



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCM03	0.6X0.3 <0201>	25				100pF		1500pF					
		16				330pF		3300pF					
		10						4700pF		10000pF			
GCM15	1.0X0.5 <0402>	100				220pF		4700pF					
		50				220pF			0.10μF				
		25					10000pF		0.10μF				
		16						33000pF		0.22μF			
		10							0.47μF	1.0μF			
GCM18	1.6X0.8 <0603>	100					1000pF		22000pF				
		50							0.22μF				
		25							0.22μF	1.0μF			
		16							0.33μF	1.0μF			
		6.3								2.2μF			
GCM21	2.0X1.25 <0805>	100					6800pF		1.0μF				
		50							0.22μF	1.0μF			
		35							0.68μF	4.7μF			
		25							0.15μF	4.7μF			
		16							0.68μF	4.7μF			
		10								2.2μF	10μF		
		6.3									10μF		
GCM31	3.2X1.6 <1206>	100							0.22μF	2.2μF			
		50							0.33μF	4.7μF			
		25								4.7μF	10μF		

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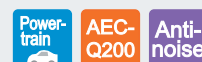
Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCM31	3.2X1.6 <1206>	16									4.7μF	10μF		
		10									10μF	22μF		
		6.3										22μF		
GCM32	3.2X2.5 <1210>	100									4.7μF			
		50								4.7μF	10μF			
		35									10μF			
		25									10μF			
		16									10μF	22μF		
		10										22μF		
		6.3										47μF		

High Effective Capacitance & High Ripple Resistance



GC3



Series	LXW (mm) ◀Size Code (inch)▶	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GC321	2.0X1.25 <0805>	250						10000pF	22000pF				
GC331	3.2X1.6 <1206>	630						10000pF	15000pF				
		450						10000pF	47000pF				
		250						33000pF	68000pF				
GC332	3.2X2.5 <1210>	630						22000pF	47000pF				
		450						68000pF	0.10μF				
		250						0.10μF	0.15μF				
GC343	4.5X3.2 <1812>	630						68000pF					
		450						0.15μF					
		250						0.22μF	0.33μF				
GC355	5.7X5.0 <2220>	630						0.10μF	0.22μF				
		450						0.22μF	0.47μF				
		250						0.47μF	1.0μF				

Specially Designed Product to Reduce Shorts



GCD



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCD18	1.6X0.8 <0603>	100					1000pF	22000pF					
		50					1000pF	22000pF					
		25						27000pF	47000pF				
GCD21	2.0X1.25 <0805>	100					1000pF	0.10μF					
		50						15000pF	0.10μF				

Specially Designed Product to Reduce Shorts & Resin Electrode Product



GCE



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCE18	1.6X0.8 <0603>	100					1000pF		22000pF					
		50					1000pF		22000pF					

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Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCE18	1.6X0.8 <0603>	25						27000pF	47000pF				
GCE21	2.0X1.25 <0805>	100				220pF			0.10μF				
		50						15000pF	0.10μF				

Limited to Conductive Glue Mounting

Temperature Compensating Type



GCG



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCG15	1.0X0.5 <0402>	50				120pF	470pF						
GCG18	1.6X0.8 <0603>	50			10pF		2200pF						
GCG21	2.0X1.25 <0805>	50					1000pF	10000pF					

High Dielectric Constant Type



GCG



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCG15	1.0X0.5 <0402>	50				220pF	4700pF						
		25					5600pF	10000pF					
		16						15000pF	0.10μF				
GCG18	1.6X0.8 <0603>	100				1000pF	0.10μF						
		50				220pF	0.22μF						
		25				1000pF	0.47μF						
		16						68000pF	1.0μF				
		10								2.2μF			
		6.3								2.2μF			
		GCG21	2.0X1.25 <0805>	100					10000pF				
GCG21	2.0X1.25 <0805>	50					18000pF	1.0μF					
		35							0.68μF	1.0μF			
		25						39000pF	1.0μF				
		16							0.33μF	4.7μF			
		10									10μF		
		6.3									10μF		
		GCG31	3.2X1.6 <1206>	50						0.22μF	0.33μF		
GCG31	3.2X1.6 <1206>	25						0.15μF	10μF				
		16							0.68μF	4.7μF			
		6.3									22μF		
GCG32	3.2X2.5 <1210>	50									10μF		
		35									10μF		
		25								3.3μF	10μF		
		16								6.8μF	10μF		
		6.3										47μF	

Capacitors

Resin External Electrode Type



GCJ



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCJ18	1.6X0.8 <0603>	100					1000pF		0.10μF					
		50					1000pF		0.22μF					
		35						33000pF	68000pF					
		25					1000pF		1.0μF					
		16						10000pF	0.47μF					
		10							0.12μF	0.22μF				
		6.3								2.2μF	4.7μF			
GCJ21	2.0X1.25 <0805>	250					1000pF	22000pF						
		100				220pF		1.0μF						
		50				330pF		1.0μF						
		35						0.12μF	0.47μF					
		25				470pF		2.2μF						
		16						0.27μF	4.7μF					
		10							2.2μF	10μF				
GCJ31	3.2X1.6 <1206>	1k					1000pF	10000pF						
		630					1000pF	22000pF						
		250						15000pF	0.10μF					
		100							0.10μF	1.0μF				
		50							0.27μF	4.7μF				
		35							0.56μF	1.0μF				
		25							0.12μF	10μF				
		16							1.5μF	10μF				
		10								6.8μF	22μF			
GCJ32	3.2X2.5 <1210>	6.3									22μF			
		1k						15000pF	22000pF					
		630						6800pF	47000pF					
		250						68000pF	0.22μF					
		100							2.2μF	4.7μF				
		50							4.7μF	10μF				
		25								4.7μF				
		16								6.8μF	22μF			
GCJ43	4.5X3.2 <1812>	6.3									47μF			
		1k						33000pF	47000pF					
		630						33000pF	0.10μF					
		250							0.15μF	0.47μF				
GCJ55	5.7X5.0 <2220>	1k						68000pF	0.10μF					
		630							0.10μF	0.22μF				
		250							0.33μF	1.0μF				

Metal Terminal Type

High Effective Capacitance & High Ripple Resistance



KC3



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KC355	6.1X5.3	630							0.10μF	1.2μF				
		450							0.22μF	2.2μF				
		250							0.47μF	2.2μF				

Safety Standard Certified Type MF (IEC60384-14 X1/Y2 Class)



KCA



Series	LXW (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
KCA55	6.1X5.3	AC250 (r.m.s.)				100pF		10000pF					

High Effective Capacitance



KCM



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KCM55	6.1X5.3	100									4.7μF	22μF		
		63									4.7μF	22μF		
		50									4.7μF	33μF		
		35									10μF	47μF		
		25									15μF	68μF		

3 Terminal Low ESL Type for Automotive



NFM



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
NFM21	2.0X1.25 <0805>	50				220pF			22000pF				
		16								1.0μF			
		10							0.10μF	0.47μF			
NFM31	3.2X1.6 <1206>	100						10000pF					
		50						10000pF	0.10μF				

Chip Monolithic Ceramic Capacitors For Medical Devices

For Implanted Medical Devices

Temperature Compensating Type



GCH

Medical Device

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCH15	1.0X0.5 <0402>	50		1.0pF			1000pF						
GCH18	1.6X0.8 <0603>	100		1.0pF			1500pF						
		50		1.0pF			3300pF						
GCH21	2.0X1.25 <0805>	100				100pF			3300pF				
		50					1000pF			22000pF			
GCH31	3.2X1.6 <1206>	100					2200pF			10000pF			
		50						4700pF			47000pF		

High Dielectric Constant Type



GCH

Medical Device

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCH15	1.0X0.5 <0402>	100				220pF	4700pF						
		50				220pF	0.10μF						
		25					10000pF	47000pF					
		16					47000pF	0.22μF					
		10						0.10μF	1.0μF				
GCH18	1.6X0.8 <0603>	100				1000pF	0.10μF						
		50				1000pF	0.22μF						
		25					47000pF	1.0μF					
		16					0.10μF	1.0μF					
		10							2.2μF				
		6.3							2.2μF				
GCH21	2.0X1.25 <0805>	100					10000pF	1.0μF					
		50					47000pF	1.0μF					
		35						1.0μF	4.7μF				
		25						0.22μF	4.7μF				
		16						1.0μF	4.7μF				
		10							2.2μF	10μF			
		6.3								10μF			
GCH31	3.2X1.6 <1206>	100						0.10μF	1.0μF				
		50						0.47μF	2.2μF				
		25							2.2μF	4.7μF			
		16							4.7μF	10μF			
		10								10μF			
GCH32	3.2X2.5 <1210>	100								2.2μF			
		50							1.0μF	4.7μF			
		25								4.7μF			
		16								10μF			
		10								22μF			
		6.3								47μF			

Lead Type Ceramic Capacitors For General Purpose

Disc Type (Safety Standard Certified Type)



DE1/DE2/DEJ

Type KX (Reinforced Insulation Type) -IEC60384-14 X1/Y1 Class

General

Safety standard

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DE11X	9.0	AC250 (r.m.s.)			10pF	68pF							
DE1B3	7.0 to 8.0	AC300 (r.m.s.)				100pF	680pF						
	7.0 to 8.0	AC250 (r.m.s.)				100pF	680pF						
DE1E3	7.0 to 12.0	AC300 (r.m.s.)					1000pF	4700pF					
	7.0 to 12.0	AC250 (r.m.s.)					1000pF	4700pF					

Type KY (Basic Insulation Type) -IEC60384-14 X1/Y2 Class

General

Safety standard

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DE21X	8.0	AC250 (r.m.s.)			10pF	68pF							
DE2B3	7.0 to 8.0	AC300 (r.m.s.)				100pF	680pF						
	7.0 to 8.0	AC250 (r.m.s.)				100pF	680pF						
DE2E3	7.0 to 10.0	AC300 (r.m.s.)					1000pF	4700pF					
	7.0 to 10.0	AC250 (r.m.s.)					1000pF	4700pF					
DE2F3	14.0	AC300 (r.m.s.)						10000pF					
	14.0	AC250 (r.m.s.)						10000pF					

The Electrical Appliance and Material Safety Law of Japan

General

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DEJE3	7.0 to 11.0	AC250 (r.m.s.)					1000pF	4700pF					
DEJF3	8.0 to 11.0	AC250 (r.m.s.)					4700pF	10000pF					

Disc Type (Ultra-high-voltage)



DHR

General

Deflecting crack

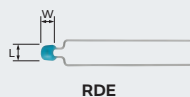
Soldering crack

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DHR4E	8.0 to 18.0	15k				100pF	1000pF						
	8.0 to 16.0	12k				100pF	1000pF						
	8.0 to 15.0	10k				100pF	1000pF						
DHRB3	8.0 to 18.0	15k				100pF	1000pF						
	8.0 to 16.0	12k				100pF	1000pF						
	8.0 to 15.0	10k				100pF	1000pF						

Capacitors

Radial Lead Type

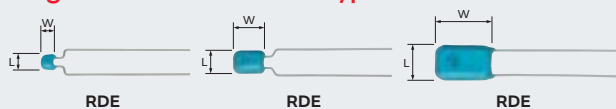
Temperature Compensating Type



General Deflecting crack Soldering crack Anti-noise

Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RDE5C	4.0X3.5	100		1.0pF	1500pF									
		50		1.0pF	3900pF									
	4.5X3.5	100				1800pF 3300pF								
		50					4700pF 22000pF							
	5.0X3.5	100		1.0pF	3300pF									
		50		1.0pF	22000pF									
	5.5X4.0	1k				100pF 1000pF								
		630				10pF 3300pF								
		250				10pF 15000pF								
		100					3900pF 22000pF							
		50					27000pF 56000pF							
RDE7U	4.5X3.5	250				100pF 4700pF								
	5.5X4.0	1k				10pF 1000pF								
		630				10pF 4700pF								
		250					6800pF 22000pF							
	5.5X5.0	1k				1500pF 2200pF								
		630					6800pF 10000pF							
		250					33000pF 47000pF							
	7.5X5.5	1k					3300pF 4700pF							
		630					15000pF 22000pF							
	7.5X8.0	1k					6800pF 10000pF							
		630					33000pF 47000pF							
	7.7X13.0	1k						20000pF						
		630							94000pF					

High Dielectric Constant Type



General Deflecting crack Soldering crack Anti-noise

Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RDEC7	4.0X3.5	25							0.22μF	1.0μF			
	4.5X3.5	25								2.2μF			
	5.0X3.5	25						0.22μF	2.2μF				
	5.5X4.0	50								4.7μF			
		25								4.7μF	10μF		
	5.5X5.0	100							1.5μF	2.2μF			
		50									10μF		
		25									22μF		
	5.5X7.5	100								4.7μF			
		50									22μF		
		25									47μF		
RDED7	5.5X4.0	630					10000pF	15000pF					
		450					10000pF	47000pF					
		250					33000pF	68000pF					
	5.5X5.0	630					22000pF	47000pF					
		450					68000pF	0.10μF					
		250					0.10μF	0.15μF					

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Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
RDED7	7.5X5.5	630								68000pF					
		450								0.15μF					
		250							0.22μF	0.33μF					
	7.5X7.5	450							0.22μF	0.56μF					
		250							0.47μF	1.0μF					
	7.5X8.0	630							0.10μF	0.27μF					
	7.7X12.5	450								1.0μF	1.2μF				
		250									2.2μF				
	7.7X13.0	630								0.47μF	0.56μF				
RDER7	4.0X3.5	100				220pF		22000pF							
		50				220pF		0.1μF							
		25						0.1μF							
	4.5X3.5	500					1000pF		10000pF						
		250					1000pF		22000pF						
		100							33000pF		0.47μF				
		50							0.15μF		0.47μF				
	5.0X3.5	100					220pF		0.47μF						
		50					220pF		0.47μF						
		25							0.1μF						
	5.5X4.0	1k					470pF		10000pF						
		630						1000pF		22000pF					
		500							15000pF		47000pF				
		250							33000pF		0.10μF				
		100							0.15μF		1.0μF				
	5.5X5.0	50								0.68μF		2.2μF			
		1k							15000pF		22000pF				
		630							33000pF		47000pF				
		500							68000pF		0.10μF				
		250							0.15μF		0.22μF				
	7.5X5.5	50										3.3μF			
		1k							33000pF		47000pF				
		630							68000pF		0.10μF				
		500							0.15μF		0.22μF				
	7.5X7.5	250							0.33μF		0.47μF				
		500							0.33μF		0.47μF				
	7.5X8.0	250							0.68μF		1.0μF				
		1k							68000pF		0.10μF				
	7.7X12.5	630							0.15μF		0.22μF				
		500							0.68μF		1.0μF				
	7.7X13.0	250									2.2μF				
		1k								0.22μF					
		630								0.47μF					

Capacitors

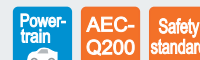
Lead Type Ceramic Capacitors For Automotive

Safety Standard Certified for Automotive

Type KJ -IEC60384-14 X1/Y2 Class



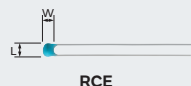
DE6



Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DE6B3	8.0 to 9.0	AC300 (r.m.s.)				100pF	680pF						
DE6E3	7.0 to 12.0	AC300 (r.m.s.)					1000pF	4700pF					

Powertrain/Safety (AEC-Q200)

Temperature Compensating Type



RCE



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RCE5C	3.6X3.5	100		1.0pF	1500pF								
		50		1.0pF	3900pF								
	4.0X3.5	100				1800pF	3300pF						
		50					4700pF	22000pF					
	5.5X4.0	1k				100pF	1000pF						
		630			10pF	3300pF							
		250			10pF	15000pF							
		100					3900pF	10000pF					
		50						27000pF	56000pF				
RCE7U	4.0X3.5	250				100pF	4700pF						
	5.5X4.0	1k			10pF	1000pF							
		630			10pF	4700pF							
		250					6800pF	10000pF					
	5.5X5.0	1k					1500pF	2200pF					
		630					6800pF	10000pF					
	7.5X5.5	1k					3300pF	4700pF					
		630					15000pF	22000pF					
	7.5X8.0	1k					6800pF	10000pF					
		630					33000pF	47000pF					
	7.7X13.0	1k						20000pF					
		630							94000pF				

High Dielectric Constant Type



RCE



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RCEC7	4.0X3.5	50									1.0μF		
	5.5X4.0	50									4.7μF		
	5.5X5.0	100								1.5μF	2.2μF		
		50									10μF		
	5.5X7.5	100									4.7μF		

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Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RCEC7	5.5X7.5	50										22μF	
RCER7	3.6X3.5	100				220pF	22000pF						
		50				220pF	0.10μF						
		25						0.10μF	0.22μF				
	4.0X3.5	250				1000pF	22000pF						
		100					33000pF	0.33μF					
		50						0.15μF	0.47μF				
		25						0.33μF	1.0μF				
	5.5X4.0	1k				1000pF	10000pF						
		630				1000pF	22000pF						
		250					33000pF	0.10μF					
		100						0.15μF	1.0μF				
		50							0.68μF	2.2μF			
		25							1.5μF	4.7μF			
	5.5X5.0	1k					15000pF	22000pF					
		630					33000pF	47000pF					
		250						0.15μF	0.22μF				
		50								3.3μF	4.7μF		
		25									10μF		
	5.5X7.5	50									10μF		
		25									22μF		
		7.5X5.5	1k					33000pF	47000pF				
	630							68000pF	0.10μF				
	250								0.33μF	0.47μF			
	7.5X7.5	250								0.68μF	1.0μF		
	7.5X8.0	1k						68000pF	0.10μF				
		630						0.15μF	0.22μF				
	7.5X12.5	250									2.2μF		
	7.7X13.0	1k								0.22μF			
		630								0.47μF			

Powertrain/Safety (AEC-Q200) 150°C Max.

Temperature Compensating Type



RH



Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RHE5G	3.6X3.5	100				100pF	1500pF						
		50				100pF	3900pF						
	4.0X3.5	100					1800pF	3300pF					
		50						4700pF	10000pF				

High Dielectric Constant Type



RH



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RHEL8	3.6X3.5	100				220pF	22000pF							
		50				220pF	0.10μF							
		25							0.10μF	0.22μF				

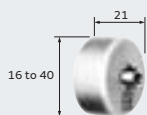
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Capacitors

Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RHEL8	4.0X3.5	100						33000pF	0.10μF				
		50							0.15μF 0.33μF				
		25							0.33μF 1.0μF				
	5.5X4.0	100							0.15μF 0.22μF				
		50							0.47μF 2.2μF				
		25								1.5μF 4.7μF			
	5.5X5.0	50								3.3μF 4.7μF			
		25									10μF		
	5.5X7.5	50									10μF		
25											22uF		

High Voltage Ceramic Capacitors

High Voltage AC Rated Type



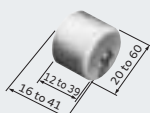
DHK

(in mm)

General

Series	LXW (mm)	Rated Voltage (V)	0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DHK3V	-	AC10k (r.m.s.)				100pF	1000pF						

Ultra-high-voltage



DHS

(in mm)

General

Series	LXW (mm)	Rated Voltage (Vdc)	0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DHS4E	-	40k				140pF	2000pF						
		30k				190pF	2700pF						
		20k				280pF	4000pF						
		15k				370pF	5300pF						
		10k				560pF	8000pF						
DHSF4	-	40k				340pF	2700pF						
		30k				460pF	3600pF						
		20k				600pF	4800pF						

Polymer Aluminum Electrolytic Capacitors



ECAS

General

Effective Cap

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)													
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ			
ECAS	7.3X4.3	25									10μF	22μF				
		16									6.8μF	47μF				
		12.5									10μF	100μF				
		10									10μF	150μF				
		6.3									10μF	330μF				
		4										68μF	330μF			
		2.5											330μF	470μF		
		2											100μF	560μF		

Trimmer Capacitors

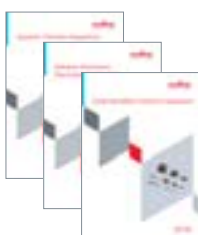
Trimmer Capacitors are variable capacitance capacitors, used for adjusting characteristics of electronic equipment.

Mounting Method	Soldering Method	Series	Max. Height	Size (WXL)	Rated Voltage	Operating Temperature Range	Remarks
Surface Mounting	Reflow Soldering Methods	 TZR1	0.9mm max.	1.5X1.7mm	25V	-25 to 85°C	
		 TZY2	1.25mm max.	2.5X3.2mm	25V	-25 to 85°C	
		 TZC3	1.7mm max.	3.2X4.5mm	100V	-25 to 85°C	
		 TZW4	2.6mm max.	4.2X5.2mm	250V	-55 to 125°C	for High Frequency Power
		 TZB4_AA	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
		 TZB4_BA	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
	Flow Soldering Methods	 TZB4_AB	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
		 TZB4_BB	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film

Please refer to p. 74 for Supercapacitors (EDLC).

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Chip Monolithic Ceramic Capacitors Cat. No. C02E
- Chip Monolithic Ceramic Capacitors for Automotive Cat. No. C03E
- Safety Standard Certified Ceramic Capacitors/ High Voltage Ceramic Capacitors Cat. No. C85E
- Ceramic Trimmer Capacitors Cat. No. T13E
- Polymer Aluminum Electrolytic Capacitors Cat. No. C90E
- Radial Lead Type Monolithic Ceramic Capacitors Cat. No. C49E
- High Performance Supercapacitors (EDLC) DMF Series Cat. No. O83E
- High Performance Supercapacitors (EDLC) DMT Series Cat. No. O84E

Noise Suppression Products/ EMI Suppression Filters

Broad lineup of Noise Suppression Products and
EMI Suppression Filters

Summary

Using Murata's ceramic processing technology and unique materials, we offer a variety of Noise Suppression Products and EMI Suppression Filters.

Lineup

- EMI (chip and lead type)
- Noise Suppression Products for Automotive
- ESD Protection Devices ● AC Line Filters ● Ferrite Cores



Noise Suppression Filters (Chip Ferrite Bead)

		Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz						Effective Frequency Range (Hz) (For Reference Only)							
					10	100			1000		10k	100k	1M	10M	100M	1G	10G	
For General Band Noise	Universal Type [Power Lines / Signal Lines]	 BLM02AX	01005 (0402)	750	10	70	120	240										
		 BLM03AX	0201 (0603)	1000	10	80	120	240	600	1000								
		 BLM15AX	0402 (1005)	1740	10	30	70	120	220	600	1000							
	For General Signal Lines	 BLM03AG	0201 (0603)	-	10	80 70	120	240	600	1000								
		 BLM15AG	0402 (1005)	-	10	70	120	220	600	1000								
		 BLM18AG	0603 (1608)	-				220 120 150	330	470 600	1000							
		 BLM21AG	0805 (2012)	-				220 120 150	330	470 700 900 600 800	1000							
		 BLM18TG	0603 (1608)	-				120	220	600	1000							
		 BLA2AA (4 circuits array)	0804 (2010)	-				120	220	600	1000							
		 BLA31AG (4 circuits array)	1206 (3216)	-	30	60	120	220	600	1000								
		Signal Lines Type	 BLM02BX*	01005 (0402)	-		120	150	240									
	 BLM03BX		0201 (0603)	-						1800 1000								
	 BLM03B		0201 (0603)	-	10	22	33 47	56 75	80 120	240	600 470							
	 BLM15B		0402 (1005)	-	5	10	22	33 47	75	120	220	240	600 470	1800 1000				
	 BLM18B		0603 (1608)	-	5	10	22	75 47 60	140 120	200 250 150 220	330 300	600 420	1500 2200 1000 1800	2500				
	 BLM21B		0805 (2012)	-	5			75 60	200 250 120 150	330 420 220 300	470 501 350 600	1500 2200 2200 2700	1000 1800	2250				
	 BLA2AB (4 circuits array)		0804 (2010)	-	10	22	47	75	120	220	600 470	1000						
	 BLA31BD (4 circuits array)		1206 (3216)	-					120	220	600 470	1000						
	For Digital Interface Lines		 BLM18RK	0603 (1608)	-					120	220	600 470	1000					
			 BLM21RK	0805 (2012)	-					120	220	600 470	1000					

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Continued on the following page. ↗

Noise Suppression Products/EMI Suppression Filters

			Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz			Effective Frequency Range (Hz) (For Reference Only)						
						10	100	1000	10k	100k	1M	10M	100M	1G	10G
For General Band Noise	Power Lines Type		BLM02PX*	01005 (0402)	1100	10 (1.1A)22 (0.75A) 60 (0.5A) 33 (0.55A)									
			BLM03PX*	0201 (0603)	1800	33 (1.5A) 22 (1.8A) 80 (1A)									
			BLM03PG	0201 (0603)	900	33 (0.75A) 22 (0.9A)									
			BLM15KD*	0402 (1005)	3800	30 (3.1A) 20 (3.8A) 120 (1.5A)									
			BLM15PX*	0402 (1005)	3000	60 (2.5A) 120 (2A) 220 (1.4A) 470 (1A) 33 (3A) 80 (2.3A) 180 (1.5A) 330 (1.2A) 600 (0.9A)									
			BLM15PD*	0402 (1005)	2200	60 (1.7A) 120 (1.3A) 30 (2.2A) 80 (1.5A)									
			BLM15PG	0402 (1005)	1000	10 (1A)									
			BLM18PG*	0603 (1608)	3000	33 (3A) 120 (2A) 220 (1.4A) 470 (1A) 30 (1A) 60 (0.5A) 180 (1.5A) 330 (1.2A)									
			BLM21PG*	0805 (2012)	6000	30 (4A) 220 (2A) 22 (6A) 60 (3.5A) 120 (3A) 330 (1.5A)									
			BLM31PG*	1206 (3216)	6000	50 (3.5A) 390 (2A) 33 (6A) 120 (3.5A) 600 (1.5A)									
			BLM41PG*	1806 (4516)	6000	75 (3.5A) 470 (2A) 60 (6A) 180 (3.5A) 1000 (1.5A)									
			BLM18SN* (Low DC Resistance Type)	0603 (1608)	8000	22 (8A)									
			BLM18KG* (Low DC Resistance Type)	0603 (1608)	6000	30 (5A) 70 (3.5A) 220 (2.2A) 470 (1.5A) 26 (6A) 100 (3A) 120 (3A) 330 (1.7A) 600 (1.3A)									
			BLM18SD* (Low DC Resistance Type)	0603 (1608)	6000	22 (6A)									
			BLM18SG* (Low DC Resistance Type)	0603 (1608)	6000	33 (6A) 120 (3A) 330 (1.5A) 26 (6A) 70 (4A) 220 (2.5A)									
			BLM21SN* (Low DC Resistance Type)	0805 (2012)	8500	30 (8.5A)									
			BLM31SN* (Low DC Resistance Type)	1206 (3216)	12000	50 (12A)									
			BLE32PN	1220 (3225)	10000	30 (10A)									
For GHz Band Noise	Universal Type [Power Lines / Signal Lines]		BLM03EB*	0201 (0603)	600	25 (0.6A) 50 (0.4A)									
			BLM15EG*	0402 (1005)	1500	220 (0.7A) 120 (1.5A)									
			BLM15EX*	0402 (1005)	1800	220 (1.3A) 120 (1.8A) 330 (1.1A) 470 (0.95A)									
			BLM18EG*	0603 (1608)	2000	120 (2A) 330 (0.5A) 470 (0.5A) 100 (2A) 220 (2A/1A) 390 (0.5A) 600 (0.5A)									
			BLM18HE*	0603 (1608)	800	1000 (0.6A) 600 (0.8A) 1500 (0.5A)									
	Signal Lines Type		BLM03HG	0201 (0603)	-	1000 600 1200									
			BLM03HD	0201 (0603)	-	600 1500 330 470 1000 1800									
			BLM03HB	0201 (0603)	-	190									
			BLM15HG	0402 (1005)	-	600 1000									
			BLM15HD	0402 (1005)	-	600 1000 1800									
			BLM15HB	0402 (1005)	-	120 220									
			BLM18HG	0603 (1608)	-	600 470 1000									
			BLM18HD	0603 (1608)	-	600 470 1000									
			BLM18HB	0603 (1608)	-	120 220 330									
			BLM18HK	0603 (1608)	-	330 600 470 1000									
For High-GHz Band Noise	Signal Lines Type		BLM15GG	0402 (1005)	-	220 470									
			BLM15GA	0402 (1005)	-	75									
			BLM18GG	0603 (1608)	-	470									

		Series	Size Code inch (mm)	Max. Rated Current (A)	Impedance (Ω) at 100MHz			Effective Frequency Range (Hz) (For Reference Only)						
					10	100	1000	10k	100k	1M	10M	100M	1G	10G
For General Band Noise	Large Current Type Power Lines Type	BLT5BPT*	2020 (5050)	11	68 (11A)									

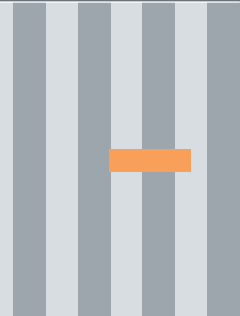
* The derating of rated current is required for some items according to the operating temperature.
For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Feed Through Chip EMI Filters)

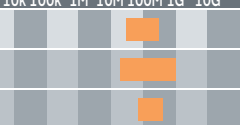
	Series	Size Code inch (mm)	Max. Rated Current (mA)	Capacitance (F)							Effective Frequency Range (Hz) (For Reference Only)
				10p	100p	1000p	10000p	0.1μ	1μ	10μ	
Universal Type [Power Lines / Signal Lines]	 NFE31PT	1206 (3216)	6000			470	2200				
	 NFE61PT	2706 (6816)	2000	22 47 100 220	1500						
					100 360 1000						
				33 68 180	680	4700					

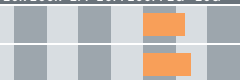
Noise Suppression Filters (Chip LC Filters)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Cut-off Frequency (MHz)							Effective Frequency Range (Hz) (For Reference Only)
				10		100		500			
Signal Lines Type	 NFL15ST	0402 (1005)	-				150 200 300 500				
	 NFL18ST	0603 (1608)	-			50 70 100	200 300 500				
	 NFL18SP	0603 (1608)	-				150 200 300 500				
	 NFL21SP	0805 (2012)	-	10	20	50 70 100 150 200 300 400	500				
	 NFA18SL (4 circuits array)	0603 (1608)	-			50	130 180 220 300 350 480				
	 NFA18SD (4 circuits array)	0603 (1608)	-				200 180				
	 NFA21SL (4 circuits array)	0805 (2012)	-			50 80	280 310 200 300 330				
	 NFW31SP	1206 (3216)	-	10	20	50	100 150 200 300 400 500				

Noise Suppression Filters (Chip EMIFIL®)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 1MHz								Effective Frequency Range (Hz) (For Reference Only)											
				1	10				100				1000				10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFZ5BBW_LN10	2020 (5050)	-		29	6.7	10	14	22	45	61	140											
Universal Type [Power Lines / Signal Lines]	 NFZ2HBM_10	1008 (2520)	1200	15	29	4.5	7.6	11	17	31	52	97	60										
	 NFZ32BW_10*	1210 (3225)	2550			6.1	8.4	11	17	24	33												
	 NFZ32BW_10*	1210 (3225)	2550			3.6	7.4	9.0	15	21	32	42	70	150	290	620	880						
	 NFZ32BW_11*	1210 (3225)	2900			3.3	6.8	8.4	9.8	12	19	21	31	52	65	100	150						

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz							Effective Frequency Range (Hz) (For Reference Only)
				100				1000			
Signal Lines Type	 NFZ32SW_10	1210 (3225)	-			300		900			
Universal Type [Power Lines / Signal Lines]	 NFZ18SM_10	0603 (1608)	1250	120		250		500 700			
	 NFZ2MSM_10	0806 (2016)	4000	100		180 300		600			

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 900MHz			Impedance (Ω) at 1.7GHz			Effective Frequency Range (Hz) (For Reference Only)
				100	1000	5000	100	1000	5000	
Signal Lines Type	 NFZ15SG_10	0402 (1005)	-		1500 4600			1200 1800		
	 NFZ15SG_11	0402 (1005)	-	150	770 2600		250	900 1450		
				100 330			160 540			

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Noise Suppression Filters (Chip Common Mode Choke Coils/ Chip Common Mode Noise Filters)

		Series	Size Code inch (mm)	Max. Rated Current (mA)	Common Mode Impedance (Ω) at 100MHz			Effective Frequency Range (Hz) (For Reference Only)					
					100	500	1000	100k	1M	10M	100M	1G	10G
Signal Lines Type	For Audio Lines	 DLM11G	0504 (1210)	-	600								
	For Ultra- High- Speed Signal Lines	 DLM0QSN	025020 (0605)	-	90								
		 DLM0NSN	03025 (0806)	-	90								
		 DLM11S	0504 (1210)	-	45 90								
		 NFP0R	018012 (0403)	-	(65)(90)								
		 NFP0Q	025020 (0605)	-	(65)(90)								
		 DLP0RSN	018012 (0403)	-	65 90								
		 DLP0QSN	025020 (0605)	-	65 90								
		 DLP0QSA	025020 (0605)	-	15 7 35								
		 DLP0NSC	03025 (0806)	-	28 90								
		 DLP0NSN	03025 (0806)	-	35 90 67 120								
		 DLP0NSA	03025 (0806)	-	15 7								
		 DLP11SN	0504 (1210)	-	67 90 120 160 200 280 330								
		 DLP11SA	0504 (1210)	-	35 90 67								
		 DLP11RN	0504 (1210)	-	45								
		 DLP11RB	0504 (1210)	-	15 40								
		 DLP11TB	0504 (1210)	-	80								
		 DLP31S	1206 (3216)	-	120 220 550								
		 DLP1NDN (2 circuits array)	05025 (1506)	-	35 90 67								
		 DLP2ADA (2 circuits array)	0804 (2010)	-	35 90 67								
		 DLP2ADN (2 circuits array)	0804 (2010)	-	90 120 160 200 280								
		 DLP31DN (2 circuits array)	1206 (3216)	-	90 130 200 320 440								
		 DLW21S	0805 (2012)	-	90 67 120 180 210 260 370 500 920								
		 DLW21H	0805 (2012)	-	90 67 120 180								
		 DLW31SN	1206 (3216)	-	90 160 260 600 1000 2200								
		 DLW43SH	1812 (4532)	-									
Universal Type [Power Lines / Signal Lines]		 DLW44S*	1515 (4040)	3100	(100) (250) (400) (850) (2200) (1700)(2400)								
		 DLW5AH/DLW5BS*	2014 / 2020 (5036) / (5050)	5000	(190) (350) (500) (800) (1500)(4000) (1000) (3000)								
		 DLW5AT*/DLW5BT*	2014 / 2020 (5036) / (5050)	6000	(50) (110) (230) (330) (500) (1000)(1400) (100)(150) (250) (400) (850)(1100) (2700)								

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

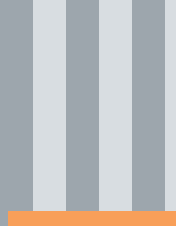
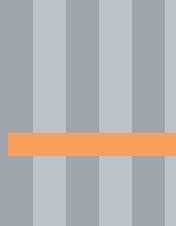
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Noise Suppression Products/EMI Suppression Filters

	Series	Size Code inch (mm)	Max. Rated Current (A)	Common Mode Impedance (Ω) at 10MHz				Effective Frequency Range (Hz) (For Reference Only)
				100	500	1000		
Large Current Type for Automotive Available	 PLT5BP*	2020 (5050)	5.6	100	200	300	500	
	 PLT10H*	-	18	45 100	400 500	900 1000		

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Common Mode Impedance (Ω) at 100MHz			Effective Frequency Range (Hz) (For Reference Only)
				100	500	1000	
Large Current Type for Automotive Available	 UCMH0907	3527 (9070)	5000		(700)		

Noise Suppression Filters (Block Type)

		Series	Height (mm)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range (Hz) (For Reference Only)
						10k 100k 1M 10M 100M 1G 10G
Power Lines Type	SMD Type	 BNX022*	3.1	50	10	
		 BNX023*	3.1	100	15	
		 BNX024*	3.5	50	15	
		 BNX025*	3.5	25	15	
		 BNX026*	3.5	50	15	
		 BNX027*	3.5	16	15	
		 BNX028*	3.5	16	15	
		 BNX029*	3.5	6.3	15	
	Lead Type	 BNX002	13 max.	50	10	
		 BNX003	13 max.	150	10	
		 BNX005	13.5 max.	50	15	
		 BNX012*	8.5 max.	50	15	
		 BNX016*	8.5 max.	25	15	

* The derating of rated current is required for some items according to the operating temperature.

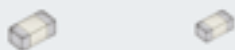
For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

ESD Protection Devices

Support ESD protection for various kinds of electronic devices.

Ceramic ESD Protection Devices LXES_A Series

Applying Murata's original ceramic technology for excellent ESD suppression performance and ultra-small capacitance value.



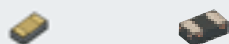
Silicon ESD Protection Devices LXES_B Series

Applying accumulated design technology for excellent ESD suppression performance.



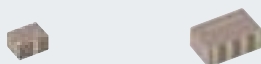
Silicon ESD Protection Devices LXES_T Series

Applying accumulated design technology for excellent ESD suppression performance.



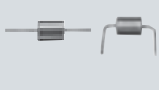
ESD Protection Devices with Common Mode Choke Coil LXES_D Series

Applying Murata's original ceramic technology for excellent ESD suppression performance, small capacitance value, and common mode filter performance.



Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Lead Type), Others

	Series							Effective Frequency Range (Hz) (For Reference Only) 10k 100k 1M 10M 100M 1G 10G						
Lead Type EMIFIL®	 BLL18AG	 BL01	 BL02	 BL03	 DSS1	 DSN9H	 DST9H							
EMIGUARD®	 VFC2H	 VFR3V	 VFS6V	 VFS9V										
AC Line Filters	Common Mode Choke Coil	 PLA10AN	 PLA10AH	 PLH10AN										
	Hybrid Common Mode Choke Coil	 PLY10AN	 PLY10AH	 PLY17BN										
Common Mode Choke Coils	 PLT09H													
Microwave Absorbers	 EA10	 EA20/21/30												
Ferrite Core	 FSRH	 FSRB	 FSRC	 FSSA										

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- EMI Suppression Filters (Lead Type EMIFIL®) Cat. No. C30E
- EMI Suppression Filters (for DC)/Chip Inductors for Automotive Cat. No. C51E
- EMI Suppression Filters (EMIFIL®) for AC Power Lines Cat. No. C09E
- Noise Suppression by EMIFIL® Digital Equipment Application Manual Cat. No. C33E
- Noise Suppression by EMIFIL® Application Guide Application Manual Cat. No. C35E
- Application Manual for Power Supply Noise Suppression and Decoupling for Digital ICs Cat. No. C39E
- Ferrite Core for EMI Suppression Microwave Absorber Cat. No. O63E

Inductors (Coils)

Broad lineup of Chip Inductors and Power Inductors

Summary

Murata's chip inductors are optimally designed, making full use of multiple construction techniques, such as the multilayer construction technique, film construction technique, and the wire wound construction technique according to the application, and realized small size and high-performance inductors. We offer an extensive lineup of inductors for power supplies to high frequency. In addition, newly adopted metal alloy material has extended the power inductor lineup.

Lineup

- Inductors for Power Lines ● RF Inductors
- Lineup



<http://psearch.en.murata.com/inductor/partnumber/>

WEB Product Search Engine

1 Search by part number

The applicable inductors can be searched by alphanumeric characters.



2 Search by specifications

Inductors can be searched by various specifications, such as the Inductance, DC Resistance, and Rated Current.



3 Search in the lineups

Inductors applicable to the conditions can be searched from the lineup of each series.

Lineup
chart-in Series page



4 Search by competitor's part number (Cross reference)

The Murata part number applicable to the assumed specification can be found using a competitor's part number for Inductors.



Search results

The number of cases applicable to the current search conditions is always displayed in real time.

Click each search condition button to display the menu. The search results will change in real time with the selected conditions.



Clicking the "Current search conditions" opens a menu, and the filtered conditions can be checked.

The results can be sorted by clicking the ▲ button above the search results items.

Clicking the product name opens the details page, and more detailed information can be acquired.

The icons clearly indicate the status and the features of the product.

A simple specification sheet can be downloaded without opening the details page.

Inductors for Power Lines

- Metal alloy type -DFEC series-
- Multilayer type -LQM series-
- Wire wound type -LQH series-

Metal alloy type inductors have been added to inductor lineup!



We have an extensive lineup of inductors covering a wide range of sizes from 1.6 mm x 0.8 mm to 12 mm square, which are manufactured using multiple techniques including metal wire wound construction and ferrite lamination. We offer the optimum inductors for a wide range of applications including mobile devices such as wearable devices and smartphones, medical applications, industrial electronics, and on-board devices.

Metal alloy type DFEC series

Features: Made using metal materials and rectangular wire to cope with large currents.

Applications: Power supply for smartphone digital circuits

Multilayer type LQM series

Features: Low profile less than 2012 size

Applications: Power supply for wearable devices

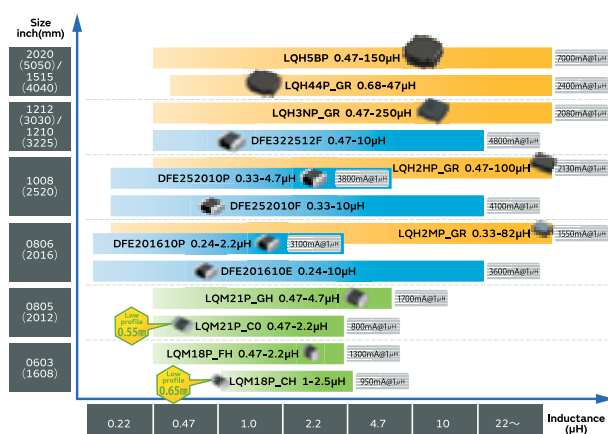
Wound type LQH series

Features: A wide lineup of 100μH or higher

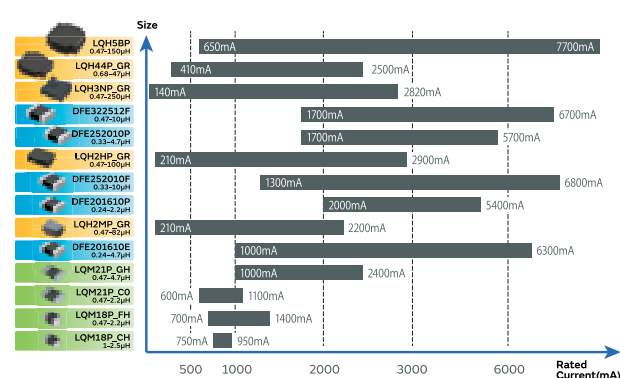
Applications: Backlight power supply, chokes

Recommended lineup (General)

List of inductance values

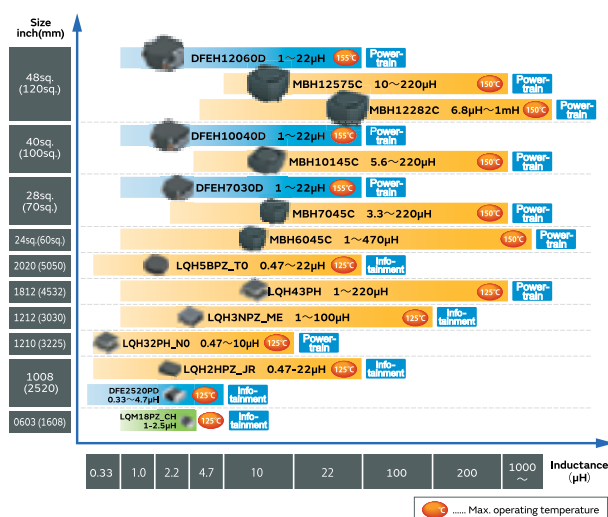


List of rated current values

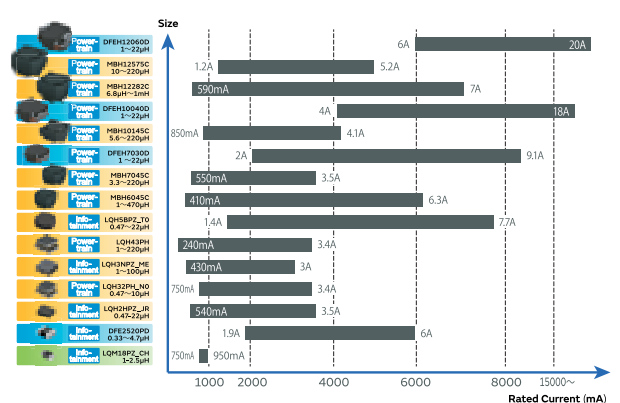


Recommended lineup (For Automotive)

List of inductance values

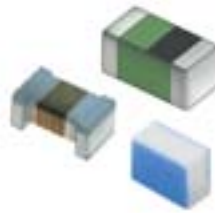


List of rated current values



RF Inductors

- Film type -LQP series-
- Wire wound type -LQW series-
- Multilayer type -LQG series-

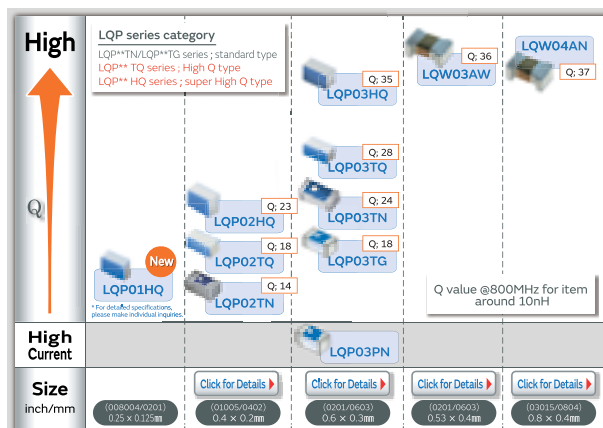


An RF inductor is used for matching applications and choke applications in the RF section, which has wireless communication functions. By using three characteristic methods, you can select the optimum series for the intended application. For a smartphone or a module, a film type LQP series, which is compact and also has high Q characteristics is optimum. For an RF inductor of size 1005 mm or more, the high Q wound type LQW series, which has a large rated current value, is recommended for use in a base station or STB, while the multilayer LQG series, which has a good balance between cost and performance, is recommended for a wide range of automotive applications, based on our market achievements over many years.

You can select the optimum series in our lineup, based on either the intended application or the relationship between the size and Q characteristics.

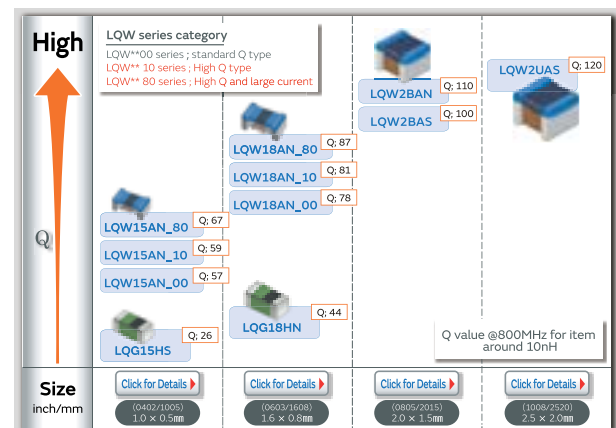
General (Small size)

Small size (0.8x0.4 mm or less) lineup



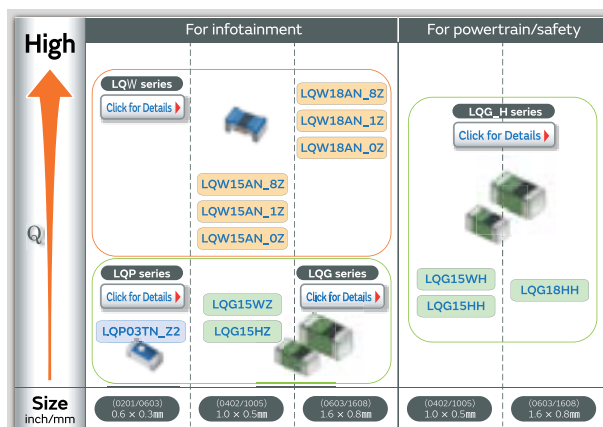
General (Large size)

Medium size (1.0x0.5 mm or more) lineup



For Automotive

Large size (1.0x0.5 mm or more) lineup



Lineup

General

Inductors for Power Lines

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQM18FN_00	Multilayer Type	0603 (1608)	General					1μH	10μH					50mA to 150mA
LQM18PN_B0		0603 (1608)	General					1.5μH						600mA
LQM18PN_C0		0603 (1608)	General				470nH	2.2μH						700mA to 850mA
LQM18PN_D0		0603 (1608)	General					2.5μH						700mA
LQM18PN_DH		0603 (1608)	General					2.2μH						650mA
LQM18PN_F0		0603 (1608)	General					1μH						600mA
LQM18PN_FH		0603 (1608)	General				470nH	2.2μH						700mA to 1.4A
LQM18PN_FR		0603 (1608)	General				220nH	4.7μH						620mA to 1.25A
LQM18PN_GH		0603 (1608)	General					1μH	3.3μH					1.05A
LQM18PW_CH		0603 (1608)	General					1μH	2.5μH					750mA to 950mA
LQM21DN_00		0805 (2012)	General					1μH	47μH					7mA to 60mA
LQM21FN_00		0805 (2012)	General					1μH	47μH					7mA to 220mA
LQM21FN_70		0805 (2012)	General					4.7μH	10μH					100mA to 120mA
LQM21FN_80		0805 (2012)	General					4.7μH	10μH					100mA to 120mA
LQM21PN_C0		0805 (2012)	General				470nH	2.2μH						600mA to 1.1A
LQM21PN_CA		0805 (2012)	General					2.2μH						1.05A
LQM21PN_CH		0805 (2012)	General				470nH	2.2μH						1.05A to 1.6A
LQM21PN_EH		0805 (2012)	General				240nH	2.2μH						1.1A to 2.8A
LQM21PN_G0		0805 (2012)	General				470nH	3.3μH						800mA to 1.3A
LQM21PN_GC		0805 (2012)	General					1μH	2.2μH					800mA to 900mA
LQM21PN_GH		0805 (2012)	General				470nH	4.7μH						1A to 2.4A
LQM21PN_GR		0805 (2012)	General					1μH	4.7μH					800mA to 1.3A
LQM21PN_GS		0805 (2012)	General					2.2μH	4.7μH					750mA to 950mA
LQM2MPN_DH		0806 (2016)	General					2.2μH						1.27A
LQM2MPN_EH		0806 (2016)	General				240nH	2.2μH						1.1A to 4.1A
LQM2MPN_G0		0806 (2016)	General				470nH	4.7μH						1.1A to 1.6A
LQM2MPN_GH		0806 (2016)	General				160nH	2.2μH						1.3A to 5A
LQM2HPN_CH		1008 (2520)	General				240nH	2.2μH						850mA to 2.55A
LQM2HPN_E0		1008 (2520)	General				560nH							1.5A
LQM2HPN_EH		1008 (2520)	General				240nH	2.2μH						1.3A to 4.5A
LQM2HPN_G0		1008 (2520)	General				470nH	4.7μH						1.1A to 1.8A
LQM2HPN_GC		1008 (2520)	General					1μH	4.7μH					800mA to 1.5A
LQM2HPN_GH		1008 (2520)	General				240nH	2.2μH						1.5A to 5A
LQM2HPN_GS		1008 (2520)	General					2.2μH	4.7μH					1A to 1.1A
LQM2HPN_J0		1008 (2520)	General					1μH	3.3μH					1A to 1.5A
LQM2HPN_JH		1008 (2520)	General				470nH	2.2μH						1.5A to 3.2A
LQM31PN_00		1206 (3216)	General				470nH	4.7μH						700mA to 1.4A
LQM32PN_G0		1210 (3225)	General					1μH						1.8A
LQM32PN_GC		1210 (3225)	General					1μH						2.2A
LQW15CN_00	Wire Wound Ferrite Core Type	0402 (1005)	General			18nH	200nH						390mA to 1.4A	
LQW15CN_10		0402 (1005)	General			20nH	3.3μH						130mA to 2.2A	
LQW18CN_00		0603 (1608)	General		4.9nH	650nH							430mA to 2.6A	
LQH2MCN_02		0806 (2016)	General				1μH	82μH					90mA to 485mA	
LQH2MCN_52		0806 (2016)	General				1μH	22μH					130mA to 595mA	
LQH2MPN_GR		0806 (2016)	General				330nH	82μH					210mA to 2.2A	
LQH2HPN_GR		1008 (2520)	General				470nH	100μH					210mA to 2.9A	
LQH2HPN_JR		1008 (2520)	General				470nH	22μH					540mA to 3.5A	
DEM2812C		1211 (3028)	General				470nH	12μH					760mA to 3.1A	
DEM2815C		1211 (3028)	General				470nH	15μH					800mA to 3.9A	
DEM2818C		1211 (3028)	General				470nH	12μH					1A to 4.7A	
LQH3NPN_GR		1212 (3030)	General				470nH	250μH					140mA to 2.82A	

Continued on the following page. ↗

Inductors (Coils)

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQH3NPN_JR	Wire Wound Ferrite Core Type	1212 (3030)	General				680nH		47μH				570mA to 2.86A	
LQH3NPN_ME		1212 (3030)	General					1μH		100μH			430mA to 3A	
LQH3NPN_MR		1212 (3030)	General					1μH		47μH			460mA to 2.15A	
LQH31CN_03		1206 (3216)	General				120nH			100μH			80mA to 970mA	
LQH32CN_23		1210 (3225)	General					1μH		560μH			60mA to 800mA	
LQH32CN_33		1210 (3225)	General				150nH		10μH				450mA to 1.45A	
LQH32CN_53		1210 (3225)	General					1μH		100μH			100mA to 1A	
LQH32DN_23		1210 (3225)	General					1μH		560μH			60mA to 800mA	
LQH32DN_53		1210 (3225)	General					1μH		100μH			100mA to 1A	
LQH32PB_N0		1210 (3225)	General				470nH		120μH				200mA to 3.4A	
LQH32PB_NC		1210 (3225)	General				470nH		22μH				650mA to 4.4A	
LQH32PN_N0		1210 (3225)	General				470nH		120μH				200mA to 3.4A	
LQH32PN_NC		1210 (3225)	General				470nH		22μH				650mA to 4.4A	
DEM3512C		1514 (3735)	General				680nH		22μH				530mA to 2.5A	
DEM3518C		1514 (3735)	General				560nH		22μH				880mA to 3.4A	
LQH44PN_GR		1515 (4040)	General				680nH		47μH				410mA to 2.5A	
LQH44PN_J0		1515 (4040)	General					1μH		47μH			380mA to 2A	
LQH44PN_P0		1515 (4040)	General					1μH		22μH			800mA to 2.95A	
LQH43CN_03		1812 (4532)	General					1μH		470μH			90mA to 1.08A	
LQH43CN_33		1812 (4532)	General				560nH		3.9μH				1.6A to 2.95A	
LQH43PB_26		1812 (4532)	General					1μH		220μH			240mA to 3.4A	
LQH43PN_26		1812 (4532)	General					1μH		220μH			240mA to 3.4A	
DEM4518C		1818 (4745)	General					1.2μH		22μH			1A to 3.5A	
LQH5BPB_T0		2020 (5050)	General				470nH		22μH				1.4A to 7.7A	
LQH5BPN_38		2020 (5050)	General					1μH		150μH			650mA to 7A	
LQH5BPN_T0		2020 (5050)	General				470nH		22μH				1.4A to 7.7A	
D52LC		2020 (5252)	General					1.2μH		100μH			260mA to 2.44A	
D53LC High Current Low Rdc		2020 (5252)	General					1.1μH		100μH			460mA to 3.87A	
D53LC		2020 (5252)	General						4.7μH		220μH		350mA to 2.31A	
LQH55DN_03		2220 (5750)	General				120nH				10mH		50mA to 6A	
DG6045C		2424 (6060)	General					1μH		100μH			900mA to 9.5A	
DG6050C		2424 (6060)	General					1.2μH		100μH			1.2A to 9.8A	
D63LCB		2524 (6362)	General					1μH		150μH			440mA to 4.52A	
LQH66SN_03		2525 (6363)	General				270nH				10mH		50mA to 6A	
DS75LC		2929 (7373)	General					1μH		470μH			430mA to 9.2A	
DEM8030C		3131 (8080)	General					1.5μH		47μH			1.3A to 7.5A	
DEM8040C		3131 (8080)	General					1.5μH		33μH			2.4A to 10A	
DEM8045C		3131 (8080)	General					1.5μH		47μH			2.1A to 11.2A	
DG8040C		3131 (8080)	General					1μH		100μH			1.3A to 10.4A	
DEM10050C		3939 (100100)	General					1.5μH		33μH			3.5A to 15.3A	
DS104C2		4040 (101101)	General					1.1μH		120μH			970mA to 11.7A	
DS106C2		4040 (101101)	General					1.2μH		330μH			690mA to 12A	
DS126C2		4949 (125125)	General					1.7μH		680μH			580mA to 11.8A	
DFE201208S	Wire Wound Metal Alloy Core Type	0805 (2012)	General				470nH		2.2μH				1.8A to 4A	
DFE201210S		0805 (2012)	General				470nH		2.2μH				2.1A to 4.8A	
DFE201210U		0805 (2012)	General				240nH		2.2μH				2A to 6.5A	
DFE201610C		0806 (2016)	General				560nH		2.2μH				1.5A to 2.8A	
DFE201610E		0806 (2016)	General				240nH		10μH				1A to 6.3A	
DFE201610P		0806 (2016)	General				240nH		2.2μH				2A to 5.4A	
DFE201610R		0806 (2016)	General				470nH		2.2μH				1.6A to 3A	
DFE201612C		0806 (2016)	General				470nH		2.2μH				1.6A to 3.4A	
DFE201612E		0806 (2016)	General				330nH		4.7μH				1.8A to 6.3A	
DFE201612P		0806 (2016)	General				240nH		2.2μH				2.1A to 6.5A	
DFE201612R		0806 (2016)	General				470nH		2.2μH				1.7A to 3.5A	
DFE252007F		1008 (2520)	General				470nH		4.7μH				1.2A to 3.3A	
DFE252008C		1008 (2520)	General				470nH		4.7μH				1.1A to 3A	
DFE252010C		1008 (2520)	General				470nH		10μH				1A to 3.5A	

Continued on the following page. ↗

Inductors (Coils)

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
DFE252010F	Wire Wound Metal Alloy Core Type	1008 (2520)	General				330nH		10μH					1.3A to 6.8A
DFE252010P		1008 (2520)	General				330nH		4.7μH					1.7A to 5.7A
DFE252010R		1008 (2520)	General					1μH		4.7μH				1.4A to 3A
DFE252012C		1008 (2520)	General				470nH		10μH					1A to 3.8A
DFE252012F		1008 (2520)	General				330nH		10μH					1.4A to 7.6A
DFE252012P		1008 (2520)	General				330nH		4.7μH					2A to 6.6A
DFE252012R		1008 (2520)	General					1μH		4.7μH				1.7A to 3.4A
DFE322510C		1210 (3225)	General				470nH		10μH					1A to 3.8A
DFE322512C		1210 (3225)	General				470nH		10μH					1.2A to 4.7A
DFE322512F		1210 (3225)	General				470nH		10μH					1.7A to 6.7A
FDS040412		1515 (4040)	General				330nH		4.7μH					2.5A to 7.5A
FDS040415		1515 (4040)	General					220nH		4.7μH				2.9A to 12A
FDS040420		1515 (4040)	General					470nH		330μH				2.5A to 11A
FDS050512		2019 (5249)	General					1μH		6.8μH				2.3A to 6.1A
FDS050515		2019 (5249)	General					1μH		4.7μH				3.2A to 7A
FDS050518		2019 (5249)	General					680nH		10μH				2.7A to 9A
FDV0530		2322 (5856)	General				110nH		4.7μH					3.6A to 19.6A
FCUL0530		2322 (5857)	General					360nH		470nH				16A to 18A
FCUL0624		2726 (6866)	General					220nH		470nH				17A to 24A
FCUL0630		2726 (6866)	General					120nH		680nH				15A to 32A
FDUE0640		2726 (6967)	General					150nH		420nH				22A to 33A
FDUE0650		2726 (6967)	General					600nH		1μH				16A to 18A
FDV0618		2726 (6967)	General					240nH		3.3μH				4.1A to 14A
FDV0620		2726 (6967)	General					200nH		4.7μH				3.5A to 16.2A
FDVE0630		2726 (6967)	General					160nH		10μH				3.1A to 20.7A
FDS0630		2726 (7066)	General					680nH		10μH				5.4A to 17A
FCUL1040		4239 (106100)	General					180nH		420nH				34A to 53A
FCUL1060		4239 (106100)	General					360nH		560nH				34A to 41A
FDUE1040D		4239 (106100)	General					220nH		1μH				18A to 32A
FDVE1040		4239 (106100)	General						1.5μH		10μH			6.1A to 14.6A
FDA1055		4242 (108108)	General					560nH		5.6μH				8A to 27.7A
FDUE1245		4848 (123121)	General					500nH		2.2μH				17A to 30A
FDA1254		5049 (126125)	General					680nH		8μH				9.1A to 29.1A
FDUE1260		5050 (127127)	General					450nH						42A

Inductors for General Circuits

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQB15NN_10	Multilayer Type	0402 (1005)	General				220nH	560nH					300mA to 380mA	
LQB18NN_10		0603 (1608)	General				220nH	560nH					300mA to 450mA	
LQM18NN_00		0603 (1608)	General				47nH	2.2μH					15mA to 50mA	
LQM21NN_10		0805 (2012)	General				100nH	4.7μH					30mA to 250mA	
LLB2520	Wire Wound Ferrite Core Type	1008 (2520)	General					1μH	47μH				100mA to 480mA	
LLM2520		1008 (2520)	General				100nH	220μH					44mA to 570mA	
LQH31HN_03		1206 (3216)	General				54nH	880nH					180mA to 920mA	
LQH31MN_03		1206 (3216)	General				150nH	100μH					45mA to 250mA	
LLM3225		1210 (3225)	General				100nH	1mH					19mA to 600mA	
LQH32MN_23		1210 (3225)	General					1μH	560μH				40mA to 445mA	
LQH44NN_03		1515 (4040)	General				510nH	470μH					145mA to 4.5A	
LQH43MN_03		1812 (4532)	General					1μH	1.5mH				40mA to 500mA	
LQH43NN_03		1812 (4532)	General					1μH	2.4mH				25mA to 500mA	
LQW04CA_00		03019 (0805)	General				60nH	510nH					200mA to 620mA	
LQW15CA_00		0402 (1005)	General				22nH	2μH					130mA to 1.3A	

Continued on the following page. ↗

RF Inductors

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQG15HN_02	Multilayer Type	0402 (1005)	General		1nH		120nH							150mA to 1A
LQG15HS_02		0402 (1005)	General		1nH		270nH							110mA to 1A
LQG18HN_00		0603 (1608)	General		1.2nH		100nH							350mA to 1.1A
LQW21HN_00	Wire Wound Ferrite Core Type	0805 (2012)	General				470nH		2.2μH					75mA to 160mA
LQP02HQ_02	Film Type	01005 (0402)	General	0.2nH			56nH							100mA to 1A
LQP02TN_02		01005 (0402)	General	0.2nH			39nH							90mA to 320mA
LQP02TQ_02		01005 (0402)	General	0.2nH			22nH							120mA to 990mA
LQP03HQ_02		0201 (0603)	General	0.6nH			150nH							80mA to 1.1A
LQP03PN_02		0201 (0603)	General		2.2nH		4.7nH							900mA to 1.4A
LQP03TG_02		0201 (0603)	General	0.1nH			120nH							80mA to 850mA
LQP03TN_02		0201 (0603)	General	0.6nH			270nH							60mA to 850mA
LQP03TQ_02		0201 (0603)	General	0.6nH			13nH							250mA to 1A
LQP15MN_02		0402 (1005)	General		1nH		33nH							60mA to 400mA
LQP18MN_02		0603 (1608)	General		1.3nH		100nH							50mA to 300mA
LQW03AW_00	Wire Wound Non-Magnetic Core Type	0201 (0603)	General		1nH		15.5nH							230mA to 900mA
LQW04AN_00		03015 (0804)	General	0.8nH			33nH							140mA to 1.8A
LQW04AN_10		03015 (0804)	General			36nH	56nH							180mA to 200mA
LQW15AN_00		0402 (1005)	General		1.5nH		120nH							110mA to 1A
LQW15AN_10		0402 (1005)	General		1.3nH		8.4nH							640mA to 1.2A
LQW15AN_80		0402 (1005)	General		1.3nH		75nH							320mA to 3.15A
LQW18AN_00		0603 (1608)	General		2.2nH		470nH							75mA to 850mA
LQW18AN_10		0603 (1608)	General		2.2nH		33nH							550mA to 1.4A
LQW18AN_80		0603 (1608)	General		2.2nH		390nH							190mA to 3.2A
LQW18AS_00		0603 (1608)	General		1.6nH		390nH							100mA to 700mA
LQW2BAN_00		0805 (2015)	General		3.2nH		200nH							750mA to 3.8A
LQW2BAS_00		0805 (2015)	General		2.8nH		820nH							180mA to 800mA
LQW2BHN_03		0805 (2015)	General		3.3nH		470nH							160mA to 1.32A
LQW2BHN_13		0805 (2015)	General		2.7nH		27nH							900mA to 1.9A
LQW2UAS_00		1008 (2520)	General			12nH		4.7μH						260mA to 1A
LQW31HN_03		1206 (3216)	General			8.8nH		100nH						230mA to 750mA

Inductors (Coils)

Automotive

Inductors for Power Lines

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQM18PZ_CH	Multilayer Type	0603 (1608)	Infotainment					1μH	2.5μH					750mA to 950mA
LQM18PZ_DH		0603 (1608)	Infotainment					2.2μH						650mA
LQM18PZ_FH		0603 (1608)	Infotainment					2.2μH						700mA
LQM21PH_GC		0805 (2012)	Powertrain					2.2μH						800mA
LQM21PZ_CO		0805 (2012)	Infotainment				470nH	2.2μH						600mA to 1.1A
LQM21PZ_GO		0805 (2012)	Infotainment				470nH	3.3μH						800mA to 1.3A
LQM21PZ_GC		0805 (2012)	Infotainment					1μH	2.2μH					800mA to 900mA
LQM21PZ_GR		0805 (2012)	Infotainment					1μH	4.7μH					800mA to 1.3A
LQM2MPZ_GO		0806 (2016)	Infotainment				470nH	4.7μH						1.1A to 1.6A
LQM2HPZ_EO		1008 (2520)	Infotainment				560nH							1.5A
LQM2HPZ_GO		1008 (2520)	Infotainment				470nH	4.7μH						1.1A to 1.8A
LQM2HPZ_GC		1008 (2520)	Infotainment					1μH	4.7μH					800mA to 1.5A
LQM2HPZ_GS		1008 (2520)	Infotainment					2.2μH	4.7μH					1A to 1.1A
LQM2HPZ_JO		1008 (2520)	Infotainment					1μH	3.3μH					1A to 1.5A
LQW15CN_OZ	Wire Wound Ferrite Core Type	0402 (1005)	Infotainment			18nH	200nH						390mA to 1.4A	
LQW15CN_1Z		0402 (1005)	Infotainment			20nH	560nH						300mA to 2.2A	
LQH2MPZ_GR		0806 (2016)	Infotainment				330nH	82μH					210mA to 2.2A	
LQH2HPZ_GR		1008 (2520)	Infotainment				470nH	22μH					460mA to 2.9A	
LQH2HPZ_JR		1008 (2520)	Infotainment				470nH	22μH					540mA to 3.5A	
LQH3NPZ_GR		1212 (3030)	Infotainment				470nH	47μH					460mA to 2.82A	
LQH3NPZ_JR		1212 (3030)	Infotainment				680nH	47μH					570mA to 2.86A	
LQH3NPZ_ME		1212 (3030)	Infotainment					1μH	100μH				430mA to 3A	
LQH32CH_23		1210 (3225)	Powertrain					1μH	22μH				250mA to 800mA	
LQH32CH_33		1210 (3225)	Powertrain				150nH	10μH					450mA to 1.45A	
LQH32CH_53		1210 (3225)	Powertrain					1μH	22μH				250mA to 1A	
LQH32DZ_23		1210 (3225)	Infotainment					1μH	470μH				60mA to 800mA	
LQH32DZ_53		1210 (3225)	Infotainment					1μH	100μH				100mA to 1A	
LQH32PH_NO		1210 (3225)	Powertrain				470nH	10μH					750mA to 3.4A	
LQH32PH_NC		1210 (3225)	Powertrain				470nH	22μH					650mA to 4.4A	
LQH32PZ_NO		1210 (3225)	Infotainment				470nH	120μH					200mA to 3.4A	
LQH32PZ_NC		1210 (3225)	Infotainment				470nH	22μH					650mA to 4.4A	
LQH44PZ_GR		1515 (4040)	Infotainment				680nH	47μH					410mA to 2.5A	
LQH43PH_26		1812 (4532)	Powertrain					1μH	220μH				240mA to 3.4A	
LQH43PZ_26		1812 (4532)	Infotainment					1μH	220μH				240mA to 3.4A	
LQH5BPZ_TO		2020 (5050)	Infotainment				470nH	22μH					1.4A to 7.7A	
MBH6045C High Current Low Rdc		2424 (6262)	Powertrain					1.5μH	47μH				1.1A to 6.3A	
MBH6045C Low Rdc		2424 (6262)	Powertrain					1μH	470μH				410mA to 4.4A	
MBH7045C High Current Low Rdc		2828 (7272)	Powertrain						22μH	220μH			550mA to 1.8A	
MBH7045C Low Rdc		2828 (7272)	Powertrain					3.3μH	220μH				650mA to 3.5A	
MBH10145C		4141 (104104)	Powertrain					5.6μH	220μH				850mA to 4.1A	
MBH12282C		4949 (125125)	Powertrain						6.8μH	1mH			590mA to 7A	
MBH12575C		5050 (128128)	Powertrain						10μH	220μH			1.2A to 5.2A	
DFE252012P	Wire Wound Metal Alloy Core Type	1008 (2520)	Infotainment				330nH	4.7μH					1.9A to 6A	
DFEG7030D		2726 (7066)	Powertrain					1μH	22μH				2A to 9.1A	
DFEH7030D		2726 (7066)	Powertrain					1μH	22μH				2A to 9.1A	
DFEG10040D		4339 (109100)	Powertrain					1μH	22μH				4A to 18A	
DFEH10040D		4339 (109100)	Powertrain					1μH	22μH				4A to 18A	
DFEG12060D		5150 (130126)	Powertrain					1μH	22μH				6A to 20A	
DFEH12060D	5150 (130126)	Powertrain					1μH	22μH				6A to 20A		

Continued on the following page. ↗

Inductors for General Circuits

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQH31HZ_03	Wire Wound Ferrite Core Type	1206 (3216)	Infotainment				54nH	880nH						180mA to 920mA
LQH43NZ_03		1812 (4532)	Infotainment					1μH			2.2mH			30mA to 500mA
HEAWS		4241 (107104)	Infotainment					10μH						5A
HEAW		5551 (140130)	Infotainment					10μH						7.2A

RF Inductors

Series	Structure	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range	
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m			
LQG15HH_02	Multilayer Type	0402 (1005)	Powertrain		1nH		270nH								110mA to 1A
LQG15HZ_02		0402 (1005)	Infotainment		1nH		270nH								110mA to 1A
LQG15WH_02		0402 (1005)	Powertrain		1nH		15nH								400mA to 1.2A
LQG15WZ_02		0402 (1005)	Infotainment		1nH		15nH								400mA to 1.2A
LQG18HH_00		0603 (1608)	Powertrain		1.2nH		270nH								200mA to 1.1A
LQP03TN_Z2	Film Type	0201 (0603)	Infotainment	0.6nH		120nH								80mA to 850mA	
LQW15AN_0Z	Wire Wound Non-Magnetic Core Type	0402 (1005)	Infotainment		1.5nH		120nH							110mA to 1A	
LQW15AN_1Z		0402 (1005)	Infotainment		1.3nH		8.4nH							640mA to 1.2A	
LQW15AN_8Z		0402 (1005)	Infotainment		1.3nH		75nH							320mA to 3.15A	
LQW18AN_0Z		0603 (1608)	Infotainment		2.2nH		470nH							75mA to 850mA	
LQW18AN_1Z		0603 (1608)	Infotainment		2.2nH		33nH							550mA to 1.4A	
LQW18AN_8Z		0603 (1608)	Infotainment		2.2nH		390nH							190mA to 3.2A	
LQW18AS_0Z		0603 (1608)	Infotainment		1.6nH		390nH							100mA to 700mA	

Effective Use of Power Inductors

The product group of Murata's inductors for power circuits consists of the wire wound type and the monolithic type. For the applications of power inductors, Murata has prepared the "[Murata Power Inductor Selection Tool](#)," which can calculate and display the performance of inductors based on actual use conditions.

The type of application where single or multiple power inductors are used can have an effect on the efficiency of the part(s). Core losses are suffered depending on the Temperature, Frequency, and Current needed for the application. Using the "[Murata Power Inductor Selection Tool](#)," you can input the needed Temperature, Frequency, and Current for the application and easily select a usable part.

URL: <http://www.murata.com/products/inductor/chip/learn/apply/power>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Chip Inductors (Chip Coils)
- EMI Suppression Filters (for DC)/Chip Inductors for Automotive

Cat. No. O05E

Cat. No. C51E

Resistors

Full lineup for various applications

Summary

Using Murata's ceramic processing technology and unique materials, we offer a series of resistor products.

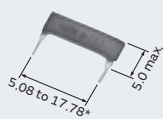
Lineup

- High Voltage Resistors

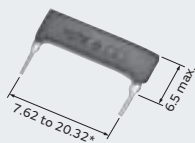


High Voltage Resistors

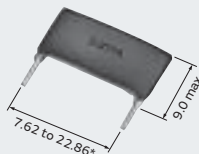
Featuring thick-film resistors, the Murata MHR series of high-voltage resistors is available in compact and thin SIP packages. Variants with small deviations are also available on request.



MHR03 Series



MHR04 Series



MHR06 Series

(in mm)

*The terminal pitch is an integral multiple of 2.54mm.

Series	Resistance (min.) (MΩ)	Resistance (max.) (MΩ)	Maximum Operating Voltage (Single Use) (kV)	Maximum Operating Voltage (Molded Use) (kV)	Rated Power (W)
MHR03	1	500 to 1000	2 to 8	3 to 14	0.3 to 1.0
MHR04	1	1000	3.5 to 9	10 to 16	0.6 to 1.3
MHR06	1	1000	3.5 to 10	10 to 20	0.8 to 1.6

Resistance 2 element type is also available.
For resistance value and ratio, please contact us.

Timing Devices

A collection of various electronic components, including capacitors, resistors, and integrated circuits, arranged on a white background. The components vary in size, shape, and color, with some having gold leads and others having blue or grey casings.

●Crystal Units ●Crystal Oscillators
●Ceramic Resonators CERALOCK®

The screenshot shows the 'New' dialog box in Microsoft Word 2010. The 'Name' field is highlighted with a red arrow. The 'Name' field is currently empty, and the 'Description' field is also empty. The 'Name' field is located at the bottom of the dialog box, and the 'Description' field is located at the top of the dialog box. The 'Name' field is highlighted with a red arrow, indicating that it is the field that should be filled in with the name of the new document.



Detailed Catalogs

- Ceramic Resonators (CERALOCK®)
- Ceramic Resonator (CERALOCK®) Application Manual
- Crystal Units/Crystal Oscillators

muRata

Crystal Units

Crystals Unit utilize highly accurate frequency-based high-grade quartz crystal elements. We offer a wide lineup of Crystal Units using Murata's proven package technology for small digital devices, automotive, etc.

For Automotive



XRCHA-F-A

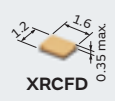


XRCGB-F-A

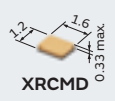
(in mm)

Series	Type	Seal	Frequency (MHz)																Frequency Shift by Temperature (ppm max.)	Operating Temperature Range (°C)
			1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100		
XRCHA-F-A	HCR2520	Resin											16.0000±100ppm					24.0000±100ppm	±100	-40 to 125
XRCGB-F-A	HCR2016	Resin											24.0000±30ppm					29.9999±30ppm	±35	-40 to 125
													30.0000±50ppm					48.0000±50ppm	±65	-40 to 125

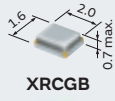
For Consumer/Industrial



XRCFD



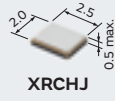
XRCMD



XRCGB



XRCHH



XRCHJ



XRCHA



XRCJH



XRCJK



XRCLH



XRCLK

(in mm)

Series	Type	Seal	Frequency (MHz)																Frequency Shift by Temperature (ppm max.)	Operating Temperature Range (°C)
			1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100		
XRCFD	MCR1612	Metal											24.0000±10ppm					29.9999±10ppm	±10	-20 to 70
XRCMD	MCR1612	Metal											30.0000±10ppm					48.0000±10ppm	±10	-20 to 70
XRCGB-F-H	HCR2016	Resin											24.0000±10ppm					25.0000±10ppm	±10	-20 to 70
													26.0000±10ppm					32.0000±10ppm	±10	-30 to 85
XRCGB-F-P	HCR2016	Resin											24.0000±20ppm					32.0000±20ppm	±20	-30 to 85
XRCGB-F-M	HCR2016	Resin											24.0000±30ppm					32.0000±30ppm	±40	-30 to 85
													33.8688±45ppm					50.0000±45ppm	±40	-30 to 85
XRCGB-F-L	HCR2016	Resin											24.0000±100ppm					50.0000±100ppm	±50	-30 to 85
XRCGB-F-Z	HCR2016	Resin											24.0000±100ppm					50.0000±100ppm	±100	-40 to 105
XRCHH	TAS-2520F	Metal											16.0000±10ppm					52.0000±10ppm	±15	-30 to 85
XRCHJ	TDS-2520F	Seam											16.0000±10ppm					52.0000±10ppm	±15	-30 to 85
XRCHA-F-L	HCR2520	Resin											16.0000±100ppm					20.0000±100ppm	±100	-30 to 85
XRCHA-F-Z	HCR2520	Resin											16.0000±100ppm					20.0000±100ppm	±100	-40 to 105
XRCJH	TAS-3225J	Metal											13.0000±10ppm					52.0000±10ppm	±15	-30 to 85
XRCJK	TSS-3225J	Seam											12.0000±10ppm					52.0000±10ppm	±15	-30 to 85
XRCLH	TAS-5032F	Metal											10.0000±10ppm					52.0000±10ppm	±15	-30 to 85
XRCLK	TSS-5032A	Seam											10.0000±10ppm					52.0000±10ppm	±15	-30 to 85

Crystal Oscillators

We offer a varied lineup of Crystal Oscillators using highly reliable crystal units, circuit engineering, superior temperature compensation methods, and measurement furthered by our long experience and expertise.

For Consumer/Industrial

					(in mm)									
XNCHH	XNCJH	XTCHH	XTCJH	XTCLH_J										
Series	Type	VC Function	Frequency (MHz)								Frequency Shift by Temperature (ppm max.)	Frequency Aging (ppm max./year)	Operating Temperature Range (°C)	
			1	5	10	20	30	40	50	70	100			
XNCHH	TTS27NSC-A7	-	10.0000±1ppm						52.0000±1ppm	±0.5	±1.0	-30 to 85		
XNCJH	TTS18NSH-A7	-	10.0000±1ppm						52.0000±1ppm	±0.5	±1.0	-30 to 85		
XTCHH	TTS27VSC-A7	●	10.0000±1ppm						52.0000±1ppm	±0.5	±1.0	-30 to 85		
XTCJH	TTS18VSH-A7	●	10.0000±1ppm						52.0000±1ppm	±0.5	±1.0	-30 to 85		
XTCLH_J	TTS14VSH	●	10.0000±0.5ppm						40.0000±0.5ppm	±0.28	±0.5	-40 to 85		

Ceramic Resonators CERALOCK®

Wide product lineup for automotive and consumer applications with SMD and leaded packages.

MHz Chip Type for Automotive (Tight Frequency Tolerance)

			(in mm)																
CSTCR_G15C	CSTCE_G15C	CSTCE_V13C																	
Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCR_G15C		4.00±0.1%								7.99±0.1%								±0.13	-40 to 125
CSTCE_G15C				8.00±0.1%						13.99±0.1%								±0.13	-40 to 125
CSTCE_V13C					14.00±0.1%					20.00±0.1%								±0.13	-40 to 125

MHz Chip Type for Automotive (Standard Frequency Tolerance)

CSTCC_G_A

CSTCR_G_B

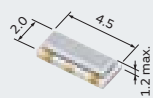
CSTCE_G_A

CSTCE_V_C

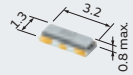
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCC_G_A	2.00±0.5%				3.99±0.5%													±0.4 (15pF) -0.6/+0.3 (47pF)	-40 to 125
CSTCR_G_B		4.00±0.5%								7.99±0.5%								±0.15	-40 to 125
CSTCE_G_A				8.00±0.5%							13.99±0.5%							±0.2	-40 to 125
CSTCE_V_C						14.00±0.5%						20.00±0.5%						±0.15	-40 to 125

MHz Chip Type for Consumer Electronics (Tight Frequency Tolerance)



CSTCR_G15L



CSTCE_G15L



CSTCE_V13L



CSTCW_X11

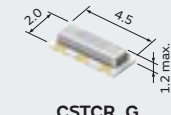
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCR_G15L		4.00±0.1%								7.99±0.1%								±0.08	0 to 70
CSTCE_G15L					8.00±0.1%						13.99±0.1%							±0.08	0 to 70
CSTCE_V13L									14.00±0.1%			20.00±0.1%						±0.08	0 to 70
CSTCW_X11										20.01±0.1%					48.00±0.1%			±0.1	0 to 70

MHz Chip Type for Consumer Electronics (Standard Frequency Tolerance)



CSTCC_G



CSTCR_G



CSTCE_G



CSTCE_V



CSTCW_X



CSACW_X

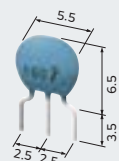
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCC_G	2.00±0.5%			3.99±0.5%													±0.3 (15pF) ±0.4 (47pF)	-20 to 80	
CSTCR_G			4.00±0.5%				7.99±0.5%										±0.2	-20 to 80	
CSTCE_G				8.00±0.5%						13.99±0.5%							±0.2	-20 to 80	
CSTCE_V									14.00±0.5%				20.00±0.5%					±0.3	-20 to 80
CSTCW_X									20.01±0.5%						70.00±0.5%		±0.2	-20 to 80	
CSACW_X (No built-in load capacitance)									20.01±0.5%						70.00±0.5%		±0.2	-20 to 80	

MHz Lead Type for Consumer Electronics (Standard Frequency Tolerance)



CSTLS_G



CSTLS_X

(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)		
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100				
CSTLS_G		3.40±0.5%								10.00±0.5%								±0.2 (15pF) -0.4/+0.2 (47pF)	-20 to 80	
CSTLS_X									16.00±0.5%								70.00±0.5%		±0.2	-20 to 80

Filters

Broad lineup of Filters for video, audio, RF/Local, Duplexers, and Filters for IF

Summary

Using Murata's ceramic processing technology and unique materials, we offer miniaturized filters with excellent properties for advanced digital audio/visual systems and communication equipment.

Lineup

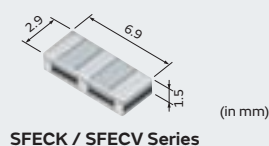
- Ceramic Filters CERAFIL® (Filters, Traps, and Discriminators)
- Crystal Filters ● SAW Filters for Mobile Communications
- Dielectric Filters GIGAFIL® ● Chip Multilayer LC Filters



Ceramic Filters CERAFIL®

CERAFIL® 10.7MHz Chip Type

Small and lightweight filters for IF in communications or AV equipment using unique piezoelectric material.



SFECK / SFECV Series

Type	Series	3dB Bandwidth (kHz)		
		E	J	K
		330	150	110
High-reliability Type	SFECK10M7□	-	●	●
Standard Type	SFECV10M7□	-	●	●
Standard Type	SFECV15M0□	●	-	-

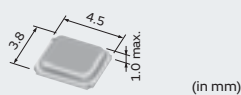
□ is filled with the letter designating the required 3dB bandwidth.



SFECF Series

Type	Series	3dB Bandwidth (kHz)				
		D	E	F	G	H
		350	330	280	230	180
Standard Type	SFECF10M7□	●	●	●	●	●

□ is filled with the letter designating the required 3dB bandwidth.



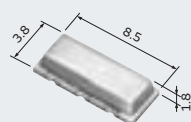
SFSCE Series

Type	Series	3dB Bandwidth (kHz) min.		
		03	04	05
		±500	±400	±325
Wide Bandwidth	SFSCE10M7WF□□	●	●	●

□ is filled with the letter designating the required 3dB bandwidth.

CERAFIL® 2.3 to 6.5MHz Chip Type

The SFSKA Series has distinctive features such as wide bandwidth and stable filter performance, enabling customers to design smaller products.
The SFSKB Series is suitable for low frequency range.



SFSKA Series



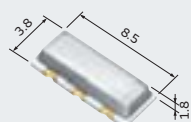
SFSKB Series

(in mm)

Series	Center Frequency (MHz)												3dB Bandwidth (kHz)
	2.3	2.8	3.2	3.8	4.3	4.5	4.8	5.2	5.5	5.7	6.0	6.5	
SFSKA	-	-	-	-	-	●	-	-	●	-	●	●	±60 min.
SFSKB	●	●	●	●	●	-	●	●	-	●	-	-	±75 min.

Ceramic Traps

The TPSKA Series has distinctive features such as high attenuation and high performance group delay time, enabling customers to design smaller products.



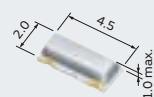
TPSKA Series

(in mm)

Series	Center Frequency (MHz)	Attenuation (dB)
TPSKA	4.500/5.500/6.000/6.500	35 min.

Ceramic Discriminators

In combination with ICs, this type obtains stable demodulation characteristics in a wide bandwidth.



CDSCB Series

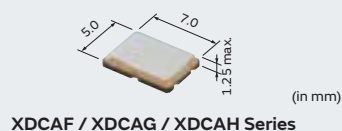
(in mm)

Series	Center Frequency
CDSCB	10.700MHz±30kHz

The recommended part number depends on IC specifications. Please contact us with the IC part number to be applied.

Crystal Filters

Our original wafer-thin technology has made it possible to make highly reliable filters in various applications such as radio communication worldwide.



Series	Type	Frequency Range (MHz)	Number of Poles
XDCAF	TM7050F	20 to 80 [Fundamental] 70 to 150 [3rd overtone]	2
XDCAG	TM7050G		4
XDCAH	TM7050H		4

*Please be sure to consult with our sales representative or engineer if you require other center frequency.

SAW Filters for Mobile Communications

SAW Duplexers

Low loss, high attenuation performance, small size, highly selective pass band, chip size package



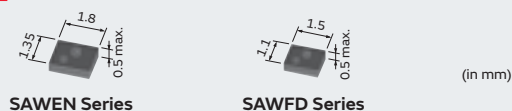
RF Filters

Low loss, high attenuation performance, small size, highly selective pass band, chip size package

Single Filter



Dual Filter



SAW Filters and SAW Duplexers must be used only in the following equipment:

Mobile phones, cordless telephones (except automobile telephone), smartphones, tablet PC, PC (including laptop/netPC), game machines, cameras (except for business use and for security), STB, electronic dictionaries, and digital audio instruments. Please contact us for other usages.

Dielectric Filters GIGAFIL®

Suitable for cellular base stations and other telecom infrastructure systems.
Custom parts within the range below are available upon request.



DFYH Series



DFCH Series



TDF Series

	Series	Frequency Range (MHz)								Number of Resonators	Input Power Range
		100	1000	2000	3000	4000	5000	6000	7000		
Duplexers	DFYH	700	2600							5 to 10	1 to 10W*
RF/IF/Local Filter	DFCH	600	3800							2 to 6	1 to 10W*
RF/IF/Local Filter	TDF			2000	6000					2 to 5	1 to 10W*

*Power depends upon specifications.

Characteristic customization is available. You can also contact us through our website.

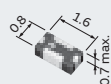
Chip Multilayer LC Filters

Ultra-small and low-profile filters based on ceramic multilayer technology.

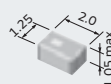
Band Pass Filters



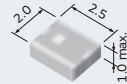
LFB15 Series



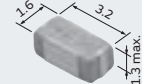
LFB18 Series



LFB21 Series



LFB2H Series



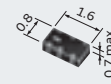
LFB31 Series

(in mm)

Low Pass Filters



LFL15 Series



LFL18 Series



LFL21 Series

(in mm)

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Ceramic Filters (CERAFIL®)/Crystal Filters
- Ceramic Filters (CERAFIL®) Application Manual

Cat. No. P51E

Cat. No. P11E

RF Components

Broad lineup of RF Components for RF/Local circuits in communications equipment

Summary

To enhance the technical advantages of communication equipment, Murata offers miniaturized, sophisticated components to meet the demands of many applications.

Lineup

●Antennas ●Isolators ●Baluns (Chip Multilayer and Wire Wound/Film type) ●Couplers (Chip Multilayer and Film type) ●Chip Multilayer Hybrid Dividers ●Chip Multilayer Diplexers ●Microwave Coaxial Connectors ●Single Layer Microchip Capacitors ●Thin Film Circuit Substrate RUSUB®



Antennas

Coil Antennas

Rx 1D-ANT



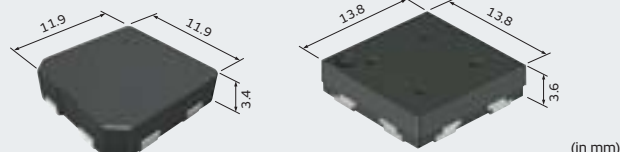
SA3M08 Series

SAZ73D Series

(in mm)

Series	Inductance (mH)	Q (Reference)
SA3M08	1.0 to 18.0	25
SAZ73D	1.0 to 9.0	30

Rx 3D-ANT



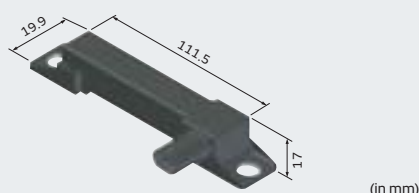
SA3D12 Series

SA3D14 Series

(in mm)

Series		Inductance (mH)	Q (Reference)
SA3D12	X	1.0 to 6.3	20
	Y	1.0 to 6.3	20
	Z	1.0 to 9.0	20
SA3D14	X	1.0 to 6.3	20
	Y	1.0 to 6.3	20
	Z	1.0 to 9.0	20

Transmitter ANT



STA8121 Series

(in mm)

Series	Capacitance (pF)	Resonance Frequency
STA8121	2200 to 10000	125kHz, 134.2kHz

Isolators

Isolators pass signals in the forward direction and blocking signals in the reverse direction.

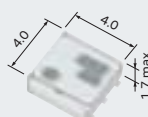
For Base Stations



CES20 Series



CES30 Series



CES40 Series

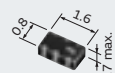
(in mm)

Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CES20			1900	2600	3.2X2.5X1.2 max.	5 max.
CES30			1700	2200	3.2X3.2X1.6 max.	5 max.
CES40		800	950		4.0X4.0X1.7 max.	5 max.

Baluns

SMD baluns constructed with a copper conductor and ceramic material. Ideal for high-frequency applications. Small-size and low-loss baluns can be customized for balance impedance of 50Ω to 200Ω.

Chip Multilayer Type



LDB18 Series



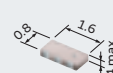
LDB21 Series



LDM0Q Series



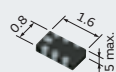
LDM15 Series



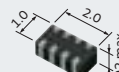
LDM18 Series

(in mm)

Film Type



DXP18B Series



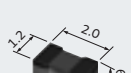
DXP2AB Series

(in mm)

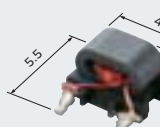
Wire Wound Type



DXW21B Series



DXW21H Series



B4F Series



B5F Series



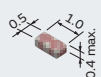
B5FL Series

(in mm)

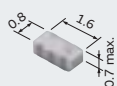
Couplers

An ultra-small, low-profile directional coupler based on ceramic multilayer technology. This coupler achieves ultra-small size, low insertion loss, and high isolation.

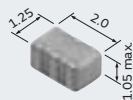
Chip Multilayer Type



LDC15 Series
LDJ15 Series



LDC18 Series
LDJ18 Series

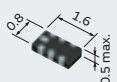


LDC21 Series
LDJ21 Series

*It is available with Integrated LPF for **LDC21 Series**.

(in mm)

Film Type

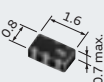


DXP18C Series

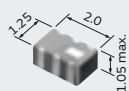
(in mm)

Chip Multilayer Hybrid Dividers

Power divider with a multilayer low pass filter in an ultra-compact package.



LDD18 Series



LDD21 Series

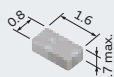
(in mm)

Chip Multilayer Diplexers

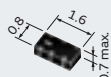
A diplexer branching low and high band. Suitable for band-switching for dual-band system.



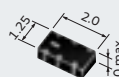
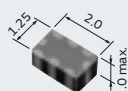
LFD15 Series



LFD18 Series



LFD21 Series



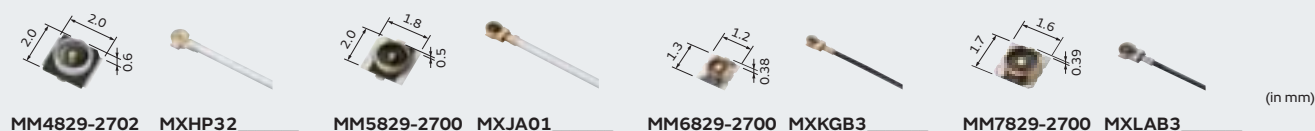
LFD2H Series

(in mm)

Microwave Coaxial Connectors

Microwave Coaxial Cable Connectors

The mating height is only 1.0mm maximum due to our new mechanical design.
Suitable for low-profile design.



(in mm)

Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	Voltage Standing Wave Ratio	Cable Number	Mating Height (mm)
HSC	MM4829-2702	30	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXHP32_____	1.2 max.
JSC	MM5829-2700	30	to 12	-40 to 85°C	1.3 max. (DC to 3GHz)	MXJA01_____	1.0 max.
KSC	MM6829-2700	30	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXKGB3_____	0.8 max.
LSC	MM7829-2700	30	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXLAB3_____	0.8 max.

Nominal Impedance: 50Ω

Microwave Coaxial Connectors with Switch

The coaxial connector with switch is very useful for characteristic measurement in cellular phones and microwave circuits.



(in mm)

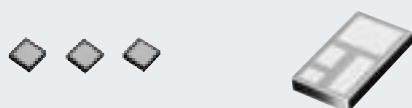
Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	Voltage Standing Wave Ratio	Standard Measurement Probe Part Number
SWD	MM8430-2610	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126320
SWF	MM8130-2600	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MXHS83QE3000
SWG	MM8030-2610	30	to 11	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126320
SWH	MM8930-2600	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MXHQ87WJ3000
SWJ	MM8830-2600	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126515
						MXHQ87PA3000
						MM126715
						MXHQ87PK3000

Nominal Impedance: 50Ω

Single Layer Microchip Capacitors

Very reliable performance and excellent frequency characteristics

Temperature Compensation Type



Capacitance Change (Temperature Range)	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
0±30ppm/°C (-25 to 85°C)	CLB0A	0.25X0.25	100	0.1					-55 to 125
	CLB0C	0.35X0.25	100	0.2					-55 to 125
	CLB0D	0.38X0.38	100	0.2	0.4				-55 to 125
	CLB05	0.5X0.5	100	0.3	0.6				-55 to 125
	CLB0E	0.55X0.38	100	0.5	0.6				-55 to 125
	CLB0F	0.64X0.64	100	0.3	1.0				-55 to 125
	CLB0G	0.7X0.5	100	0.7	1.0				-55 to 125
	CLB0H	0.71X0.38	100	0.7	0.8				-55 to 125
	CLB0J	0.76X0.76	100	0.4	1.3				-55 to 125
	CLB09	0.9X0.9	100	0.5	1.8				-55 to 125
	CLB1A	1.00X0.64	100	1.1	1.6				-55 to 125
	CLB1B	1.09X0.76	100	1.5	2.0				-55 to 125
	CLB1C	1.27X1.27	100	1.0	3.6				-55 to 125
	CLB1E	1.49X0.9	100	2.0	2.7				-55 to 125
	CLB1G	1.73X1.27	100	3.9	4.7				-55 to 125
	CLB1H	1.78X1.78	100	1.8	6.8				-55 to 125
	CLB2C	2.19X1.27	100	5.1					-55 to 125
	CLB2E	2.29X2.29	100	3.0	10				-55 to 125
	CLB2L	2.95X1.78	100	7.5	10				-55 to 125
	CLB3G	3.71X2.29	100	11	16				-55 to 125
-750±60ppm/°C (-25 to 85°C)	CLB0A	0.25X0.25	100	0.3	0.7				-55 to 125
	CLB0B	0.30X0.25	100	0.8					-55 to 125
	CLB0C	0.35X0.25	100	0.9					-55 to 125
	CLB0D	0.38X0.38	100	0.9	1.6				-55 to 125
	CLB05	0.5X0.5	100	1.0	2.4				-55 to 125
	CLB0E	0.55X0.38	100	1.8	2.4				-55 to 125
	CLB0F	0.64X0.64	100	2.0	4.3				-55 to 125
	CLB0G	0.7X0.5	100	2.7	3.0				-55 to 125
	CLB0H	0.71X0.38	100	2.7					-55 to 125
	CLB0J	0.76X0.76	100	3.0	6.2				-55 to 125
	CLB09	0.9X0.9	100	3.3	6.8				-55 to 125
	CLB1A	1.00X0.64	100	4.7	6.2				-55 to 125
	CLB1B	1.09X0.76	100	6.8	7.5				-55 to 125
	CLB1C	1.27X1.27	100	7.5	15				-55 to 125
	CLB1E	1.49X0.9	100	7.5	9.1				-55 to 125
	CLB1H	1.78X1.78	100	13	15				-55 to 125
	CLB2E	2.29X2.29	100	20					-55 to 125

All Single Layer Microchip Capacitors are produced after receiving an order.

High Dielectric Constant Type



Capacitance Change (Temperature Range)	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
±10% (-25 to 85°C)	CLB0A	0.25X0.25	100			5.6	12		-55 to 125
	CLB0B	0.30X0.25	100			13	15		-55 to 125
	CLB0C	0.35X0.25	100			16	18		-55 to 125
	CLB0D	0.38X0.38	100			18	30		-55 to 125
	CLB05	0.5X0.5	100			22	43		-55 to 125
	CLB0E	0.55X0.38	100			33	43		-55 to 125
	CLB0F	0.64X0.64	100			43	75		-55 to 125
	CLB0G	0.7X0.5	100			47	68		-55 to 125
	CLB0H	0.71X0.38	100			47	56		-55 to 125
	CLB0J	0.76X0.76	100			68	110		-55 to 125
	CLB09	0.9X0.9	100			68	130		-55 to 125
	CLB1A	1.00X0.64	100			82	120		-55 to 125
	CLB1C	1.27X1.27	100			160	200		-55 to 125
	CLB1E	1.49X0.9	100			150	160		-55 to 125
	CLB1G	1.73X1.27	100			300			-55 to 125
	CLB1H	1.78X1.78	100			300	430		-55 to 125
	CLB2E	2.29X2.29	100				470	620	-55 to 125
+30, -80% (-25 to 85°C)	CLB0A	0.25X0.25	100			27	33		-55 to 125
	CLB0B	0.30X0.25	100			36	39		-55 to 125
	CLB0C	0.35X0.25	100			43	51		-55 to 125
	CLB0D	0.38X0.38	100			62	82		-55 to 125
	CLB05	0.5X0.5	100			75	130		-55 to 125
	CLB0E	0.55X0.38	100			91	120		-55 to 125
	CLB0F	0.64X0.64	100			130	220		-55 to 125
	CLB0G	0.7X0.5	100			150	200		-55 to 125
	CLB0H	0.71X0.38	100			130	150		-55 to 125
	CLB0J	0.76X0.76	100			200	300		-55 to 125
	CLB09	0.9X0.9	100			200	390		-55 to 125
	CLB1A	1.00X0.64	100			240	360		-55 to 125
+30, -90% (-25 to 85°C)	CLB0A	0.25X0.25	100			36	56		-55 to 125
	CLB0D	0.38X0.38	100			91	150		-55 to 125
	CLB05	0.5X0.5	100			130	220		-55 to 125
	CLB0F	0.64X0.64	100			220	390		-55 to 125
	CLB0J	0.76X0.76	100			330	560		-55 to 125
	CLB09	0.9X0.9	100			390	680		-55 to 125

All Single Layer Microchip Capacitors are produced after receiving an order.

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



• High Frequency Single Layer Microchip Capacitors

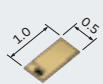
Cat. No. C01E

Thin Film Circuit Substrate RUSUB®

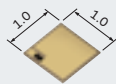
Suitable for photo diode modules.

■ Features

- RUSUB® technology provides a single-layer capacitor and thin film resistor formed in one chip. It reduces not only the number of parts to build a device, but also the assembly costs. It will also contribute to making a device smaller.
- The single-layer structure makes its self-resonant frequency higher. It allows stable operation even at a high frequency range.
- The short distance between the capacitor and thin film resistor makes the residue inductance smaller and contributes to attenuating unnecessary noise so the device can work at its best characteristics.
- Since it has a gold electrode, it is feasible to be installed inside a module, and it allows wire-bonding with gold wire.
- AuSn pre-coating finish is also available.
- It is very suitable for APD (Avalanche Photo Diode), because the capacitor has a withstanding voltage of 100V.



RUCYT101 Series



RUCYT201 Series

(in mm)

- Six types of standard samples of RUSUB® C+R (Capacitor + Resistor) are available.
- Custom substrate size, capacity, resistance value, and electrode pattern shape is available upon request.

Part Number	Size (mm) (LXWXT)	Capacitance (pF)	Resistance (Ω)	Temperature Characteristics of Capacitance at -25 to 85°C	Capacitor Rated Voltage (V)	Temperature Coefficient of Resistance (ppm/°C)	Resistor Rated Power (mW/mm ²)
RUCYT101K00009GNTC	1.0X0.5X0.11	100±10%	50±20%	±10%	100	-70±50	100
RUCYT101K00011GNTC	1.0X0.5X0.11	100±10%	100±20%				
RUCYT101K00012GNTC	1.0X0.5X0.11	100±10%	200±20%				
RUCYT201K00010GNTC	1.0X1.0X0.12	200±10%	50±20%				
RUCYT201K00013GNTC	1.0X1.0X0.12	200±10%	100±20%				
RUCYT201K00014GNTC	1.0X1.0X0.12	200±10%	200±20%				



Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



▪ Thin Film Circuit Substrate (RUSUB®)

Cat. No.M04E

Sensors

Summary

Murata pursued sensing functions making full use of MEMS and processing technology, and magnetoresistive elements including ceramic material technology in order to develop highly efficient and highly reliable devices, modules, and systems.

A lineup of various sensors respond to the sensing needs of various applications for automobile, wearable, medical care, and health care.

Lineup

●Infrared Sensors ●Ultrasonic Sensors ●Rotary Sensors
●Magnetic Pattern Recognition Sensors ●AMR Sensors
(Magnetic Sensors) ●Shock Sensors ●Accelerometers
●Inclinometers ●Gyro Sensors ●Rotary Position Sensors
●Proximity and Ambient Light Sensors ●Barometric Pressure
Sensors ●Temperature Sensors (Thermistors)



Sensor Guide (Select by Method/Principle)



Temperature

Thermistors: The resistance changes with the temperature.

NCP Series

PRF Series

NX Series

PTF Series



Infrared/Light

Pyroelectric infrared sensors: The sensor reacts to the infrared radiation emitted from the human body to output an electric charge.

IRA Series

Ambient light sensors: The built-in photo diode detects ambient light and infrared light.

LT Series

For more details on Thermistors, please refer to p. 64.



Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- MEMS Sensors & Sensing Elements
- Rotary Position Sensors
- NTC Thermistors
- POSISTOR® for Circuit Protection
- NTC/PTC Thermistors for Automotive

Cat. No. S47E
Cat. No. R51E
Cat. No. R44E
Cat. No. R90E
Cat. No. R03E



Distance

Ultrasonic sensors: The sensor sends and receives ultrasonic waves in order to detect distances from the state of the reflected wave.



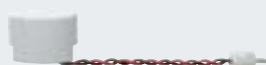
MA300D1-1
(for Dual Use)



MA40H1S



MA40S4R (for Receiver)
MA40S4S (for Transmitter)



MA58MF14-7N
(for Dual Use)



Proximity/Open and Shut

Proximity sensors: The sensor sends and receives infrared light in order to detect the proximity from the state of the reflected light.



LT Series

Magnetic switches: This switch switches built-in ICs when the magnetoresistive element detects the magnetic proximity.



MR Series



Inertial force

Shock sensors: This sensor generates an electric charge according to the acceleration (stress) applied to the piezoelectric element.



PKG5 Series

Accelerometers: This sensor detects the acceleration from the change of the capacitance that occurs in the 3D MEMS element.



SCA Series

Inclinometers: This sensor detects the gravitational acceleration of the Earth to calculate the angle of gradient.



SCA Series

Gyro sensors: This sensor detects the angular velocity from the change in the capacitance that occurs in the 3D MEMS element.



SCC Series
SCR Series



Magnetic

Rotary sensors: This sensor detects the motion of magnetic gears by a built-in magnet and magnetoresistive element.



FR Series

Magnetic switches: This switch switches built-in ICs when the magnetoresistive element detects magnetism.



MR Series

Magnetic pattern recognition sensors: This sensor identifies magnetic ink by the combination of a built-in magnet and magnetoresistive element.



BS Series



Pressure

Barometric pressure sensors: This sensor detects the atmospheric pressure applied to the 3D MEMS element by the capacitance.



ZPA Series



Angle

Rotary position sensors: The resistance changes in proportion to the angle.



SV03 Series

Lineup

Detection	Murata's Sensors			Applications										
	Products	Series or Main Part Number	Dimensions (mm)	AV Equipment					Communications Devices					
				TV	Audio	DVD, CD	Digital Video Camera	Digital Camera	PC	Scanner	Multifunction Machine	Printer	FAX	Electronic Bulletin Board
Infrared	Pyroelectric Infrared Sensors	IRA Series	 $\varnothing 9.2$ H4.7	●	●	●			●	●	●	●	●	●
Ultrasonic	Open Structure Type Ultrasonic Sensors	MA40S4R (for Receiver) MA40S4S (for Transmitter)	 $\varnothing 9.9$ H7.1											●
		MA40H1S	 5.2X5.2X1.15	●	●	●	●	●	●	●	●	●	●	●
	Drip-proof Type Ultrasonic Sensors	MA58MF14-7N (for Dual Use)	 $\varnothing 14.0$ H9.0											
	High Frequency Type Ultrasonic Sensors	MA300D1-1 (for Dual Use)	 $\varnothing 9.9$ H7.3							●	●	●		
Magnetic	Rotary Sensors	FR Series	 $\varnothing 22.5$ H12.5											
	Magnetic Pattern Recognition Sensors	BS Series	 11.15X8.8X12.5 193.0X16.0X7.5											
	AMR Sensors (Magnetic Sensors)	MR Series	 MRMS201A: 2.8X2.9X1.1 MRMS501A: 1.45X1.45X0.55			●	●	●	●					
Acceleration	Shock Sensors	PKGS Series	 3.2X2.0X1.05						●					
	Accelerometers	SCA Series	 10.48X11.31X5.08											
	Inclinometers	SCA Series	 15.58X11.31X5.08								●			
Angle Velocity	Gyro Sensors	SCC Series SCR Series	 8.5X18.7X4.5											
Angle	Rotary Position Sensors	SV03 Series	 11X12X2.1	●				●			●	●		
Optical	Proximity and Ambient Light Sensors	LT Series	 3.05X2.1X1.0								●	●		
Atmosphere Pressure	Barometric Pressure Sensors	ZPA Series	 2.6X2.3X0.875											
Temperature	NTC Thermistors	Chip Type NCP Series	 NCP03: 0.6X0.3X0.3 NCP15: 1.0X0.5X0.5 NCP18: 1.6X0.8X0.8 NCP21: 2.0X1.25X0.85	●	●	●	●	●	●	●	●	●	●	●
		Lead Type NX Series	 NXF: $\varnothing 1.2$ L25 to 150 NXR: $\varnothing 4.0$ L10 to 40	●	●				●	●	●	●	●	●
	PTC Thermistors POSISTOR®	Chip Type PRF Series	 PRF15: 1.0X0.5X0.5 PRF18: 1.6X0.8X0.8 PRF21: 2.0X1.25X0.9	●	●	●	●	●	●	●	●	●	●	●
		Lead Type PTF Series	 $\varnothing 5.0$ max. T4.0 max. $\varnothing 7.5$ T3.0	●	●				●	●	●	●	●	●

Applications																												Wearable	Murata's Sensors	Products
Home Electronics													Security			Car Electronics			Toy		Others									
	Refrigerator	Electric Rice-cooker	Air Conditioner	Air Purification System	Humidifier	Cleaner	Laundry Machine	Food Fan	Water Heater	Toilet Seats with a Warm-water Shower Feature	Lighting	Security Camera	Security Light	Indoor Security Sensor	Intrusion Detection Sensor	Navigation System	Climate Control	Parking Assist	Radio Control (Attitude Control)	Game Controller	Machine Tool	ATM, CD	Vending Machine	Amusement Machine	Construction Machinery	Farm Machinery	Railroad Equipment			
	●	●	●	●							●	●	●	●	●							●	●	●				Pyroelectric Infrared Sensors		
	●		●			●					●	●	●	●	●							●	●	●				Open Structure Type Ultrasonic Sensors		
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●	●		●	●	●				Drip-proof Type Ultrasonic Sensors		
																		●										High Frequency Type Ultrasonic Sensors		
																					●				●	●	●	Rotary Sensors		
																						●	●	●				Magnetic Pattern Recognition Sensors		
	●	●	●	●	●	●	●	●	●	●	●				●						●	●	●	●				AMR Sensors (Magnetic Sensors)		
																												Shock Sensors		
							●														●			●	●	●		Accelerometers		
																					●				●	●		Inclinometers		
							●									●					●			●	●	●		Gyro Sensors		
	●		●				●		●	●	●	●				●	●			●				●				Rotary Position Sensors		
																											●	Proximity and Ambient Light Sensors		
						●													●	●				●			●	Barometric Pressure Sensors		
	●	●	●	●	●	●	●	●	●	●	●					●				●			●	●				NTC Thermistors		
	●	●	●	●	●	●	●	●	●	●	●													●	●			NTC Thermistors		
	●	●	●	●	●	●	●	●	●	●	●					●				●				●				PTC Thermistors		
					●	●	●	●	●	●	●														●			POSISTOR®		

Thermistors

Facilitate your designs and products utilizing our thermal design and thermistor products.

Summary

Murata's semi-conductive ceramics and electrode printing technologies, such as PTC and NTC Thermistors, provide vital protection and sensing within electronic equipment. Simulation software tools are also available for your convenience.

Lineup

- NTC Thermistors for temperature sensor/compensation, inrush current suppression, and automotive
- PTC Thermistors POSISTOR® for overheat sensing, overcurrent protection, inrush current suppression, and automotive



NTC Thermistors for Temperature Sensor/ Temperature Compensation

Chip Type

Chip NTC Thermistors have Ni barrier terminations, provide excellent solderability, and offer high stability in harsh environments due to their unique inner construction.



NCP02 Series



NCP03 Series



NCP15 Series



NCP18 Series



NCP21 Series

(in mm)

Series	Size Code inch (mm)	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Permissible Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Operating Temperature Range (°C)
NCP02	01005 (0402)	10k/100k	3380/4250	0.31/0.01	100	1	-40 to 125
NCP03	0201 (0603)	1.0k to 220k	3500 to 4485	0.06 to 9.5	100	1	-40 to 125
NCP15	0402 (1005)	220 to 470k	3500 to 4500	0.04 to 2.10	100	1	-40 to 125
NCP18	0603 (1608)	220 to 470k	3500 to 4500	0.04 to 2.10	100	1	-40 to 125
NCP21	0805 (2012)	220 to 100k	3500 to 4250	0.14 to 3.0	200	2	-40 to 125

Rated Electric Power shows the required electric power that causes the Thermistor's temperature to rise to 125°C by self heating, at ambient temperature of 25°C.

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.

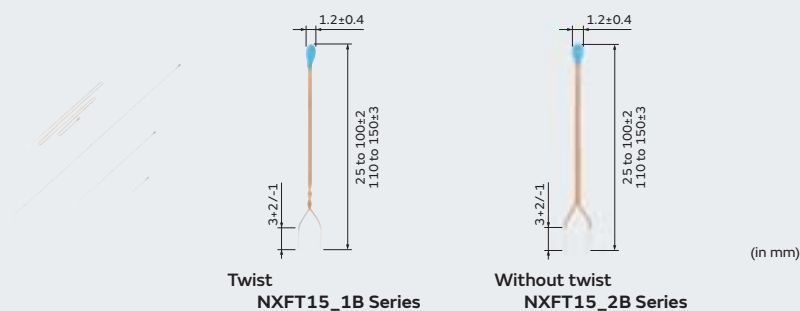


- NTC Thermistors
- POSISTOR® for Circuit Protection
- NTC/PTC Thermistors for Automotive

Cat. No. R44E
Cat. No. R90E
Cat. No. R03E

Thermo String Type

Small flexible lead type NTC Thermistors with a small head and a thin lead wire.

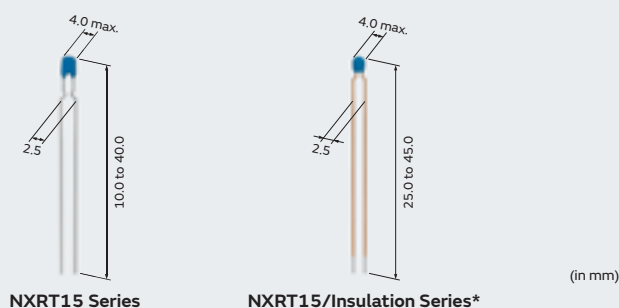


Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXFT15	10k to 100k	3380 to 4250	0.04 to 0.12	4	25 to 150	-40 to 125

Operating Current for Sensor raises the Thermistor's temperature by 0.1°C.
There are also items for automotive applications in the NXF Series.

Lead Type

This product is a thermistor for normal temperature level sensors having self-subsistence due to strong lead strength based on chip NTC.



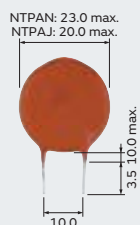
Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXRT15	2k to 100k	3380 to 4250	0.04 to 0.27	4	10 to 40	-40 to 125
NXRT15 (Insulation*)	2k to 100k	3380 to 4250	0.05 to 0.36	4	25 to 35	-40 to 125

Operating Current for Sensor raises the Thermistor's temperature by 0.1°C.
There are also items for automotive applications in the NXR Series.

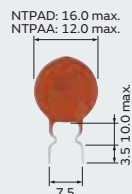
*Insulation: Lead wire insulation type.

NTC Thermistors for Inrush Current Suppression

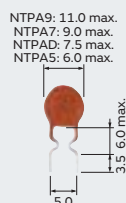
Effectively suppresses surge currents that are generated when switching power regulators are turned on.



NTPAN / J Series



NTPAD / A Series



NTPA5 / D / 7 / 9 Series

(in mm)

Series	Resistance (25°C) (Ω)	Permissible Max. Current (25°C) (A)	Permissible Max. Current (55°C) (A)	Thermal Time Constant (25°C) (s)	Permissible Electrolytic Capacitor (100V) (μF)	Operating Temperature Range (°C)
NTPAN / J	3 to 10	2.6 to 5.4	2.2 to 4.7	125 to 135	5000 to 8600	-20 to 160
NTPAD / A	2.2 to 16.0	1.7 to 3.7	1.5 to 3.2	65 to 100	1400 to 2700	-20 to 160
NTPA5 / D / 7 / 9	4.0 to 22.0	1.0 to 2.5	0.9 to 2.2	20 to 65	346 to 800	-20 to 160

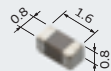
PTC Thermistors POSISTOR® for Overheat Sensing

Chip Type

For overheat sensing for power transistors, power diodes, and power ICs in hybrid circuits.



PRF15 Series



PRF18 Series



PRF21 Series

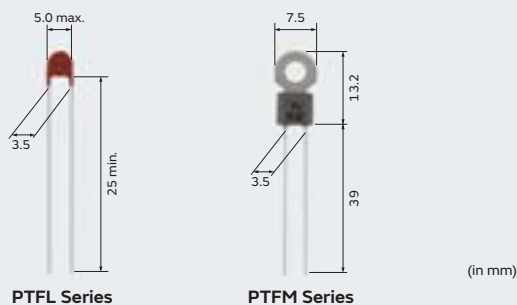
(in mm)

Series	Sensing Temperature Range (°C)										Sensing Temperature Tolerance (°C)	Maximum Voltage (V)	Size Code inch (mm)
	60	70	80	90	100	110	120	130	140	150			
PRF15			●	●	●	●	●	●	●	●	±3/±5	32	0402 (1005)
PRF18	●	●	●	●	●	●	●	●	●	●	±3/±5	32	0603 (1608)
PRF21			●	●	●	●	●	●	●	●	±5	32	0805 (2012)

There are also items for automotive applications in the PRF Series.

Lead Type

For protecting power transistors, stereo main amplifiers, etc., from overheating, and also for sensing the temperature of other components that may be overheated.

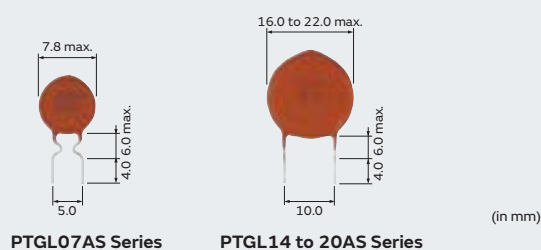


Series	Sensing Temperature Range (TS) (°C)										Maximum Voltage (V)	Resistance (25°C) (max.) (Ω)	Resistance (TS-10°C) (max.) (Ω)	Resistance (TS°C) (min.) (Ω)
	60	70	80	90	100	110	120	130	140	150				
PTF□_471Q	●	●	●	●	●	●	●				16	100	330	470
PTF□_222Q	●	●	●	●	●	●	●				16	330	1.5k	2.2k

The blank is filled with type codes. (L: Lead type, M: with lug-terminal)
Operating Temperature Range is -10 to TS+10°C.

PTC Thermistors POSISTOR[®] for Inrush Current Suppression

This series is able to support overcurrent or inrush current issues on the power supply circuit.



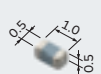
Series	Resistance (25°C) (Ω)	Maximum Voltage (V)	Maximum Inrush Current (A _{o-p})	Maximum Charge Energy (J)	Operating Temperature Range (°C)
PTGL07AS	120 to 200	280	5.66 to 8.46	7.8 (105°C)	-40 to 105
PTGL14 to 20AS	33 to 100	280	13 to 39	56.9 to 181.7 (65 to 85°C)	-20 to 85

Maximum Inrush Current shows the maximum inrush current value introduced into the Posistor at operating temperature range.

PTC Thermistors POSISTOR® for Overcurrent Protection

Chip Type

Overcurrent Protection device with resettable function suitable for current-limiting resistors.



PRG15 Series



PRG18 Series



PRG21 Series

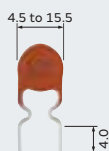
(in mm)

Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)	Size Code inch (mm)
PRG15	6 to 30	17 to 88	78 to 318	0.6 to 3.5	2.2 to 68	0402 (1005)
PRG18	6 to 30	7 to 220	25 to 850	0.06 to 7.5	2.2 to 470	0603 (1608)
PRG21	6 to 30	30 to 500	110 to 2000	1.1 to 10	0.2 to 22	0805 (2012)

Maximum Current shows typical transformer capacities that can be used. There are also items for automotive applications in the PRG Series.

Lead Type

Best suited to meet the requirements of power supplies and motor protection.
Error-free operation is ensured by rush current.



(in mm)

PTGL Series

*The Lead shape is an example.

Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)
PTGL	16	370 to 1200	1040 to 3360	2.0 to 10.0	0.15 to 1.0
	24	80 to 180	320 to 710	2.0	2.2 to 10
	30	122 to 685	240 to 1900	0.7 to 7.0	0.8 to 13
	32	30 to 60	140 to 240	1.5	15 to 47
	51	168 to 592	332 to 1168	1.0 to 5.0	1.2 to 10
	56	90 to 380	240 to 980	1.0 to 2.5	3.3 to 22
	60	88 to 439	175 to 867	1.0 to 5.0	2.2 to 22
	80	50 to 310	135 to 860	0.7 to 5.5	3.7 to 55
	125	30 to 420	75 to 1050	0.3 to 2.0	3.3 to 180
	140	74 to 340	147 to 780	0.5 to 3.5	4.7 to 56
	250	90 to 100	280 to 300	0.5 to 0.6	12 to 39
	265	28 to 300	78 to 830	0.2 to 4.1	6.0 to 180

Maximum Current shows typical transformer capacities that can be used. There are also items for automotive applications in the PTGL Series.

Power Devices

Eco-friendly and high-quality power devices

Summary

To meet consumer needs Murata offers power supply products and energy devices that can be used with a variety of equipment, such as video equipment, household information appliances, and communication/transfer equipment. Murata provides standard and customized products using highly reliable, Murata-made components utilizing advanced design and high-density packaging technology.

Lineup

- DC-DC Converters ●Micro DC-DC Converters
- High Voltage Transformers ●High Voltage Power Supplies
- Switching Power Supplies



DC-DC Converters

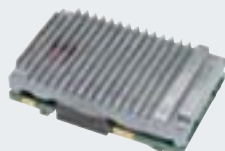
DC-DC converters are vital to the demands of electronic equipment.

Murata offers DC-DC converters that set the standard for miniaturization, low-profile, high-efficiency, power-saving, low-noise power supplies. Murata provides standard products and customized products, ultra-low-profile products, and products for FPGAs.

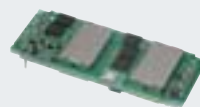
Isolated Type



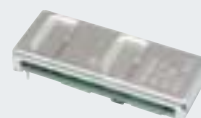
MYBQC01138AZTB



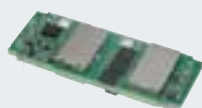
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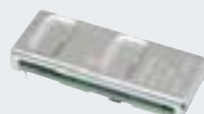
MYBEA01212AZT



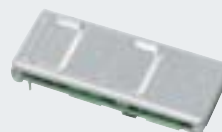
MYBEA01212AZTB



MYBEA01210CZT



MYBEA01210CZTB



MYBEB01212AZTB



MYBTA00512ABT

Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Isolation Voltage (VDC)	Footprint (Brick)	Size (mm) LXWXH
MYBQC01138AZTB	Insert	48V (36V to 75V)	400	10.6±6%	38	95	1500	1/4	58.4X36.8X14 max.
MYBQC01138AZTF	Insert	48V (36V to 75V)	400	10.6±6%	38	95	1500	1/4	58.4X36.8X17 max.
MYBEA01212AZT	Insert	48V (36V to 75V)	140	12±3%	12	92.5	1500	1/8	58.4X22.8X9 max.
MYBEA01212AZTB	Insert	48V (36V to 75V)	140	12±3%	12	92.5	1500	1/8	58.4X22.8X9 max.
MYBEA01210CZT	Insert	24V (18V to 36V)	120	12±3%	10	93	1500	1/8	58.4X22.8X9 max.
MYBEA01210CZTB	Insert	24V (18V to 36V)	120	12±3%	10	93	1500	1/8	58.4X22.8X9 max.
MYBEB01212AZTB	Insert	48V (36V to 75V)	100	12±3%	8.3	92	2250	1/8	58X22.8X12.7 max.
MYBTA00512ABT	SMD	48V (36V to 75V)	60	5±3%	12	92	2250	1/32	23.36X19.05X12.7 max.

These are just a few examples of our large assortment of power products.

Non-isolated Type



MPDRX307S
MPDRX308S



MPDRX312S



MPDTY461S
MPDTY462S



MYGTM01210BZN



MYLSM00502ERPL



MYMGK00506ERSR
MYMGK1R806FRSR



MYMGK1R820ERSR
MYMGK1R820FRSR



MYSSM01806BENL



MYUSP3R303FMP



OKL2-T/12-W12N2-C



OKL2-T/12-W5N-C



OKL2-T/20-W12N2-C
OKL2-T/20-W12P2-C



OKL2-T/20-W5N-C
OKL2-T/20-W5P-C



OKL-T/3-W5N-C



OKL-T/6-W12P-C

Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Size (mm) LXWXH
MPDRX307S	SMD	6.2 to 13.2	23.6	1.8 to 3.63	6.5	91	17.6X20.2X4.2
MPDRX308S	SMD	6.2 to 13.2	10.7	0.8 to 1.65	6.5	82	17.6X20.2X4.2
MPDRX312S	SMD	3 to 5.5	28.8	0.8 to 1.8	16	86.5	27.8X15.4X4.2
MPDTY461S	SMD	4.5 to 14	94	1.6 to 3.63	26	90.5	33.02X13.46X4.2
MPDTY462S	SMD	4.5 to 14	43	0.75 to 1.65	26	85.5	33.02X13.46X4.2
MYGTM01210BZN	SIL	17 to 40	120	5 to 12	10	97.3	40X40.3X29.2
MYLSM00502ERPL	SMD	8 to 16	12.5	1 to 5.25	2.5	85	7.9X7.9X2.3
MYMGK00506ERSR	SMD	8 to 14	30	0.7 to 5.0	6	95.4	9.0X7.5X5.0
MYMGK1R806FRSR	SMD	4.5 to 5.5	10.8	0.7 to 1.8	6	90.4	9.0X7.5X5.0
MYMGK1R820ERSR	SMD	8 to 14	36	0.7 to 1.8	20	87.8	10.5X9.0X5.6
MYMGK1R820FRSR	SMD	4.5 to 5.5	36	0.7 to 1.8	20	89.2	10.5X9.0X5.6
MYSSM01806BENL	SMD	25 to 40	108	5 to 18	6	96.5	30.2X20.9X12
MYUSP3R303FMP	SMD	3 to 5.5	9.9	0.7 to 3.3	3	94	11X8.5X5.6
OKL2-T/12-W12N2-C	SMD	4.5 to 14	60	0.69 to 5.5	12	95	20.32X11.43X8.55
OKL2-T/12-W5N-C	SMD	2.4 to 5.5	39.6	0.6 to 3.63	12	94	20.32X11.43X8.55
OKL2-T/20-W12N2-C	SMD	4.5 to 14	100	0.69 to 5.5	20	94	33.02X13.46X8.75
OKL2-T/20-W12P2-C	SMD	4.5 to 14	100	0.69 to 5.5	20	94	33.02X13.46X8.75
OKL2-T/20-W5N-C	SMD	2.4 to 5.5	66	0.6 to 3.63	20	93.1	33.02X13.46X8.75
OKL2-T/20-W5P-C	SMD	2.4 to 5.5	66	0.6 to 3.63	20	93.1	33.02X13.46X8.75
OKL-T/3-W5N-C	SMD	2.7 to 5.5	10.9	0.6 to 3.63	3	95.3	12.2X12.2X6.2
OKL-T/6-W12P-C	SMD	4.5 to 14	33	0.591 to 5.5	6	93	12.2X12.2X7.2

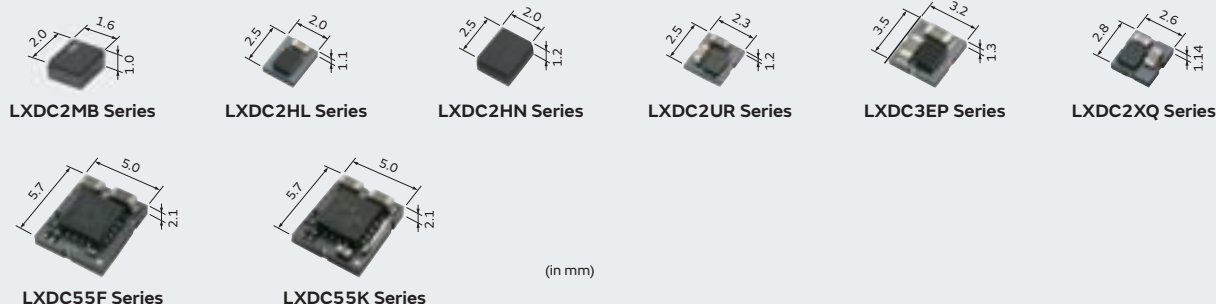
These are just a few examples of our large assortment of power products.

Micro DC-DC Converters

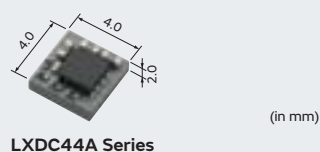
Murata's micro DC-DC converters are small power modules that utilize a unique ferrite substrate with an embedded power inductor, and incorporate the I/O capacitors onto the same package.

Ultra-compact size and superior noise suppression make these devices ideal for cellular/smart phones, tablets, wearable devices, communication applications, and portable products.

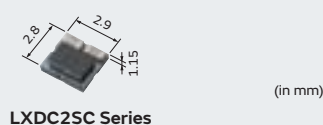
General Buck Converter



Boost Converter



Buck-Boost



Series	Size (mm)		Input Voltage (V)	Output Voltage (V)	Output Current (mA)
	LXW	T (max.)			
LXDC2MB	2.0X1.6	1.0	2.0 to 5.5	1.0 to 3.3	<50
LXDC2HL**G	2.5X2.0	1.0	2.3 to 5.5	1.0 to 2.5	<300
LXDC2HL**A	2.5X2.0	1.1	2.3 to 5.5	1.0 to 3.3	<600
LXDC2HN**F	2.5X2.0	1.3	2.3 to 5.5	1.0 to 3.3	<600
LXDC2UR	2.5X2.3	1.2	2.7 to 5.5	1.2 to 3.3	<600
LXDC3EP	3.5X3.2	1.3	2.5 to 5.5	1.0 to 3.3	<1000
LXDC2XQ	2.8X2.6	1.14	2.7 to 5.5	1.0 to 3.3	<1500
LXDC55F	5.7X5.0	2.1	4.0 to 14.0	0.8 to 5.3 Set by Trim Resistor	<1500
LXDC55K	5.7X5.0	2.1	2.7 to 5.5	0.8 to 3.6 Set by Trim Resistor	<3000
LXDC44A	4.0X4.0	2.0	2.7 to 5.5	5.0, 6.0	<700
LXDC2SC	2.8X2.9	1.15	2.8 to 5.0	3.3	<1200

High Voltage Transformers



QF Type



QP Type



WP Type



NU Type



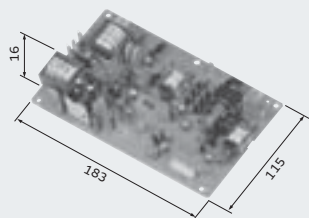
WR Type



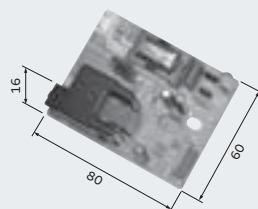
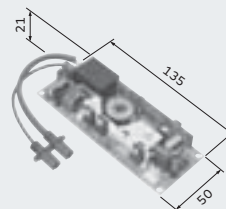
AK Type

Series	Type	Features	Output Voltage Vout	Output Current Iout	Drive Frequency	Dimensions (mm) LXWXH
MSH	QF	Small Size	Max. 6kV	0.3mA	35 to 70kHz	39X24X13
	QP	Standard	Max. 8.5kV	0.4mA	35 to 70kHz	41X26X16
	WP	Low Profile	Max. 8.5kV	0.4mA	35 to 70kHz	44X27X11
	NU	High Power	Max. 8.5kV	1mA	30 to 70kHz	44X27X17
	WR	High Voltage	Max. 13kV	0.5mA	30 to 70kHz	49X65X27
	AK	High Voltage High Power	Max. 10kV	2mA	20 to 70kHz	55X28X26

High Voltage Power Supplies



MPH7000 Series

MPH4000 Series
(for Air Purifier/Air Conditioner)MPL3000 Series
(AC/DC Ballast)

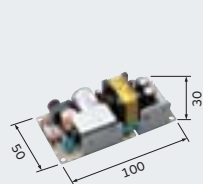
(in mm)

Series	Input Voltage Vin	Power Supply Type		Output Voltage Vout	Output Current Iout	Adjustable Range
MPH7000	24V DC	DC Constant Current		(6kV)	250μA	Iout: 200 to 300μA
		DC Constant Voltage		0.6kV	(1μA)	Vout: 550 to 650kV
		Switching	DC Constant Current	(-1.5kV)	-3μA	Iout: -2 to -4μA
			DC Constant Voltage	1.5kV	(0.5μA)	Vout: 1.4 to 1.6kV
		AC Constant Voltage		1.5kV rms	(250μA rms)	Vout: 1.3 to 1.7kV rms
MPH4000 (for Air Purifier/Air Conditioner)	24V DC	DC Constant Voltage		±6kV	±400μA	-
		DC Constant Current		(±6kV)	±400μA	-

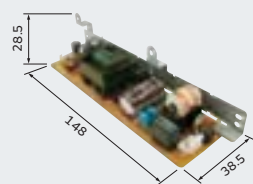
Series	Applications	Input Voltage Vin	Output Power	Other Specification
MPL3000 (AC/DC Ballast)	Projector	250 to 420V DC	to 350W	For extra-high pressure mercury lamp

For more details on our products, please contact us.

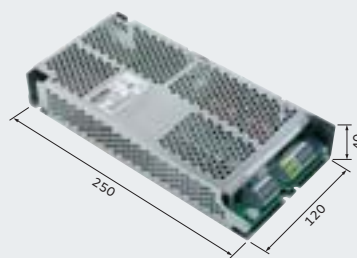
Switching Power Supplies



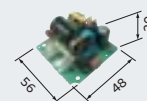
Medical Equipment



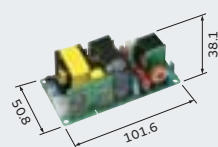
SOHO Equipment



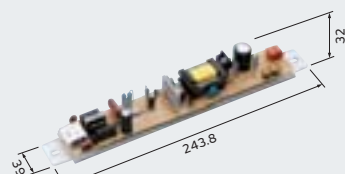
Industrial and Measurement Equipment



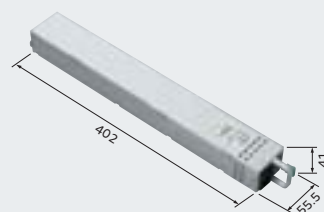
Energy Management Equipment



PBX



LED Lighting



HVDC

(in mm)

Applications	Input Voltage	Output Voltage	Safety Standard	EMI Standard	Remarks
Medical Equipment	90 to 264V AC	5V 12V 24V 48V	UL, IEC	CISPR	
SOHO Equipment	90 to 264V AC	5V 12V 24V 48V	UL, IEC	CISPR	Models that provide a power-saving standby mode are also available.
Industrial and Measurement Equipment	90 to 264V AC	24V	UL, IEC	VCCI	150W/300W
Energy Management Equipment	60 to 225V AC	3.3V 24V	UL, IEC	VCCI, CISPR	
PBX	90 to 264V AC	12V 48V	UL, IEC	CISPR	Operating Ambient Temperature 80°C
LED Lighting	90 to 264V AC	24V	IEC, PSE	VCCI, CISPR	PWM Dimming, Accepted for DALI, UART
HVDC	200 to 400V DC	12.12V	-	VCCI	PMBus

For more details on our products, please contact us.

For Ionizer Modules, please refer to p. 81.

Energy Devices

Solutions for power lines of low-power devices

Summary

Murata offers various energy devices that can be used for low-power devices such as portable or wearable devices. Murata's supercapacitors (EDLC), having ultra-low ESR and high reliability, can be used as a small auxiliary power supply for peak power assist or backup. Murata's small energy device is a secondary battery having high-rate charge-discharge characteristics and long cycle life. It can be used as a power supply of low-power devices.

Lineup

- Supercapacitors (EDLC)
- Small Energy Devices (Lithium Ion Batteries)



Supercapacitors (EDLC)

Supercapacitors (EDLC) are energy storage devices with high power density characteristics. Murata has focused its R&D efforts on electrical double-layer energy devices, and also established collaboration with the component design and manufacturing firm CAP-XX Limited (CAP-XX). This has led to Murata's development of Supercapacitor technology resulting in low ESR and high capacitance in a very small package.



DMT3N4R2U224M3DTA0
DMT334R2S474M3DTA0
DMF3Z5R5H474M3DTA0



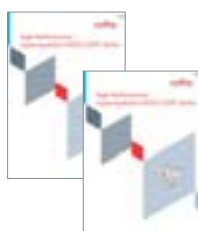
DMF4B5R5G105M3DTA0

(in mm)

Series	Main Part Number	Thickness (mm)	Capacitance (mF)	Rated Voltage (V)	ESR (mΩ)	Operating Temperature (°C)
DMT (General-Purpose Type)	DMT3N4R2U224M3DTA0	2.0	220	4.2	300	-40 to 85
	DMT334R2S474M3DTA0	3.5	470	4.2	130	-40 to 85
DMF (High Peak Power Type)	DMF3Z5R5H474M3DTA0	3.2	470	5.5 (Peak Voltage)	45	-40 to 70
	DMF4B5R5G105M3DTA0	3.7	1000	5.5 (Peak Voltage)	40	-40 to 70

Detailed Catalogs

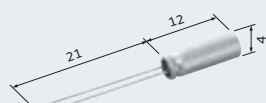
For more details, please refer to our PDF catalogs on our website.



- High Performance Supercapacitor (EDLC) DMF Series
Cat. No. O83E
- High Performance Supercapacitor (EDLC) DMT Series
Cat. No. O84E

Small Energy Devices (Lithium Ion Batteries)

Murata's small energy devices are miniature devices with a high energy storage capacity, low ESR, fast charging and discharging, and the ability to withstand load fluctuations. It may be used as a secondary battery in the same way as a capacitor. This energy device achieves better charge/discharge characteristics and has an extended service life superior to conventional batteries. Well suited as a power supply for wearable devices or sensor nodes for wireless sensor networks, this device maintains flat voltage characteristics while accommodating a wide range of load characteristics.



(in mm)

UMAC040130A003TA01

Series	Part Number	Nominal Voltage (V)	Charge Voltage (V)	Cut-off Voltage (V)	Nominal Capacity (mAh)	Max. Discharge Current	ESR (mΩ)	Operating Temperature Range (°C)
UMAC (Cylinder Type)	UMAC040130A003TA01	2.3	2.7	1.8	3	30mA (10C)	800	-20 to 70

Please contact Murata sales representative if you need higher capacity or thinner package size.

Sound Components (Buzzer)

Piezoelectric ceramic materials that expand and shrink by applying voltage are used in piezoelectric sound components.

Summary

Using Murata's unique ceramic material, we offer a variety of piezoelectric sound components.

Lineup

- SMD Piezoelectric Sounders
- Pin Type Piezoelectric Sounders
- Piezoelectric Buzzers
- Piezoelectric Diaphragms



SMD Piezoelectric Sounders

Low power consumption, lightweight.

Optimized for small devices such as blood glucose meters, clinical thermometers, photoflashes for cameras, and portable terminals.



PKLCS1212E20



PKLCS1212E24



PKLCS1212E40



PKMCS0909E40

(in mm)

Applications	Mounting Type	Drive Type	Main Part Number	Sound Pressure Level (typ.)	Measurement Condition of Sound Pressure Level
For Automotive	Surface Mounting Type	External Drive	PKLCS1212E20A0-R1	76dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKLCS1212E24A0-R1	80dB	±1.5Vo-p, 2.4kHz, square wave, 10cm
			PKLCS1212E40A1-R1	84dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
For Consumer			PKLCS1212E2000-R1	76dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKLCS1212E2400-R1	80dB	±1.5Vo-p, 2.4kHz, square wave, 10cm
			PKLCS1212E4001-R1	84dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
			PKMCS0909E4000-R1	74dB	±1.5Vo-p, 4.0kHz, square wave, 10cm

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



• Piezoelectric Sound Components

Cat. No. P37E

Pin Type Piezoelectric Sounders

Low power consumption, lightweight.

These products are optimized for operation confirmation sounds and warning sounds in household appliances such as air conditioners, washers, and refrigerators.



PKM13EPYH



PKM17EPP



PKM22EPH



PKM22EPPH20



PKM22EPPH40

(in mm)

Packaging	Mounting Type	Drive Type	Main Part Number	Sound Pressure Level (typ.)	Measurement Condition of Sound Pressure Level
Taping	Pin Type	External Drive	PKM13EPYH4000-A0	78dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
Bulk			PKM13EPYH4002-B0	78dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
			PKM17EPP-2002-B0	79dB	3.0Vo-p, 2.0kHz, square wave, 10cm
			PKM22EPH2001	85dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKM22EPPH2001-B0	79dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKM22EPPH4007-B0	92dB	±1.5Vo-p, 4.0kHz, square wave, 10cm

Piezoelectric Buzzers

This is a unified piezoelectric sounder connected to a built-in self-drive circuit, and it easily generates sound with only a DC power supply.

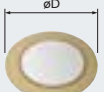
Suitable for gas detector alarms/burglar alarms/home-electronic appliances.

	(in mm)	Mounting Type	Drive Type	Main Part Number	Sound Pressure Level (min.)	Measurement Condition of Sound Pressure Level
PKB24SPCH		Pin Type	Self Drive	PKB24SPCH3601-B0	90dB	12Vdc, 10cm

Piezoelectric Diaphragms

Low power consumption, lightweight.

Suitable for clocks/calculators/digital cameras/burglar alarms, and various alarms.

	7BB-□□-□	Drive Type	Main Part Number	Plate Size (øD)
	External Drive		7BB-12-9	ø12.0mm
			7BB-15-6	ø15.0mm
			7BB-20-6	ø20.0mm
			7BB-27-4	ø27.0mm

□: Indicates Metal Plate Diameter and Resonant Frequency Type.

Wireless Communication Modules

Available for a wide range of applications such as automotive, mobile computing devices, and household appliances.

Wi-Fi® Modules / Bluetooth® · Wi-Fi® Combo Modules



■ Features

Compact, highly efficient, and flexible custom-made correspondence

■ Applications

Mobile phones, automotive, tablet PC, POS, HT, electric equipment, smart grid, etc.

Bluetooth® Modules / Bluetooth® Low Energy Modules



■ Features

Compact, highly efficient, and flexible custom-made correspondence

■ Applications

Mobile phones, automotive, PMP, POS, HT, healthcare, wireless remote control, etc.

Variable Capacitors

Capacitance value can be adjusted by the tuning voltage.

LXRW_V Series



LXRW0YV Series



LXRW19V Series

(in mm)

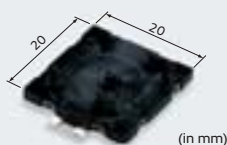
Thin film variable capacitors can carry out the variable of the capacitor by adjusting the tuning voltage. It is designed for use as frequency matching for HF band (13.56MHz).

Micromechatronics

Utilizing the vibration and deformation properties of piezoelectric materials.

Microblowers

Tiny air pumps without a motor



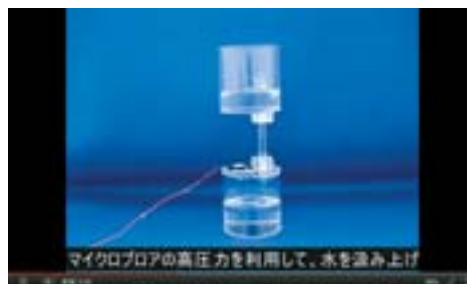
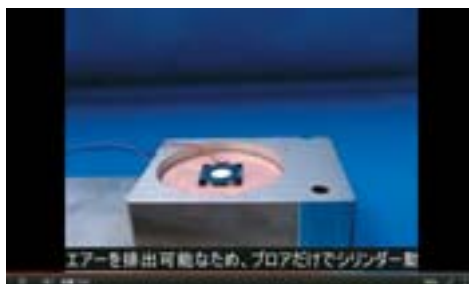
■ Features

Microblowers are designed to function as an air pump, using the ultrasonic vibrations of piezoelectric ceramics, which can generate high pressure air from a thin and extremely compact unit.

■ Applications

Aroma/diffuser, gas & alcohol sensor, air ionizer, amusement, etc.

Part Number	Size	Air Flow	Static Pressure	Voltage of Operation
MZB1001T02	20(W)X20(L)X1.85(H)mm without the nozzle	≥0.7L/min@15Vp-p	≥1.42kPa@15Vp-p	10 to 20Vp-p



For more details on Microblowers, please refer to our website.

Piezoelectric Actuators

Quick response and high-accuracy position control.



■ Features

Piezoelectric actuators employ piezoelectric ceramics, which are widely used for positioning devices.

Ceramic Applied Products

Contribution to high integration and miniaturization requirements of the automotive industry and RF modules.

Low Temperature Co-fired Ceramics (LTCC) Multi-layer Module Boards



LTCC, Low Temperature Co-fired Ceramics, is a multi-layer, glass ceramic substrate that is co-fired with low resistance metal conductors. What makes Murata's LTCC special is our unique "Zero Shrinking Sintering Process," which restricts the ceramic shrinkage to only thickness.

Murata's LTCC multilayer substrates LFC[®] are useful in a wide range of electronic equipment such as substrates for highly reliable electronic control units equipping vehicles and functional substrates for miniaturized high-frequency modules in cellular phones.

LFC[®] Series

Murata's LFC[®] Series LTCC substrate meets high integration and miniaturization requirements necessary for automotive applications.

AWG Series

Utilized in low-profile, small outline RF modules, the AWG Series features ultra-thin ceramic tapes, multiple material tape lamination, and enhanced board strength.



Cat.No. N20E

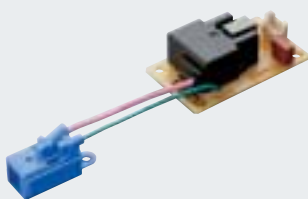
Ionizer Modules Ionissimo®

High-concentration ion, compact design, ozone control

Ionissimo® is an ionizer module with unprecedented compactness and high efficiency, capable of generating the largest number of ions in the industry* owing to Murata's own high-voltage technology and structural design. The ion generator is connected to the driving power supply for modularization and ease of incorporating into equipment.

*Surveyed by Murata (as of March 2011)

MHM Series



■ Features

- A large number of ions will be created by the original structure.
- Compact equipment may be designed due to small ionizer element and driving power supply.
- Ozone amounts may be optimized for specific applications by controlling the generation of ozone without changing the number of ions.

■ Applications

Air conditioner, air purifier, static eliminator, vacuum cleaner, etc.

Items	MHM314 Type	MHM305 Type	MHM306 Type	MHM400 Type
Input Voltage (VDC)	+10.8 to 13.2	←	←	←
Power	0.9W	0.4W	0.6W	0.6W
Ion Polarity	Negative	←	←	Positive
Ion Amount (*1)	>20000000pcs/cc (*2)	>20000000pcs/cc	←	←
Ozone Level	0.1mg/H (typ.)	<0.1mg/H	<1.0mg/H	<0.1mg/H
Operating Temp.	-10 to 50°C	←	←	←
Operating Humidity	20 to 80%RH (without dewdrop)	←	←	←

(*1) Measuring distance : 20cm

(*2) MHM314's Ion amount is around 3 times compare with MHM305.

View a demonstration video of Ionizer Modules Ionissimo® on our website.

Ozonizer Modules Ionissimo®

By using low temperature co-fired ceramic substrate (LTCC) for the discharger ozone will be generated stably.

MHM Series



■ Features

- Stable ozone generation.
- MHM501 type can be used under high humidity conditions.
- Small size

■ Applications

Refrigerator, vacuum cleaner, dishwasher, clothes washer, etc.

Items	MHM500 Type	MHM501 Type	MHM502 Type
Input Voltage (VDC)	+11 to 13	←	←
Power	1.0W	1.0W (with heater)	6.0W
Ozone Level	<2.5mg/H	<2.5mg/H	<60mg/H
Operating Temp.	-10 to 50°C	←	←
Operating Humidity	20 to 80%RH (without dewdrop)	20 to 95%RH	20 to 85%RH (without dewdrop)

View a demonstration video of Ozonizer Modules Ionissimo® on our website.

RFID Devices

RFID for transferring identification data by wireless communication. The state-of-the-art technology allows IC tags to be attached to places where traditional barcode and QR code technology could suffer from aging. Murata offers a comprehensive range of items required to introduce IC tags, from RFID devices to high-quality antennas, reader/writers, and software applications. With the complete kits from Murata, RFID is seamlessly and reliably implemented.

HF (13.56 MHz) RFID Devices (MAGICSTRAP®)

	LXMS33HCNG-134	LXMSAPHA08-136	LXMS33HCNK-171	LXMSAPHA17-176	LXTB5HHCNK-002
Appearance					
Frequency	HF (13.56MHz)				
Standard	ISO15693		ISO14443 typeA, NFC forum type2		
IC	NXP ICODE® SLIX		NXP NTAG210	NXP NTAG213	NXP NTAG210
UID memory	64 bits				
User memory	896 bits		384 bits	1152 bits	384 bits
Size (mm)	3.2 x 3.2	8.3 x 8.3	3.2 x 3.2	8.3 x 8.3	5.5 x 5.5
Thickness	0.7mm max.	0.8mm max.	0.75mm max.	0.8mm max.	2.5mm max.
In-mold process	○	N/A	○	N/A	○
Read range*	20mm	42mm	15mm	32mm	25mm

* Read range depends on the performance of the reader, the power, the antenna size, etc.

■ Antenna, Reader/Writer unit



■ SPI-USB converter unit



UHF (860/920 MHz) RFID Devices (MAGICSTRAP®)

	LXMS21NCNH-147	LXMS21ACMF-183	LXMS21ACNP-184	LXMSANAA19-181	LXMSANAA18-182
Appearance					
Frequency	UHF (865 to 928MHz)			UHF (902 to 928MHz)	UHF (865 to 868MHz)
Standard	EPC global Gen2 V1.2.0 ISO/IEC18000-63	EPC global Gen2 v2 ISO/IEC18000-63	EPC global Gen2 V1.2.0 ISO/IEC18000-63	EPC global Gen2 v2 ISO/IEC18000-63	
IC	NXP G2iM	Impinj monza® R6	NXP UCODE® 7xm	Impinj monza® R6	
User memory	512 bits	N/A	1024 bits	N/A	
EPC memory	256 bits	96 bits	448 bits	96 bits	
Size (mm)	2.0 x 1.25	2.0 x 1.2	2.0 x 1.2	40 x 6	
Thickness	0.55mm max.	0.5mm max.	0.5mm max.	0.9mm max.	
Antenna	Integrated	External	External	Integrated	
In-mold process	○	○	○	N/A	
Read range* (4wEIRP)	5mm	9m	7m	4m	

* Read range depends on the performance of the reader, the power, the antenna size, etc.

■ Antenna, Reader/Writer unit



■ UART-USB converter unit



Note: MAGICSTRAP® is a registered trademark of Murata Manufacturing Co., Ltd.

Note: Windows is a registered trademark of USA-based Microsoft Corporation in the United States and/or in other countries.

Note: monza is a registered trademark of USA-based Impinj, Inc. in the United States and/or in other countries.

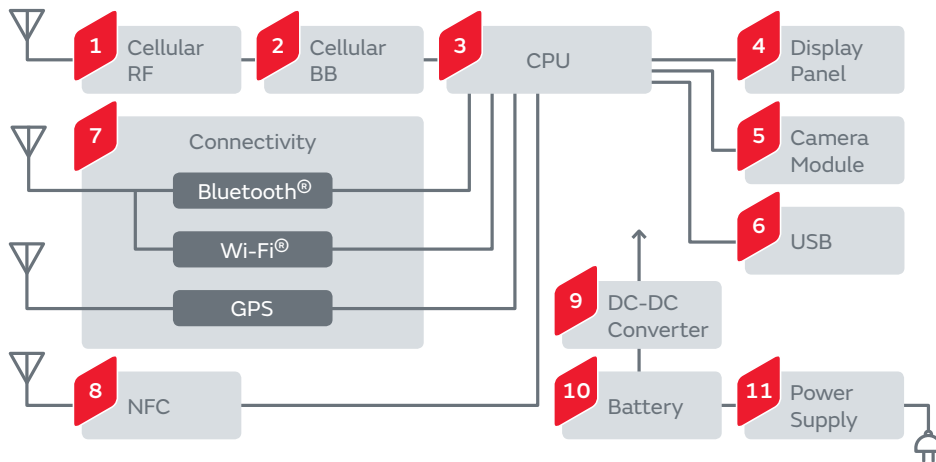
Note: ICODE and UCODE are a registered trademarks of USA-based NXP Semiconductors N.V. in the United States and/or in other countries.

Memo

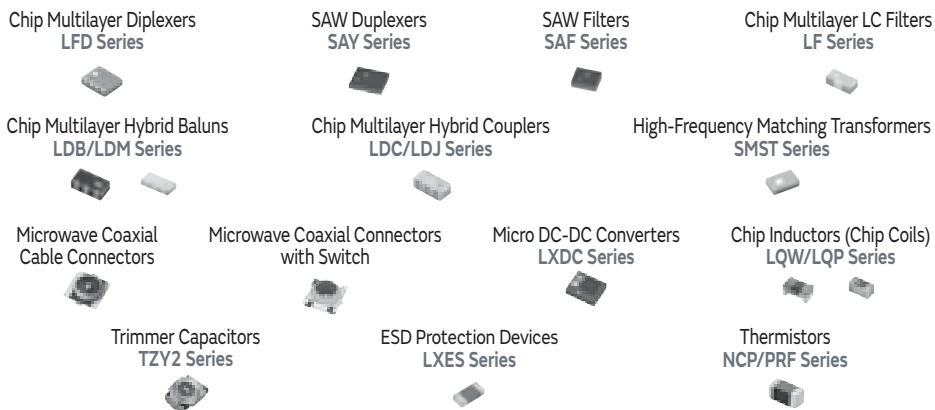
Application Guides



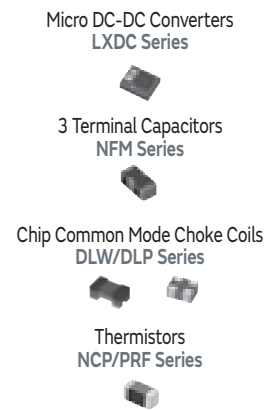
Smart Phones



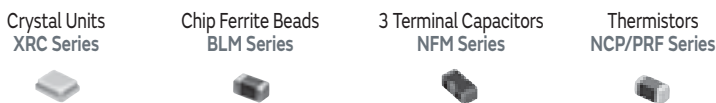
1 Cellular RF



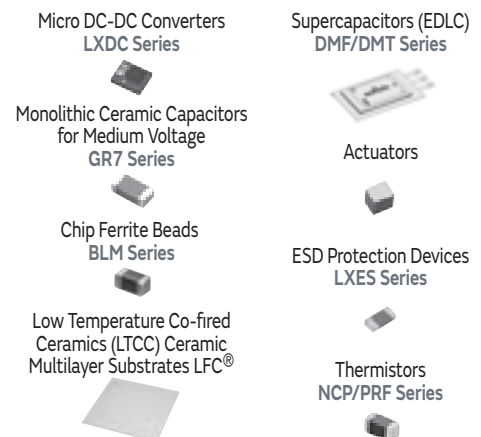
2 Cellular BB



3 CPU



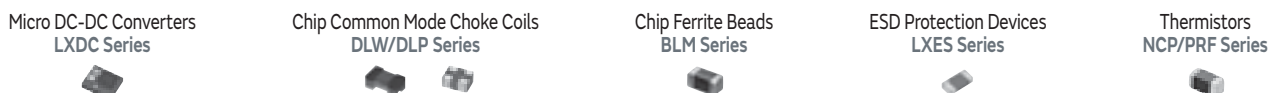
5 Camera Module



4 Display Panel



6 USB



7 Connectivity

Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Bluetooth® Modules



Wi-Fi® Modules



Bluetooth® - Wi-Fi®
Combo Modules



SAW Filters
SAF Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Microwave Coaxial
Cable Connectors



Microwave Coaxial Connectors
with Switch



Micro DC-DC Converters
LXDC Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



Crystal Units
XRC Series



8 NFC

NFC Antennas
FLAN Series



Crystal Units
XRC Series



Chip Ferrite Beads
BLM Series



Chip Inductors (Chip Coils)
LQM/LQH Series



Trimmer Capacitors
TZY2 Series



Variable Capacitors
LXRW Series



ESD Protection Devices
LXES Series



9 DC-DC Converter

Metal Terminal Type Monolithic Ceramic Capacitors
KRM Series



Monolithic Ceramic Capacitor
on Interposer Board
ZRB Series



Micro
DC-DC Converters
LXDC Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



10 Battery

Thermistors
NCP/PRF/PRG Series



11 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Chip Inductors (Chip Coils)
LQM/LQH Series



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



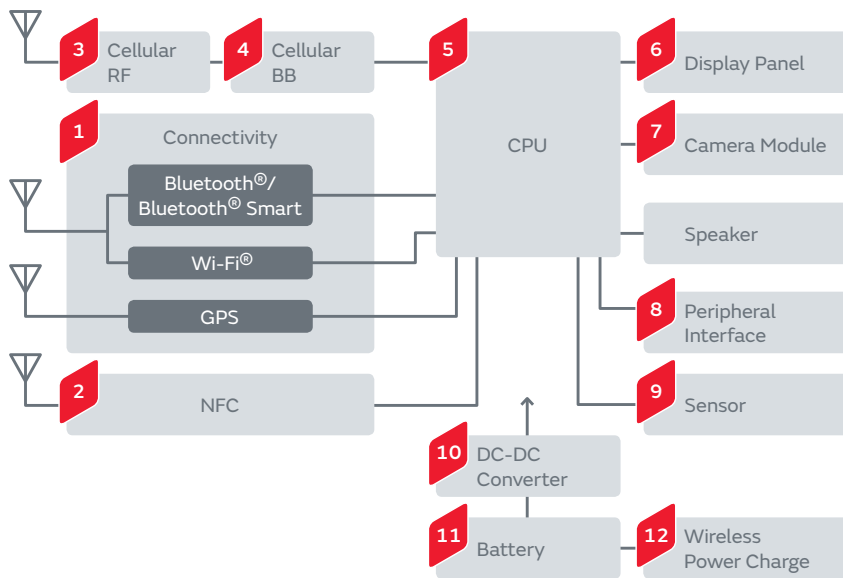
Small Energy Devices

UMAC Series

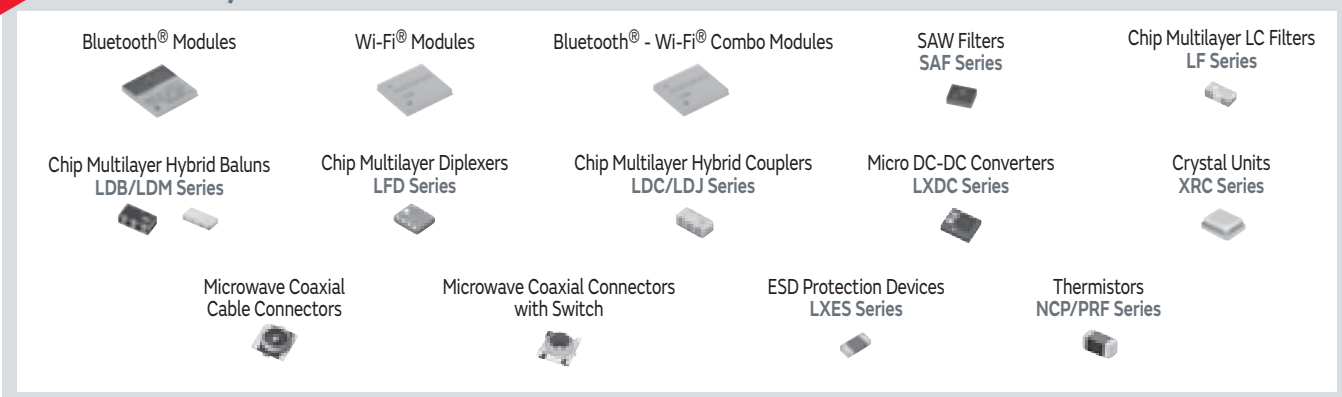
Battery Backup



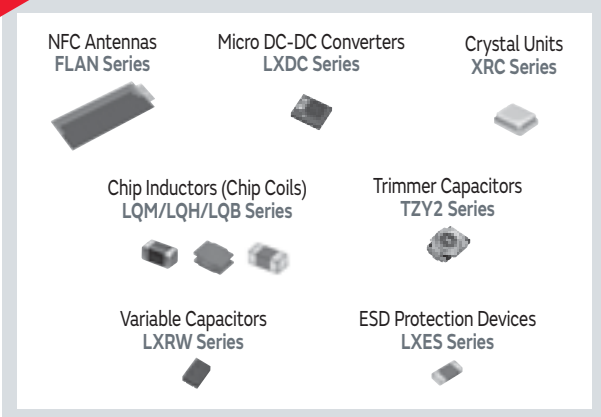
Wearable Devices



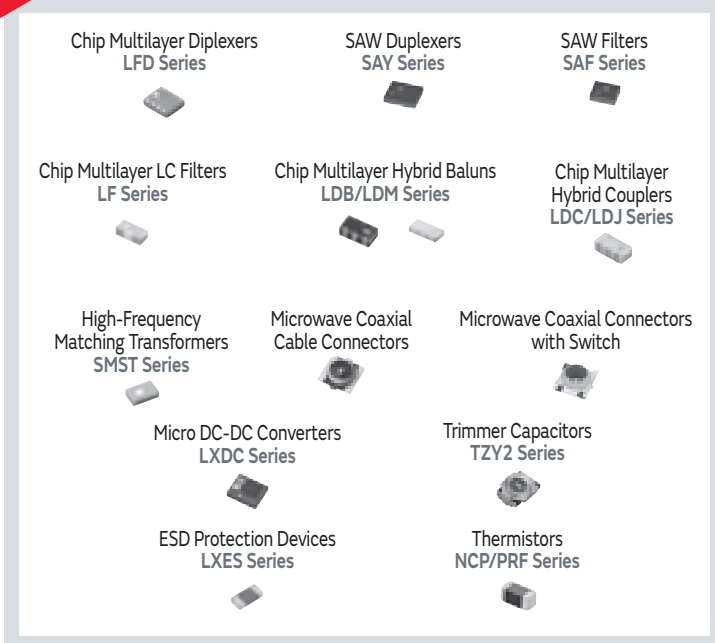
1 Connectivity



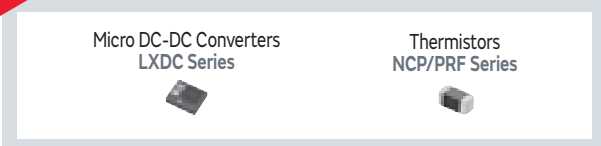
2 NFC



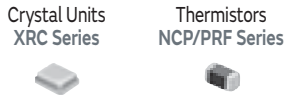
3 Cellular RF



4 Cellular BB



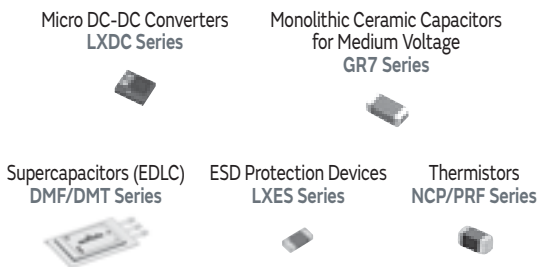
5 CPU



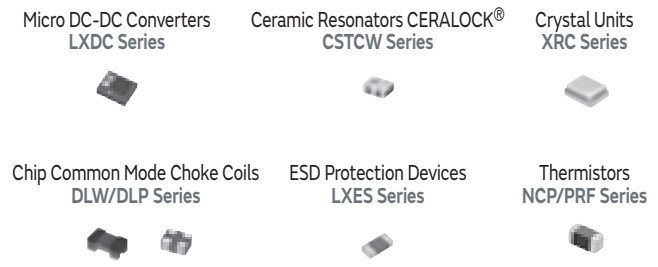
6 Display Panel



7 Camera Module



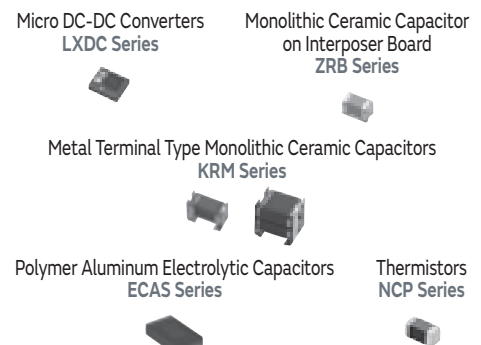
8 Peripheral Interface



9 Sensor



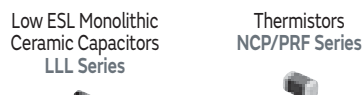
10 DC-DC Converter



11 Battery



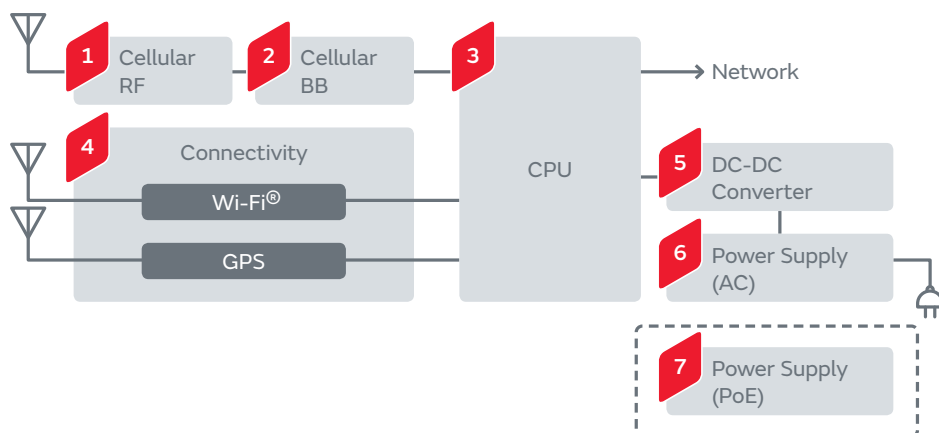
12 Wireless Power Charge



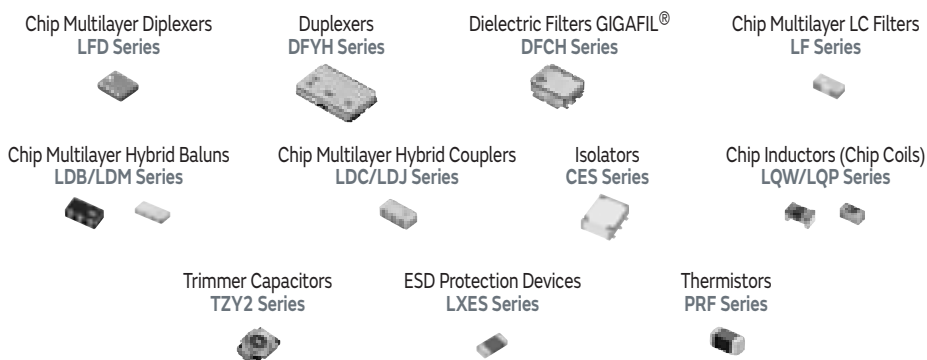
General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Supercapacitors (EDLC)	DMF/DMT Series	Power Line/Battery Peak Assist	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	
Piezoelectric Sounders	PKMCS Series	Sound component	
Piezoelectric Diaphragms	7BB Series	Sound component	

Base Stations



1 Cellular RF



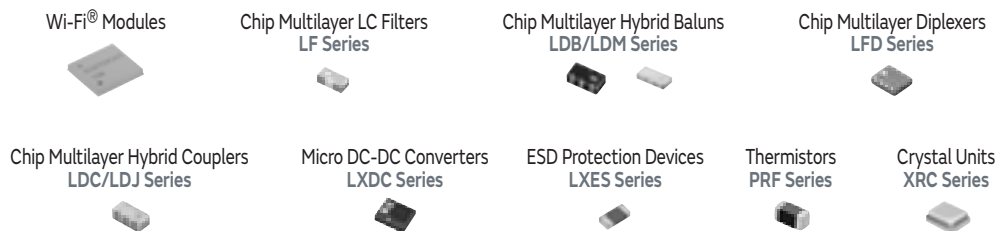
2 Cellular BB



3 CPU



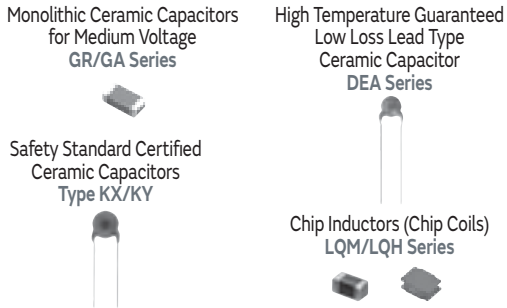
4 Connectivity



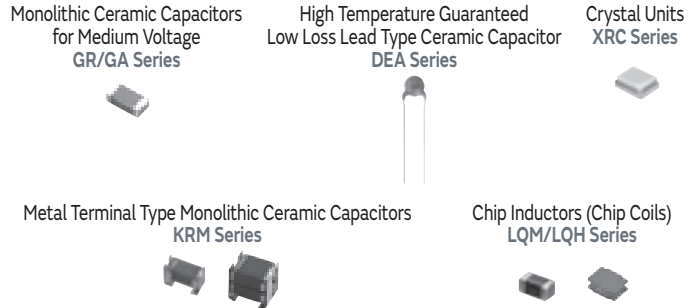
5 DC-DC Converter



6 Power Supply (AC)



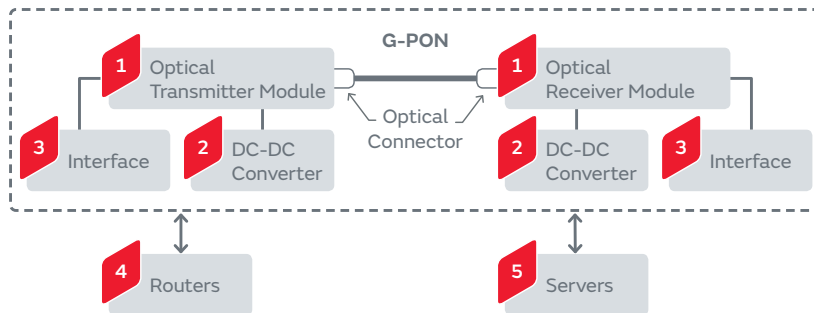
7 Power Supply (PoE)



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

G-PON



1 Optical Transmitter Module/Optical Receiver Module

Monolithic Ceramic Capacitors
(Top & Bottom Electrode Type
for Bonding)
GMA Series



Single Layer Microchip Capacitors
CLB Series



Monolithic Ceramic Capacitors
(Compatible to Bonding/
AuSn Soldering)
GMD Series



Thin Film Circuit Substrate RUCYT®
RUCYT Series



2 DC-DC Converter

DC-DC Converters
MYB Series



DC-DC Converters
OKL Series



Micro DC-DC Converters
LXDC Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Thermistors
PRF Series



3 Interface

Low ESL Monolithic Ceramic Capacitors
LLL/LLA/LLM Series



Crystal Units/Crystal Oscillators



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



4 Routers

Low ESL Monolithic
Ceramic Capacitors
LLL/LLA/LLM Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Monolithic Ceramic Capacitors
(Compatible to Bonding/AuSn Soldering)
GMD Series



Supercapacitors (EDLC)
DMF/DMT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Monolithic Ceramic Capacitors
(Top & Bottom Electrode Type
for Bonding)
GMA Series



Crystal Units/
Crystal Oscillators



Chip Common Mode Choke Coils
DLW/DLP Series



5 Servers

Shock Sensors
PKGS Series



Supercapacitors (EDLC)
DMF/DMT Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units/Crystal Oscillators



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



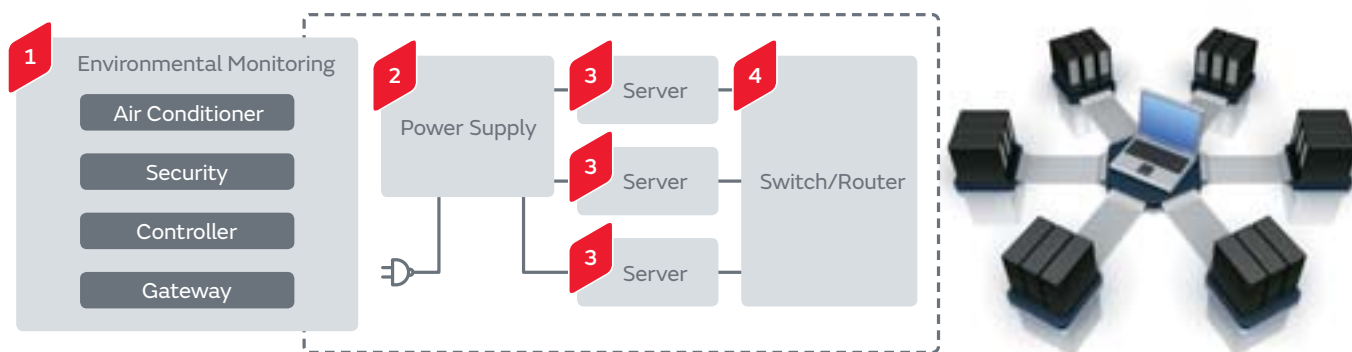
Small Energy Devices

UMAC Series

Battery Backup



Data Center



1 Environmental Monitoring

- Wi-Fi® Modules
- Sub-GHz Modules
- Magnetic Sensors (AMR Sensors) MR Series
- Pressure Sensors ZPA Series
- Shock Sensors PKGS Series
- Thermistors NCP Series

2 Power Supply

- 3-phase PFC Converters MPA Series
- DC-DC Converters for High Voltage Direct Current (HVDC) MPA Series

3 Server

- Shock Sensors PKGS Series
- Isolated DC-DC Converters MYB Series
- Non-isolated DC-DC Converters OKL/MPDR/MPDT Series
- Supercapacitors (EDLC) DMT Series
- Polymer Aluminum Electrolytic Capacitors ECAS Series
- Crystal Units/ Crystal Oscillators

4 Switch/Router

Isolated DC-DC Converters MYB Series

Non-isolated DC-DC Converters OKL/MPDR/MPDT Series

Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor DEA Series

Monolithic Ceramic Capacitors (Top & Bottom Electrode Type for Bonding) GMA Series

Monolithic Ceramic Capacitors (Compatible to Bonding /AuSn Soldering) GMD Series

Crystal Units/ Crystal Oscillators

Supercapacitors (EDLC) DMF Series

Chip Common Mode Choke Coils DLW/DLP Series

General Purpose	Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
	Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
	Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
	Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
	Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
	Chip Ferrite Beads	BLM Series	Noise Suppression	
	3 Terminal Capacitors	NFM Series	Noise Suppression	
	Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
	Microwave Absorbers	EA Series	Noise Suppression	
	Ferrite Cores	FS Series	Noise Suppression	
	Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
	Small Energy Devices	UMAC Series	Battery Backup	

Automotive

Powertrain/Safety

1 ECU

2 AT

3 Auxilliary Motors

4 TPMS

5 ABS/ESC

6 Headlamp

7 EPS

8 Fuel Injection System



1 ECU

Low Temperature Co-fired Ceramics (LTCC) Ceramic Multilayer Substrates LFC®



Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



Monolithic Ceramic Capacitors for Automotive GCM Series



Resin External Electrode Monolithic Ceramic Capacitors GCJ Series



Monolithic Ceramic Capacitor for Conductive Adhesives GCG Series



Monolithic Ceramic Capacitor for Conductive Adhesives (Ni/Pd Plating Structure) GCB Series



Radial Lead Type Monolithic Ceramic Capacitors RH Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCGB/XRCHA Series



Accelerometers SCA Series



Gyro Sensors SCC Series



Thermistors PRF/PTG Series

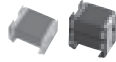


2 AT

Low Temperature Co-fired Ceramics (LTCC) Ceramic Multilayer Substrates LFC®



Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCGB/XRCHA Series



Accelerometers SCA Series



Thermistors PRF/PTG Series

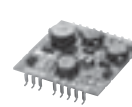


3 Auxiliary Motors

Low Temperature Co-fired Ceramics (LTCC) Ceramic Multilayer Substrates LFC®



DC-DC Converters



Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



Radial Lead Type Monolithic Ceramic Capacitors RH Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Large Current Common Mode Choke Coils PLT10HH Series



Thermistors PRF/PTG Series



4 TPMS

Shock Sensors PKGS Series



Ceramic Filters CERAFIL® SFECF Series



Ceramic Discriminators CDSGB Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCGB/XRCHA Series



Pressure Sensor Elements SCB10H Series



Thermistors PRF Series



Transponder Coils SA3M08 Series



5 ABS/ESC

Low Temperature Co-fired Ceramics (LTCC)
Ceramic Multilayer Substrates LFC®



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives (Ni/Pd Plating Structure)
GCB Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Accelerometers
SCA Series



Gyro Sensors
SCC Series



Thermistors for Conductive Glue Mounting
NCG18 Series



6 Headlamp

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
for Conductive Glue Mounting
NCG18 Series



7 EPS

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



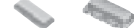
Monolithic Ceramic Capacitor
for Conductive Adhesives
(Ni/Pd Plating Structure)
GCB Series



Radial Lead Type
Monolithic Ceramic Capacitors
RCE Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
for Conductive Glue Mounting
NCG18 Series



Accelerometers
SCA Series



Gyro Sensors
SCC Series



Thermistors
PRF/PTG Series



8 Fuel Injection System

Radial Lead Type Monolithic Ceramic Capacitors
RPF Series



General Purpose (High Reliability)

Monolithic Ceramic Capacitors For Automotive
Radial Lead Type Monolithic Ceramic Capacitors
Radial Lead Type Monolithic Ceramic Capacitors
Chip Inductors (Chip Coils)
Chip Inductors (Chip Coils)
Chip Ferrite Beads
3 Terminal Capacitors
Chip Common Mode Choke Coils

GCM Series
RCE Series
RH Series
LQH32CH/MBH/DFEH Series
LQG15HH Series
BLM_SH Series
NFM_H/NFE_H Series
DLW31/DLW43 Series

Coupling/Decoupling
Noise Suppression/Decoupling
Noise Suppression/Decoupling
Voltage Conversion
Impedance Matching/Choke
Noise Suppression
Noise Suppression
Common Mode Noise Suppression



150°C

125°C

150°C

105°C

125°C

125°C

125°C

125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

HEV/PHEV/EV

1

Charger

2

BMS

3

Electrically-Driven
Compressor

4

Electric Pump

5

Inverter

6

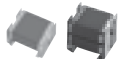
DC-DC Converter



1

Charger

Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Safety Standard Certified
Ceramic Capacitors
Type KJ



Ceramic Resonators CERALOCK®
CSTCE Series



Crystal Units
XRCGB/XRCHA Series



Large Current Common Mode Choke Coils
PLT10HH Series



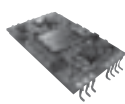
Thermistors
PRF/PTG Series



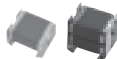
2

BMS

DC-DC Converters



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External
Electrode Monolithic
Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
(Ni/Pd Plating Structure)
GCB Series



Ceramic Resonators
CERALOCK®
CSTCE Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
PRF/PTG Series



3

Electrically-driven Compressor

Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
(Ni/Pd Plating Structure)
GCB Series



Thermistors
PRF/PTG Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



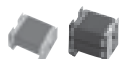
Crystal Units
XRCGB/XRCHA Series



4

Electric Pump

Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External
Electrode Monolithic
Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Large Current
Common Mode
Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



5

Inverter

Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External
Electrode Monolithic
Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives (Ni/Pd Plating Structure)
GCB Series



Radial Lead Type
Monolithic Ceramic Capacitors
RH Series



Large Current Common Mode
Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



6

DC-DC Converter

Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
(Ni/Pd Plating Structure)
GCB Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Large Current Common Mode
Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



Information/Comfort/Accessory

1

Navigation/
Infotainment

2

Remote Keyless Entry

3

Meter/HUD

4

Power Seat/
Power Mirror

5

Parking Assist



1

Navigation/Infotainment

Rotary Position Sensors
SV Series



Accelerometers
SCA Series



Supercapacitors (EDLC)
DMF/DMT Series



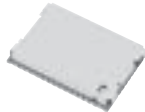
Ceramic Filters CERAFIL®
SFECE Series



Piezoelectric Sounders
PKLCS Series



Bluetooth® Modules



Wi-Fi® Modules



DC-DC Converters



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
PRF/PRG/PTG Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



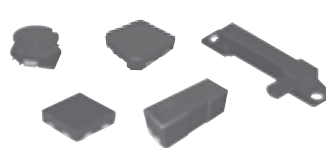
Chip Multilayer Hybrid Couplers
LDC/LDJ Series



2

Remote Keyless Entry

Transponder Coils
SAZ73D/SA3D14/SA3D12/SA3M08/STA8121 Series



Supercapacitors (EDLC)
DMF/DMT Series



Small Energy Devices
UMAC Series



Ceramic Filters CERAFIL®
SFECE Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Piezoelectric Sounders
PKLCS Series



Crystal Units
XRCGB/XRCHA Series



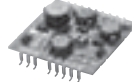
3

Meter/HUD

Rotary Position Sensors
SV Series



DC-DC Converters



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Piezoelectric Sounders
PKM/PKLCS Series



Thermistors
PRF/PTG Series



4

Power Seat/Power Mirror

Piezoelectric Sounders
PKLCS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
PRF/PTG Series



5

Parking Assist

Ultrasonic Sensors
MA Series



Accelerometers
SCA Series



Supercapacitors (EDLC)
DMF/DMT Series



Piezoelectric Sounders
PKM/PKLCS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
PRF/PTG Series



Please refer to p.99 for General Purpose.

Bike/EV Bike

Electromotive

1

Charger/Battery

2

Inverter

3

DC-DC Converter

Electric Installation

4

Accelerometer
for Fuel Cut

5

Headlamp

6

Fuel Injection System



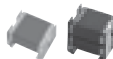
1

Charger/Battery

Lithium Ion Storage Modules



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Safety Standard Certified
Ceramic Capacitors
Type KJ



Ceramic Resonators
CERALOCK®
CSTCE Series



Crystal Units
XRCGB/XRCHA Series



Large Current Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



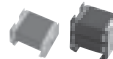
3

DC-DC Converter

DC-DC Converters



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External
Electrode Monolithic
Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
(Ni/Pd Plating Structure)
GCB Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Large Current Common Mode
Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



2

Inverter

Monolithic Ceramic
Capacitors for Automotive
GCM Series



Resin External Electrode
Monolithic Ceramic Capacitors
GCJ Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
GCG Series



Monolithic Ceramic Capacitor
for Conductive Adhesives
(Ni/Pd Plating Structure)
GCB Series



Radial Lead Type
Monolithic Ceramic Capacitors
RH Series



Large Current Common Mode
Choke Coils
PLT10HH Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
PRF/PTG Series



General Purpose (High Reliability)

Monolithic Ceramic Capacitors For Automotive

GCM Series

Radial Lead Type Monolithic Ceramic Capacitors

RCE Series

Radial Lead Type Monolithic Ceramic Capacitors

RH Series

Chip Inductors (Chip Coils)

LQH32CH/MBH/DFEH Series

Chip Inductors (Chip Coils)

LQG15HH Series

Chip Ferrite Beads

BLM_SH Series

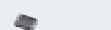
3 Terminal Capacitors

NFM_H/NFE_H Series

Chip Common Mode Choke Coils

DLW31/DLW43 Series

Coupling/Decoupling



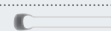
150°C

Noise Suppression/Decoupling



125°C

Noise Suppression/Decoupling



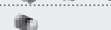
150°C

Voltage Conversion



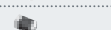
105°C

Impedance Matching/Choke



125°C

Noise Suppression



125°C

Noise Suppression



125°C

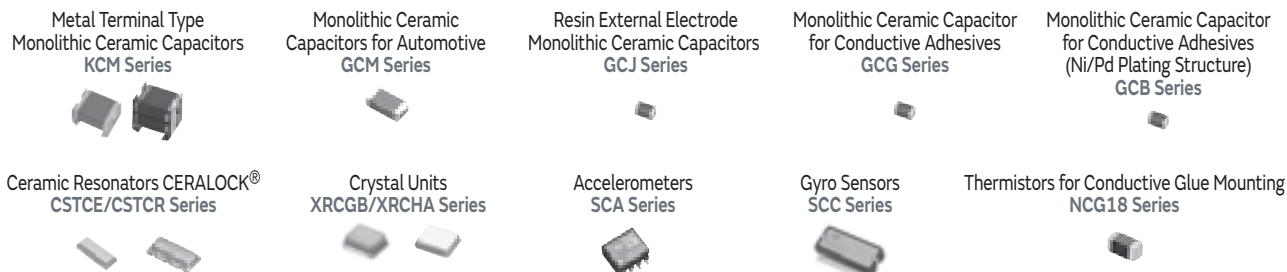
Common Mode Noise Suppression



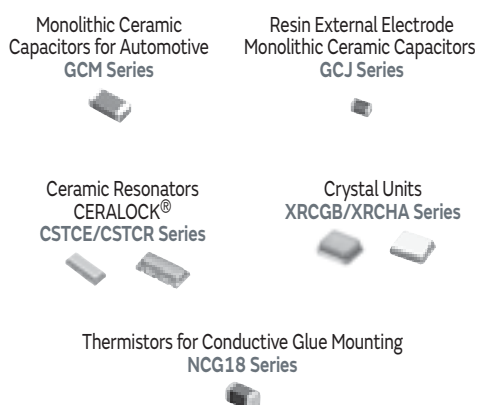
125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

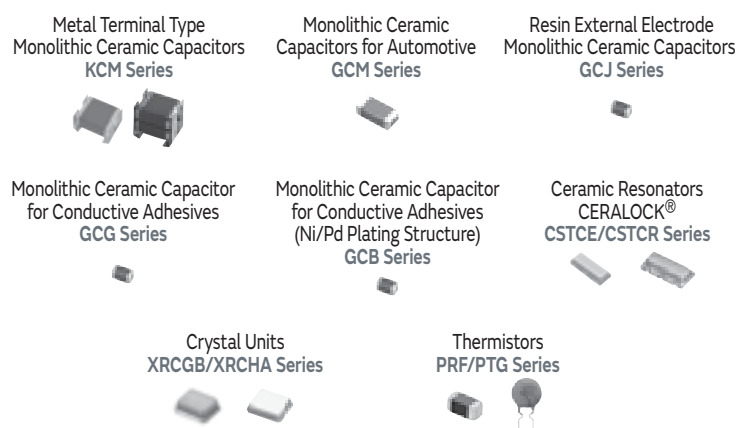
4 Accelerometer for Fuel Cut



5 Headlamp



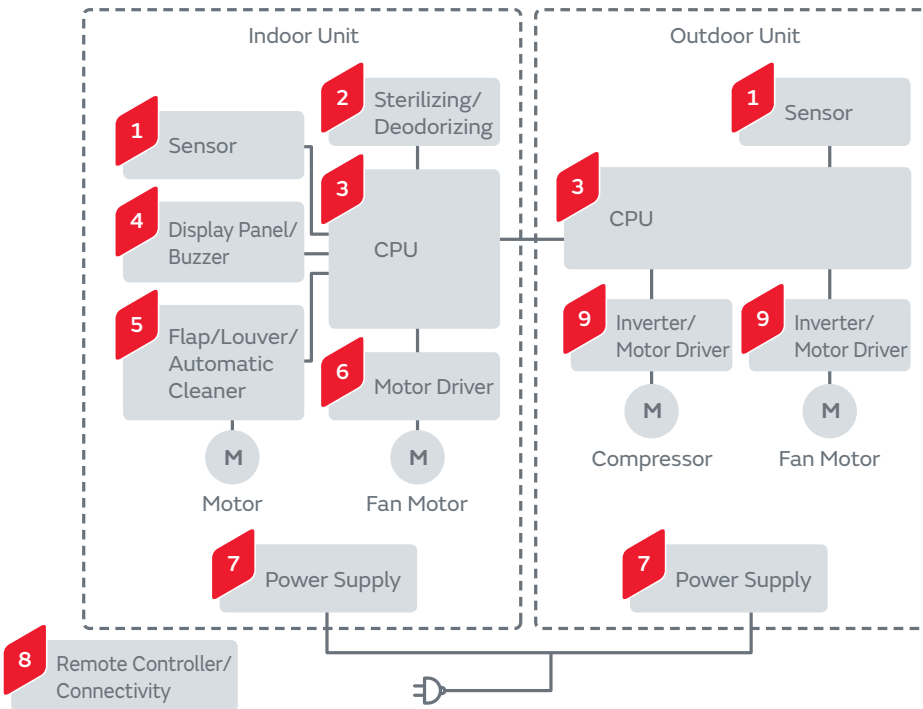
6 Fuel Injection System



General Purpose

Monolithic Ceramic Capacitors	GRT Series	Coupling/Decoupling	
Monolithic Ceramic Capacitors for Medium Voltage	GRM Series	For Snubber	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
EMI Suppression Filters	NFL/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW Series	Common Mode Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	

Air Conditioner



1 Sensor

- Pyroelectric Infrared Sensors IRA Series
- Ultrasonic Sensors MA Series
- Thermistors NCP/NXR/PRF Series

2 Sterilizing/Deodorizing

- Ionizer Modules Ionissimo® MHM300 Series
- High Voltage Power MPH4602 Series
- Ozonizer Modules Ionissimo® MHM500 Series
- High Voltage Resistors MHR Series

3 CPU

- Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series

4 Display Panel/Buzzer

- Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series
- Piezoelectric Sounders PKM/PKLC Series

5 Flap/Louver/Automatic Cleaner

- Rotary Position Sensors SV Series

6 Motor Driver

- Thermistors NCP/NXR/PRF Series

7 Power Supply

- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series
- High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor DEA Series
- Safety Standard Certified Ceramic Capacitors Type KX/KY
- Thermistors NTP/PTG Series

8 Remote Controller/Connectivity

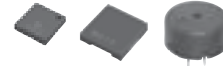
Bluetooth® Modules



Wi-Fi® Modules



Sub-GHz Modules

Microwave Coaxial
Cable ConnectorsMicrowave Coaxial Connectors
with SwitchMicro DC-DC Converters
LXDC SeriesCrystal Units
XRC SeriesCeramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR SeriesPiezoelectric Sounders
PKMCS/PKLCS/PKM Series

9 Inverter/Motor Driver

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR SeriesThermistors
NCP/NXR/PRF Series

General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

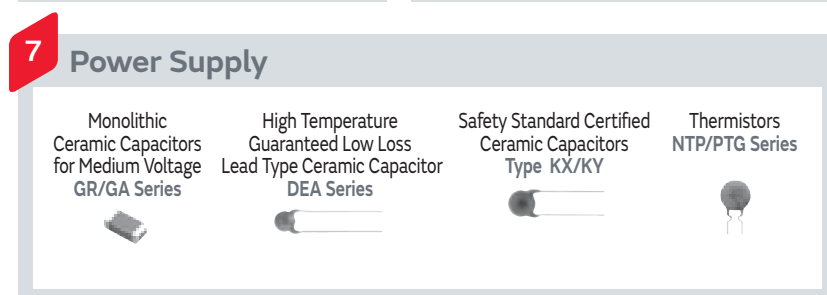
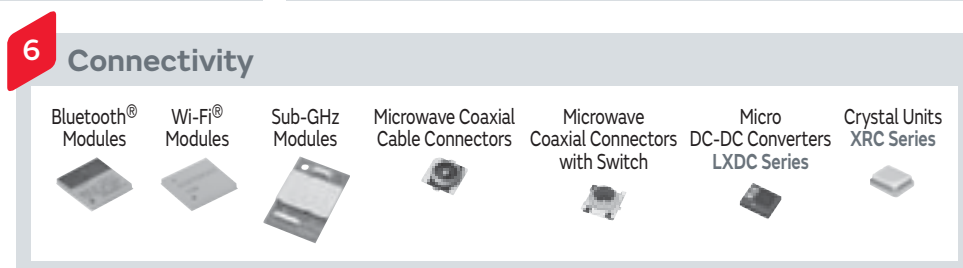
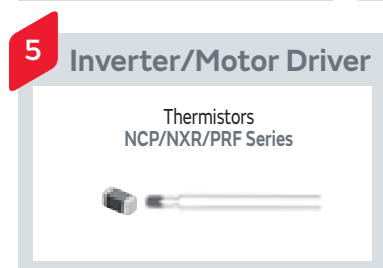
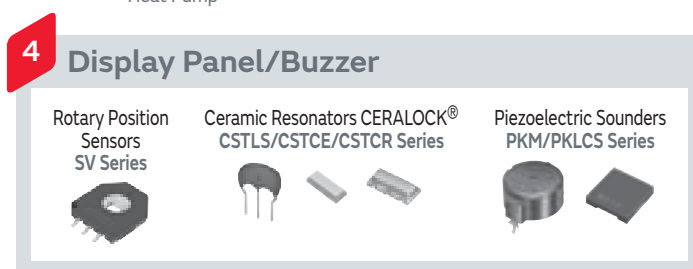
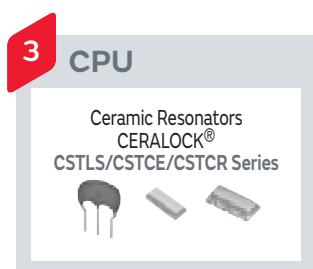
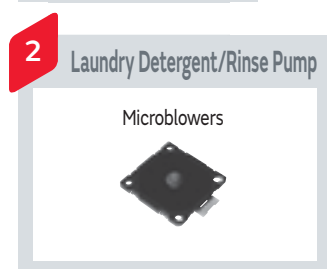
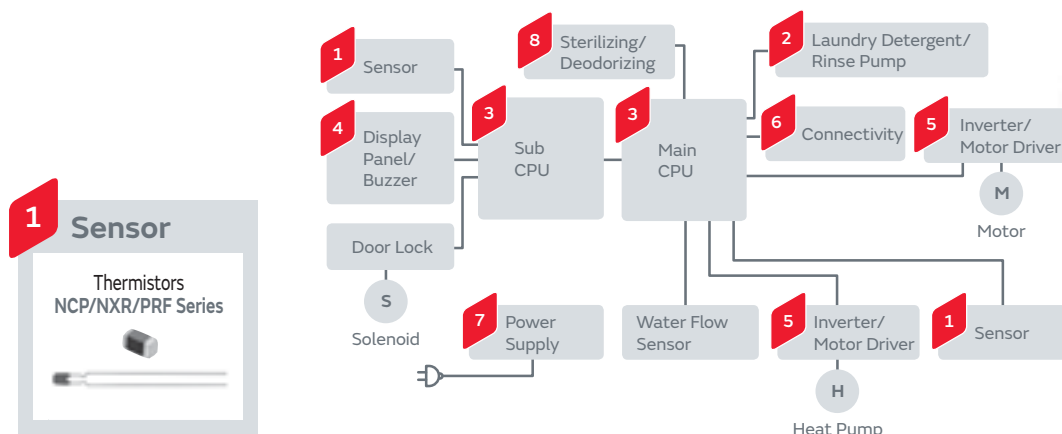
Refrigerator



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

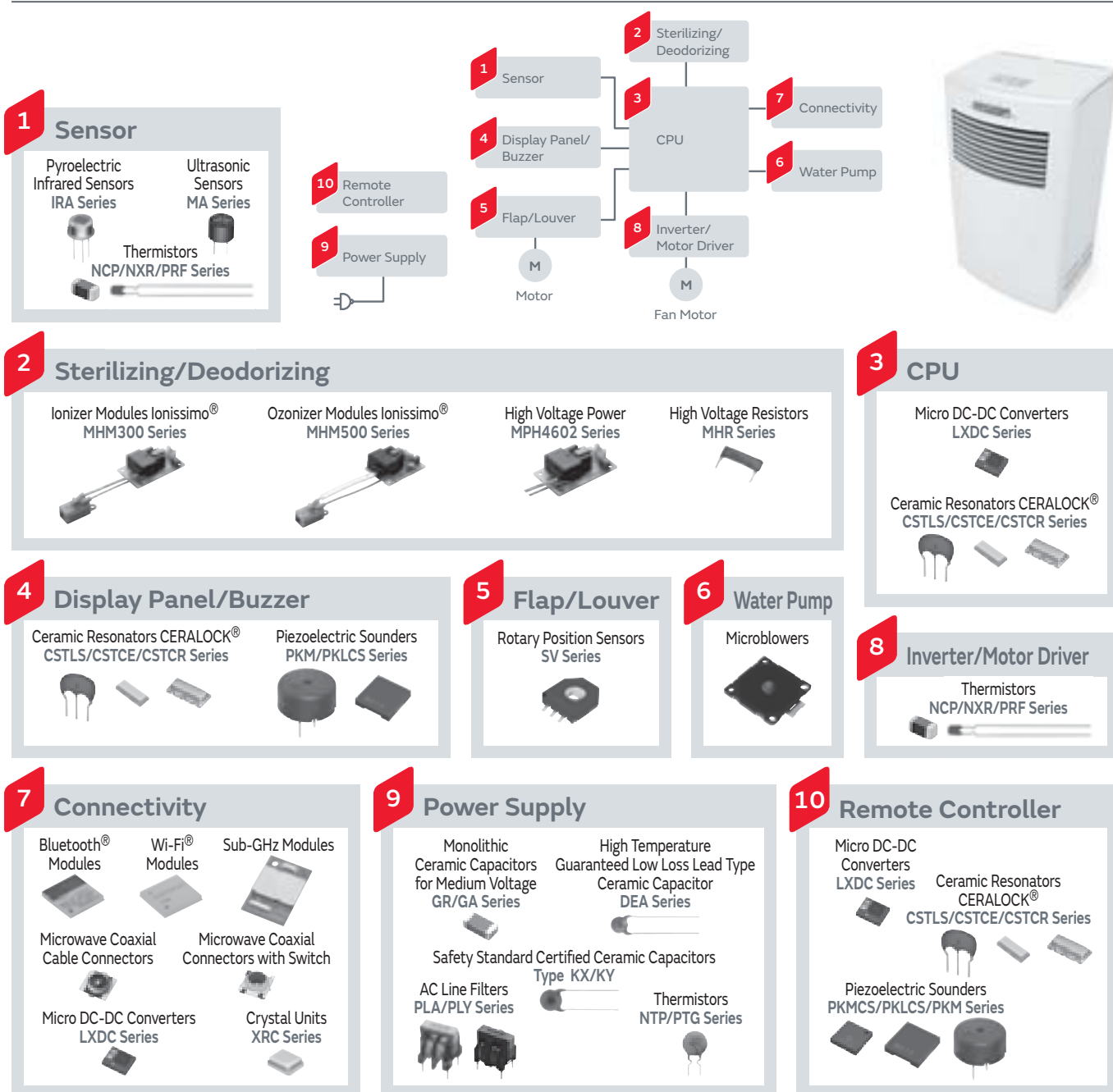
Washing Machine



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

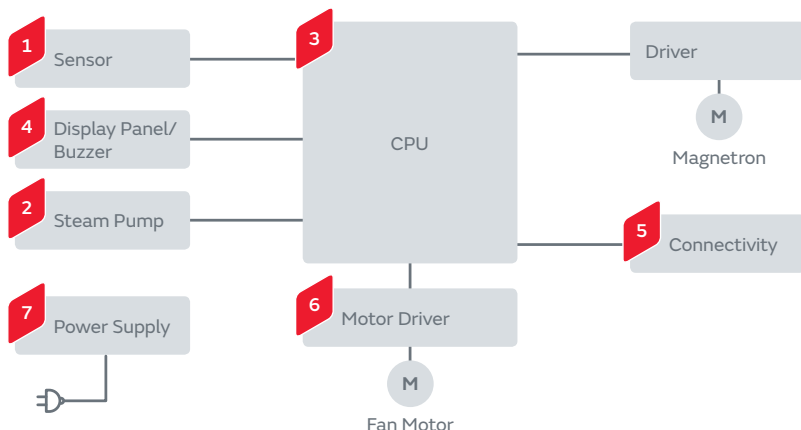
Air Purifier



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion
Chip Ferrite Beads	BLM Series	Noise Suppression
3 Terminal Capacitors	NFM Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression
Microwave Absorbers	EA Series	Noise Suppression
Ferrite Cores	FS Series	Noise Suppression
Thin Type Sandwich Cores	FSSA Series	Noise Suppression
Small Energy Devices	UMAC Series	Battery Backup

Microwave Oven



1 Sensor
 Thermistors
 NCP/NXR/PRF Series

2 Steam Pump
 Microblowers

3 CPU
 Ceramic Resonators CERALOCK®
 CSTLS/CSTCE/CSTCR Series

4 Display Panel/Buzzer
 Ceramic Resonators CERALOCK®
 CSTLS/CSTCE/CSTCR Series

 Piezoelectric Sounders
 PKM/PKLCs Series

5 Connectivity

Bluetooth® Modules

Wi-Fi® Modules

Sub-GHz Modules

Microwave Coaxial Cable Connectors

Microwave Coaxial Connectors with Switch

Micro DC-DC Converters LXDC Series

Crystal Units XRC Series

6 Motor Driver
 Thermistors
 NCP/NXR/PRF Series

7 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor DEA Series

Safety Standard Certified Ceramic Capacitors Type KX/KY

Thermistors NTP/PTG Series

General Purpose	Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
	Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
	Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
	Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
	Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
	Chip Ferrite Beads	BLM Series	Noise Suppression	
	3 Terminal Capacitors	NFM Series	Noise Suppression	
	Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
	Microwave Absorbers	EA Series	Noise Suppression	
	Ferrite Cores	FS Series	Noise Suppression	
	Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
	Small Energy Devices	UMAC Series	Battery Backup	

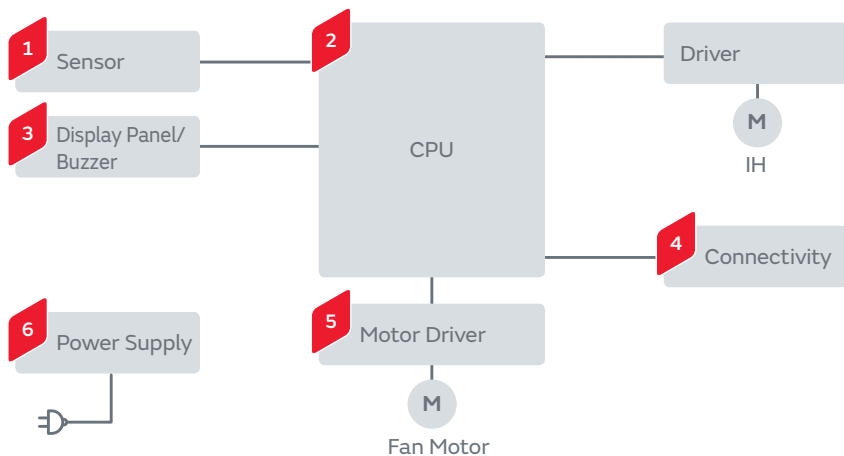
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K70E.pdf
Jan.26,2017

Application Guides Microwave Oven

105

IH Rice Cooker



1 Sensor

Thermistors
NCP/NXR/PRF Series

3 Display Panel/Buzzer

Ceramic Resonators
CERALOCK®
CSTLS/CSTCE/CSTCR Series

Piezoelectric Sounders
PKM/PKLCS Series

4 Connectivity

Bluetooth® Modules

Wi-Fi® Modules

Sub-GHz Modules

Microwave Coaxial Cable Connectors

Microwave Coaxial Connectors with Switch

Micro DC-DC Converters
LXDC Series

Crystal Units
XRC Series

2 CPU

Ceramic Resonators
CERALOCK®
CSTLS/CSTCE/CSTCR Series

5 Motor Driver

Thermistors
NCP/NXR/PRF Series

6 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series

High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor
DEA Series

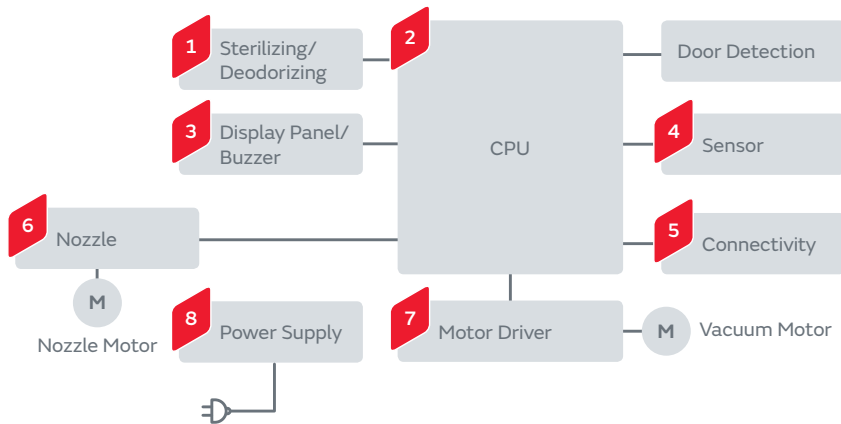
Safety Standard Certified Ceramic Capacitors
Type KX/KY

Thermistors
NTP/PTG Series

General Purpose

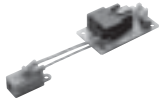
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Vacuum Cleaner



1 Sterilizing/Deodorizing

Ionizer Modules Ionissimo®
MHM300 Series



High Voltage
Resistors
MHR Series



2 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



3 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Piezoelectric Sounders
PKM/PKLC Series



4 Sensor

Ultrasonic Sensors
MA Series



Thermistors
NCP Series



5 Connectivity

Bluetooth® Modules



Wi-Fi® Modules



Crystal Units
XRC Series



Sub-GHz Modules



Microwave Coaxial
Cable Connectors



Microwave Coaxial Connectors
with Switch



Micro DC-DC Converters
LXDC Series



6 Nozzle

Thermistors
PTG Series



7 Motor Driver

Thermistors
NCP/NXR/PRF Series



8 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



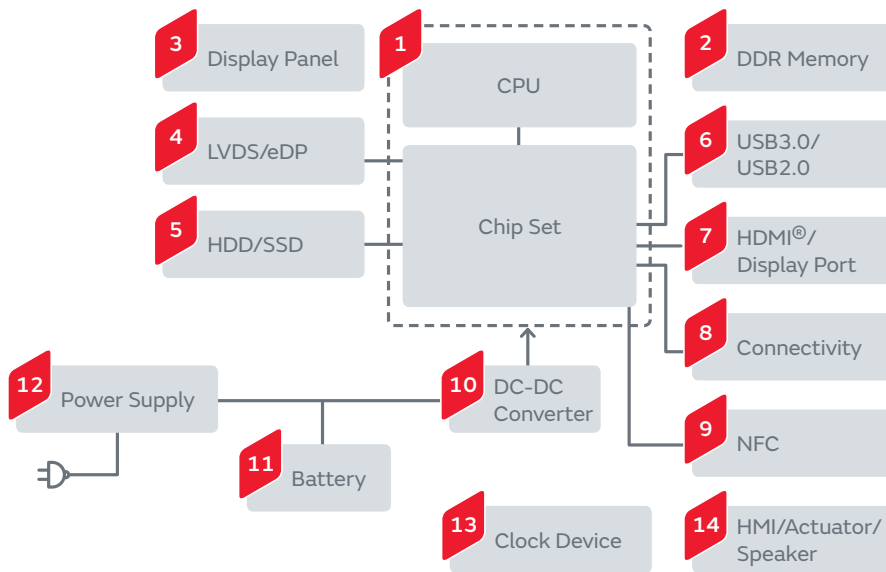
Thermistors
NTP/PTG Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQM/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Tablet Terminators



1 CPU/Chip Set

Micro DC-DC Converters LXDC Series
Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Crystal Units XRC Series
Chip Ferrite Beads BLM Series
3 Terminal Capacitors NFM Series
Thermistors NCP/PRF Series

2 DDR Memory

Micro DC-DC Converters LXDC Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Chip Ferrite Beads BLM Series

3 Display Panel

Metal Terminal Type Monolithic Ceramic Capacitors KRM Series
Ceramic Resonators CERALOCK® CSTCE/CSTCR Series
Power Inductors LQH Series
Thermistors PRF/PRG Series

4 LVDS/eDP

Chip Common Mode Choke Coils DLW/DLP Series
ESD Protection Devices LXES Series
Thermistors NCP/PRF Series

5 HDD/SSD

Shock Sensors PKGS Series
Micro DC-DC Converters LXDC Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Supercapacitors (EDLC) DMF/DMT Series
Actuators
Crystal Units XRC Series
Thermistors NCP/PRF Series

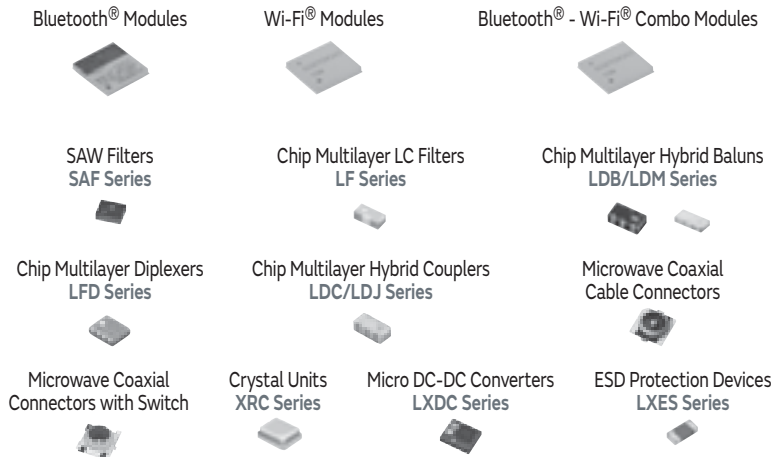
6 USB3.0/USB2.0

Micro DC-DC Converters LXDC Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Crystal Units XRC Series
Chip Common Mode Choke Coils DLW/DLP Series
Chip Ferrite Beads BLM Series
ESD Protection Devices LXES Series
Thermistors PRG Series

7 HDMI®/Display Port

Chip Common Mode Choke Coils DLW/DLP Series
ESD Protection Devices LXES Series
Thermistors PRG Series

8 Connectivity



9 NFC



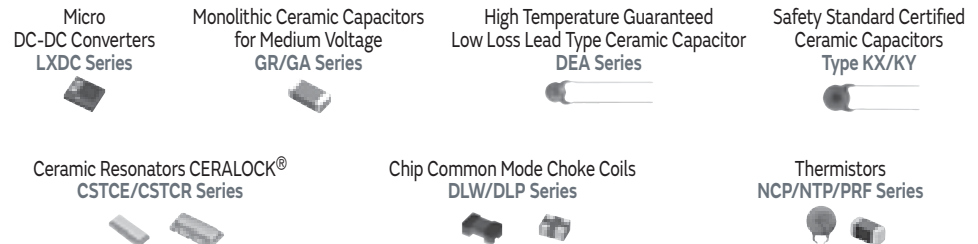
10 DC-DC Converter



11 Battery



12 Power Supply



13 Clock Device



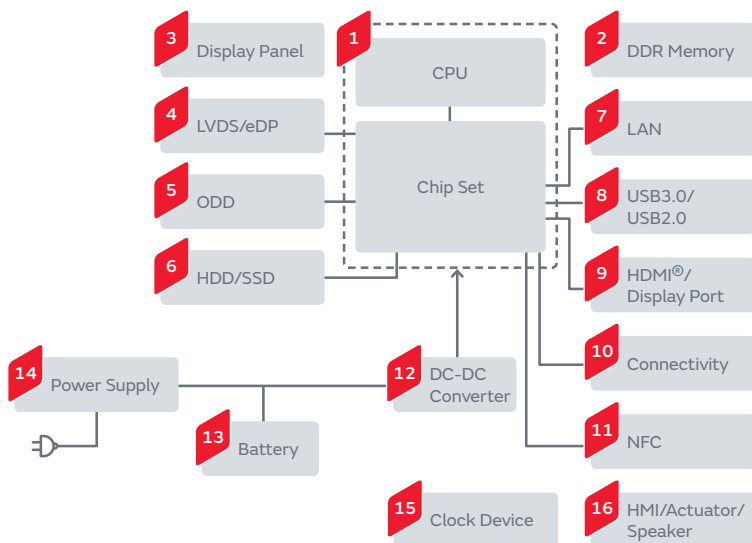
14 HMI/Actuator/Speaker



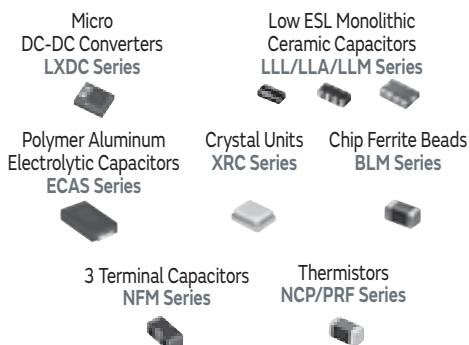
General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Notebook Computers



1 CPU/Chip Set



2 DDR Memory

Micro DC-DC Converters LXDC Series Polymer Aluminum Electrolytic Capacitors ECAS Series Chip Ferrite Beads BLM Series

3 Display Panel

Metal Terminal Type Monolithic Ceramic Capacitors KRM Series Ceramic Resonators CERALOCK® CSTCE/CSTCR Series Power Inductors LQH Series Thermistors PRF/PRG Series

4 LVDS/eDP

Chip Common Mode Choke Coils DLW/DLP Series ESD Protection Devices LXES Series Thermistors NCP/PRF Series

5 ODD

Ceramic Resonators CERALOCK® CSTCW Series Crystal Units XRC Series Thermistors NCP Series

6 HDD/SSD

Shock Sensors PKGS Series Micro DC-DC Converters LXDC Series Polymer Aluminum Electrolytic Capacitors ECAS Series Supercapacitors (EDLC) DMF/DMT Series Actuators Crystal Units XRC Series Thermistors NCP/PRF Series

8 USB3.0/USB2.0

Micro DC-DC Converters LXDC Series Polymer Aluminum Electrolytic Capacitors ECAS Series Crystal Units XRC Series Chip Common Mode Choke Coils DLW/DLP Series Chip Ferrite Beads BLM Series ESD Protection Devices LXES Series Thermistors PRG Series

7 LAN

Monolithic Ceramic Capacitors for Medium Voltage GR4 Series Chip Common Mode Choke Coils DLW/DLP Series Crystal Units XRC Series

9 HDMI®/Display Port

Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



10 Connectivity

Bluetooth® Modules



Wi-Fi® Modules



Bluetooth® - Wi-Fi®
Combo Modules



Chip Multilayer Hybrid Baluns
LDB/LDM Series



SAW Filters
SAF Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Crystal Units
XRC Series



Microwave Coaxial
Cable Connectors



Microwave Coaxial Connectors
with Switch



Micro DC-DC Converters
LXDC Series



ESD Protection Devices
LXES Series



11 NFC

NFC Antennas
FLAN Series



Micro
DC-DC Converters
LXDC Series



Crystal Units
XRC Series



Chip Ferrite Beads
BLM Series



Chip Inductors
(Chip Coils)
LQM/LQH/LQB Series



Trimmer
Capacitors
TZY2 Series



Variable Capacitors
LXRW Series



ESD
Protection Devices
LXES Series



12 DC-DC Converter

Micro
DC-DC Converters
LXDC Series



Thermistors
NCP/PRF Series



Metal Terminal Type
Monolithic
Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Monolithic Ceramic Capacitor on Interposer Board
ZRB Series



13 Battery

Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Thermistors
NXR/PRF/PRG Series



14 Power Supply

Micro
DC-DC Converters
LXDC Series



Monolithic
Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature
Guaranteed Low
Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Chip Common Mode
Choke Coils
DLW/DLP Series



Thermistors
NCP/NTP/PRF Series



15 Clock Device

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



16 HMI/Actuator/Speaker

Pyroelectric
Infrared Sensors
IRS Series



Ultrasonic Sensors
MA Series



ESD
Protection Devices
LXES Series



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQM/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



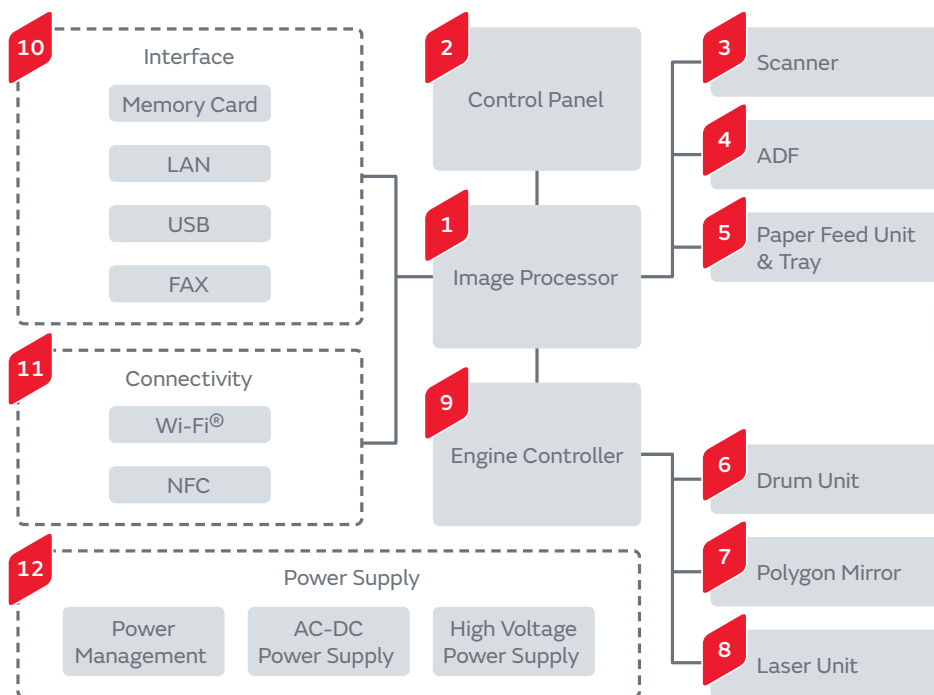
Small Energy Devices

UMAC Series

Battery Backup



MFP (Multi Function Printer/Product/Peripheral)



1 Image Processor

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Micro DC-DC Converters
LXDC Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Low ESL Monolithic Ceramic Capacitors
LLL/LLA/LLM Series



Magnetic Sensors (AMR Sensors)
MR Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



3 Scanner

Ultrasonic Sensors
MA Series



4 ADF

Ultrasonic Sensors
MA Series



Accelerometers
SCA Series



Rotary Position Sensors
SV Series



2 Control Panel

Rotary Position Sensors
SV Series



Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



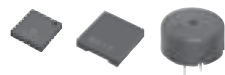
Thermistors
NCP/PRF Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



Chip Common Mode Choke Coils
DLW/DLP Series



5 Paper Feed Unit & Tray

Magnetic Sensors (AMR Sensors)
MR Series



Rotary Position Sensors
SV Series



6 Drum Unit

Thermistors
NCP/PRF Series



7 Polygon Mirror

Accelerometers
SCA Series



8 Laser Unit

Thermistors
NCP/PRF Series



9 Engine Controller

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Shock Sensors
PKGS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Thermistors
PRF/PTG Series



10 Interface

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRF Series



11 Connectivity

Wi-Fi® Modules



NFC Antennas
FLAN Series



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQB Series



ESD Protection Devices
LXES Series



12 Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



AC Line Filters
PLA/PLH/PLY Series



High Voltage Resistors
MHR Series



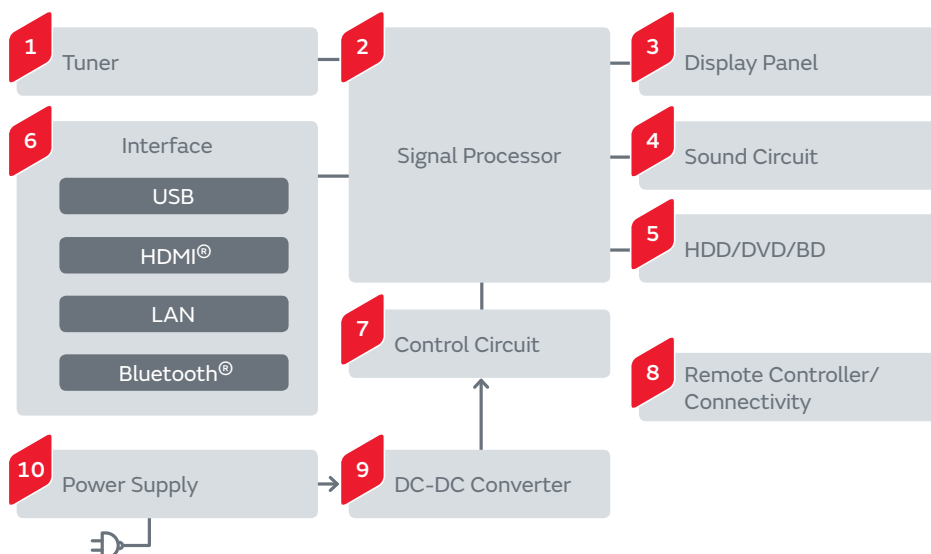
Large Current Common Mode Choke Coils
PLT10HH Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Televisions



1 Tuner

Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQW Series



ESD Protection Devices
LXES Series



2 Signal Processor

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



3 Terminal Capacitors
NFM Series



NFC Antennas
FLAN Series



Thermistors
NCP/PRF Series



3 Display Panel

DC-DC Converters
OKL Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Monolithic Ceramic Capacitor
on Interposer Board
ZRB Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Chip Common Mode Choke Coils
DLW/DLP Series



Power Inductors
LQH Series



Rotary Position Sensors
SV Series



Thermistors
NCP/PRF Series



4 Sound Circuit

Chip Common Mode Choke Coils
DLW/DLP Series



5 HDD/DVD/BD

Shock Sensors
PKGS Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



6 Interface

Bluetooth® Modules



Bluetooth® Smart Modules



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



7 Control Circuit

Bluetooth® Modules



Pyroelectric Infrared Sensors
IRS Series



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



8 Remote Controller/Connectivity

Bluetooth® Modules



Wi-Fi® Modules



Bluetooth® Smart Modules



Shock Sensors
PKGS Series



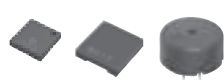
Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



ESD Protection Devices
LXES Series



Chip Inductors (Chip Coils)
LQB Series



9 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Power Inductors
LQH Series



Thermistors
NCP/PRF Series



10 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



AC Line Filters
PLA/PLY Series



Thermistors
NCP/NTP/PRF/PTG Series



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



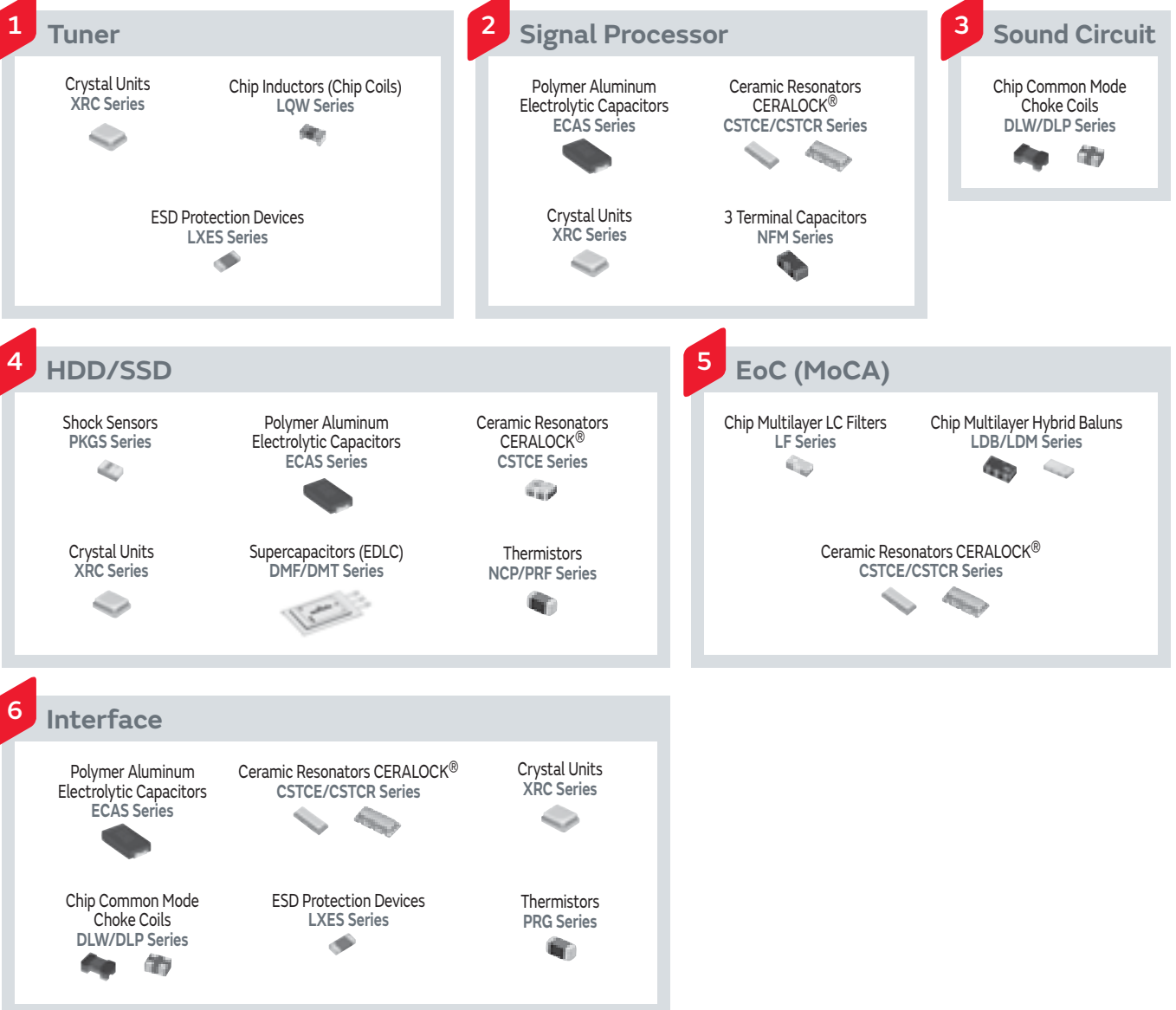
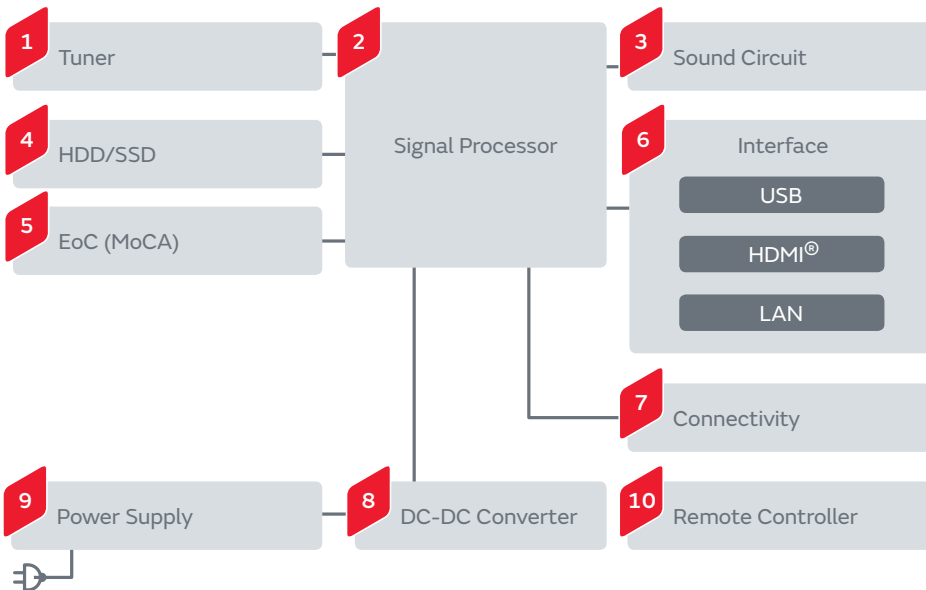
Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Set-top Box



7 Connectivity

Wi-Fi® Modules



Microwave Coaxial Cable Connectors


Microwave Coaxial Connectors
with Switch

Micro DC-DC Converters
LXDC Series

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series

Crystal Units
XRC Series

ESD Protection Devices
LXES Series


8 DC-DC Converter

DC-DC Converters
OKL Series

Micro DC-DC Converters
LXDC Series

Metal Terminal Type Monolithic Ceramic Capacitors
KRM Series

Monolithic Ceramic Capacitor
on Interposer Board
ZRB Series

Polymer Aluminum Electrolytic Capacitors
ECAS Series

Power Inductors
LQH/DFEC Series

Thermistors
NCP/PRF Series


9 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series

High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series

Safety Standard Certified Ceramic Capacitors
Type KX/KY

AC Line Filters
PLA/PLY Series

Thermistors
NCP/NTP/PRF/PTG Series


10 Remote Controller

Micro DC-DC Converters
LXDC Series

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series

Trimmer Capacitors
TZY2 Series


General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



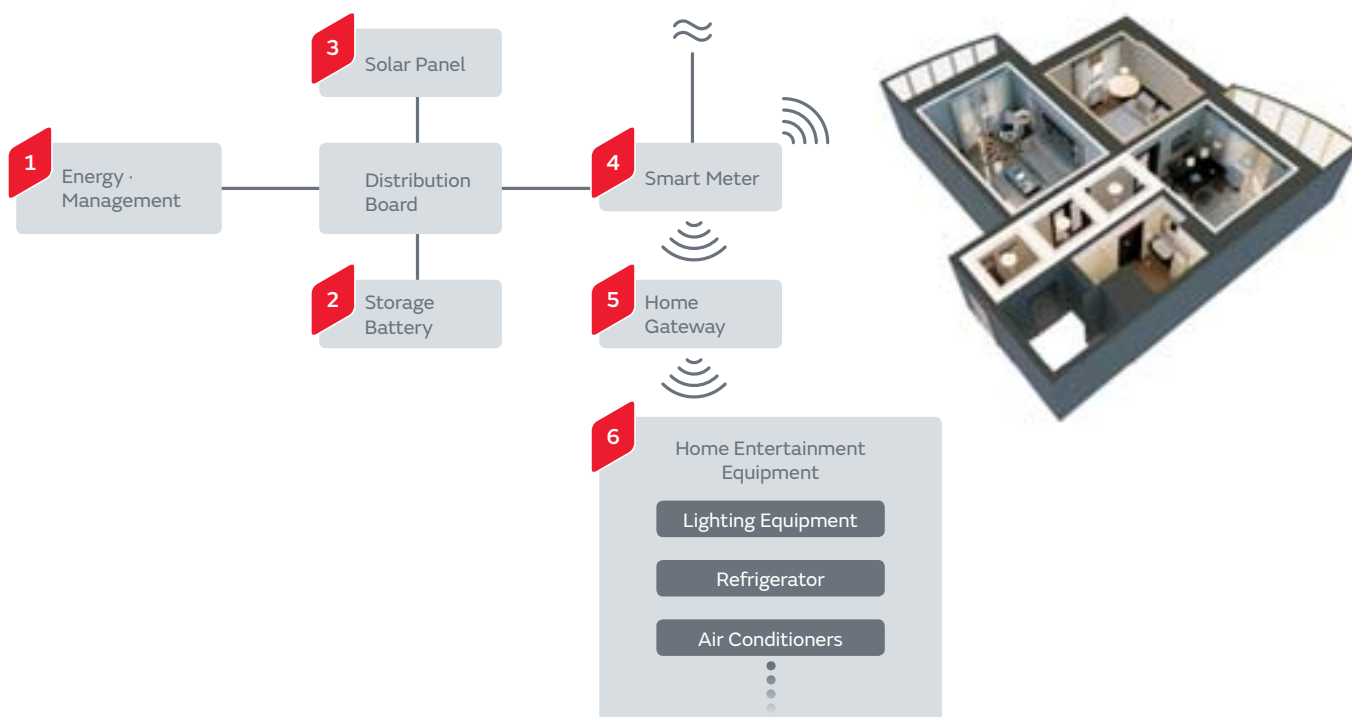
Small Energy Devices

UMAC Series

Battery Backup



HEMS



1 Energy · Management

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Topics



Introduction of Examples as Energy System

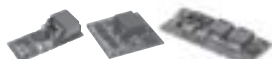
<http://www.murata.com/en-global/about/newsroom/news/product/power/2013/0426>

2 Storage Battery

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature
Guaranteed Low Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Thermistors
NCP/NTP/PRF/PRG/PTG Series



Micro DC-DC Converters
LXDC Series



Small Energy Devices
UMAC Series



3 Solar Panel

Isolated
DC-DC Converters
MYB Series



Non-isolated
DC-DC Converters
OKL/MPD Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Micro
DC-DC Converters
LXDC Series



Supercapacitors (EDLC)
DMF/DMT Series



4 Smart Meter

Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Wi-Fi® Modules



Sub-GHz Modules



Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPD Series



Supercapacitors (EDLC)
DMF/DMT Series



Monolithic Ceramic Capacitors for Ethernet LAN
and Primary - Secondary Couplings of DC-DC Converters
GR4 Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Crystal Units
XRC Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



5 Home Gateway

Bluetooth® Modules



Wi-Fi® Modules



Sub-GHz Modules



6 Home Entertainment Equipment

Bluetooth® Modules



Wi-Fi® Modules



Sub-GHz Modules



Ultrasonic Sensors
MA Series



Shock Sensors
PKGS Series



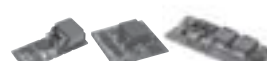
Magnetic Sensors (AMR Sensors)
MR Series



Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



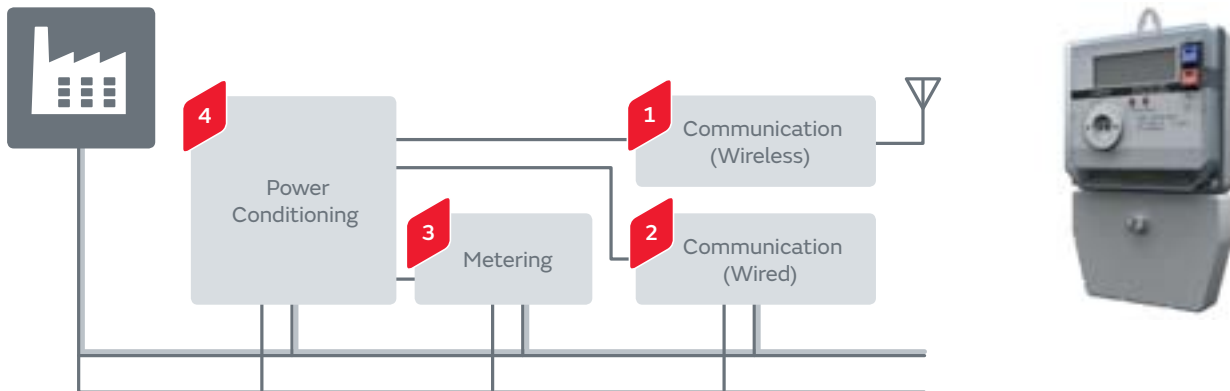
Crystal Units
XRC Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

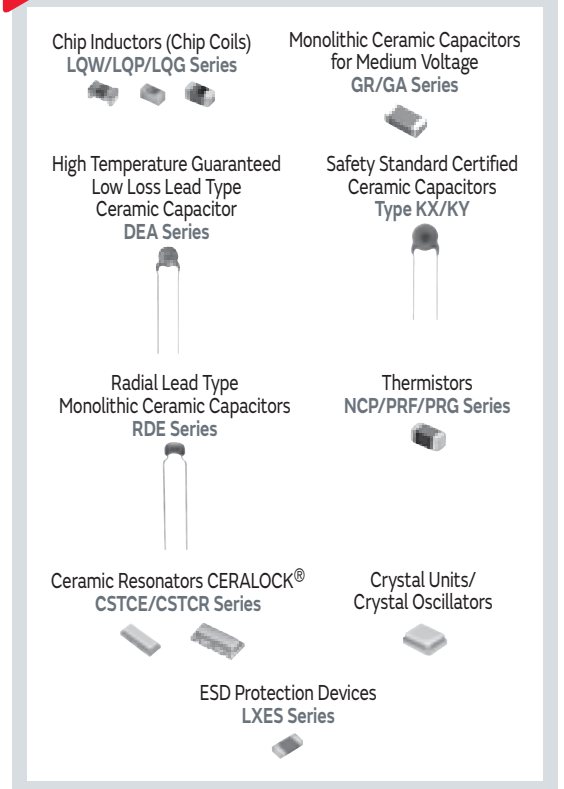
Smartmeter



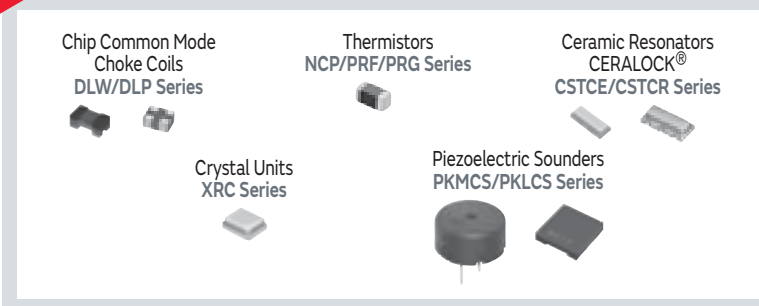
1 Communication (Wireless)



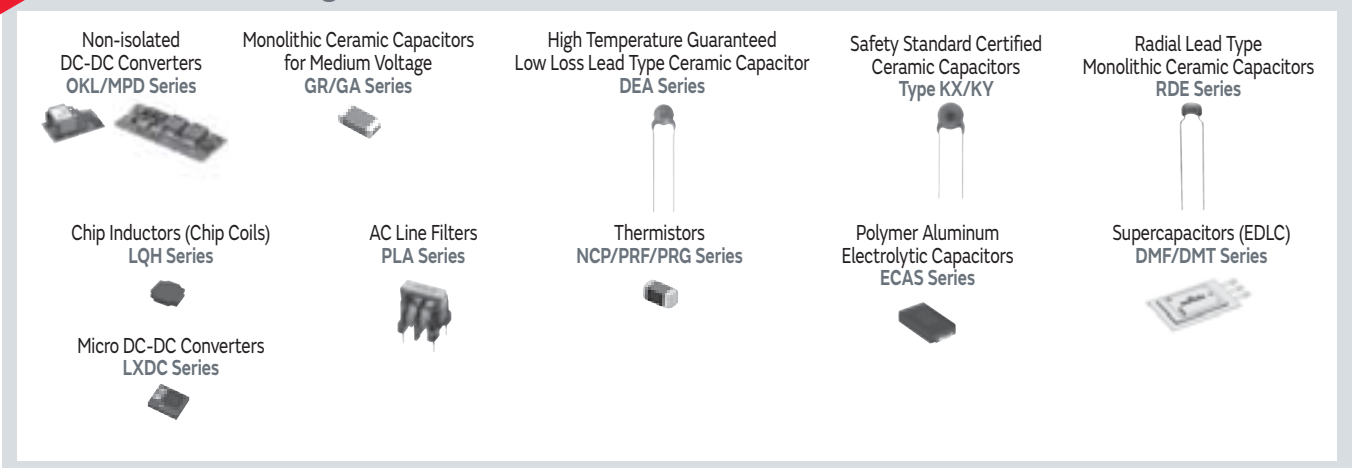
2 Communication (Wired)



3 Metering



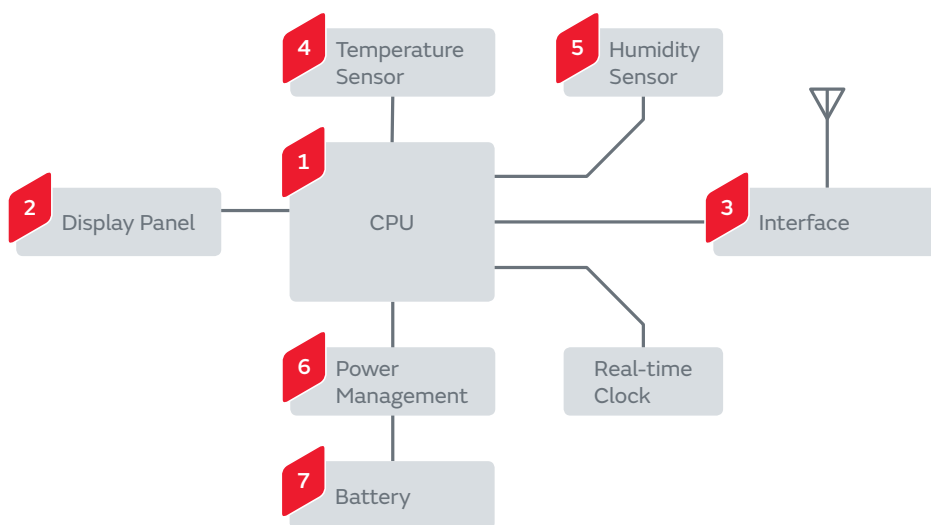
4 Power Conditioning



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	  
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	  
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	 
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Thermostat



1 CPU

Low ESL Monolithic Ceramic Capacitors
LLL/LLA/LLM Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



2 Display Panel

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



Piezoelectric Sounders
PKMCS/PKLCS Series



3 Interface

Wi-Fi® Modules



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQM/LQH/LQB Series



ESD Protection Devices
LXES Series



4 Temperature Sensor

Thermistors
NCP/NTP/PRF/PRG/PTG Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



5 Humidity Sensor

Thermistors
NCP/NTP/PRF/PRG/PTG Series



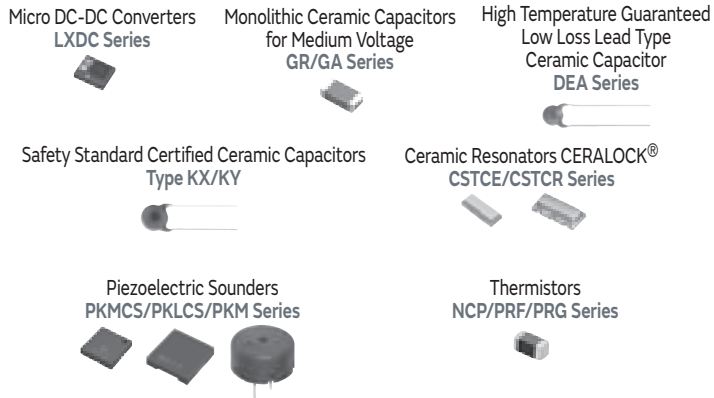
Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



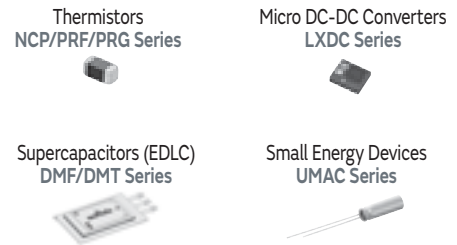
Crystal Units
XRC Series



6 Power Management



7 Battery



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Human Detection



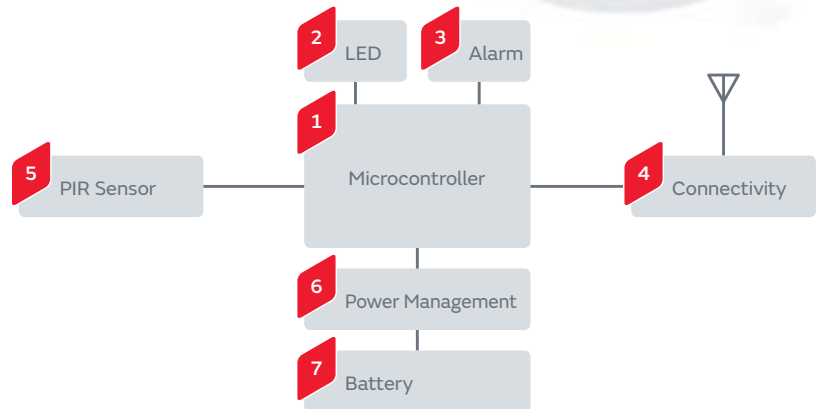
1 Microcontroller

Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series

Polymer Aluminum Electrolytic Capacitors ECAS Series

Crystal Units XRC Series

Thermistors NCP/PRF Series



2 LED

Supercapacitors (EDLC) DMF/DMT Series

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor DEA Series

Safety Standard Certified Ceramic Capacitors Type KX/KY

Thermistors NCP/NTP/PRF/PRG/PTG Series

AC Line Filters PLA/PLH/PLY Series

3 Alarm

Piezoelectric Sounders PKMCS/PKLC/S/PKM Series

4 Connectivity

Wi-Fi® Modules

Micro DC-DC Converters LXDC Series

Ceramic Resonators CERALOCK® CSTCE/CSTCR Series

Crystal Units XRC Series

Chip Inductors (Chip Coils) LQM/LQH/LQB Series

ESD Protection Devices LXES Series

5 PIR Sensor

Pyroelectric Infrared Sensors IRA Series

6 Power Management

Micro DC-DC Converters LXDC Series

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor DEA Series

Safety Standard Certified Ceramic Capacitors Type KX/KY

Ceramic Resonators CERALOCK® CSTCE/CSTCR Series

Chip Common Mode Choke Coils DLW/DLP Series

Thermistors NCP/PRF/PRG Series

7 Battery

Small Energy Devices UMAC Series

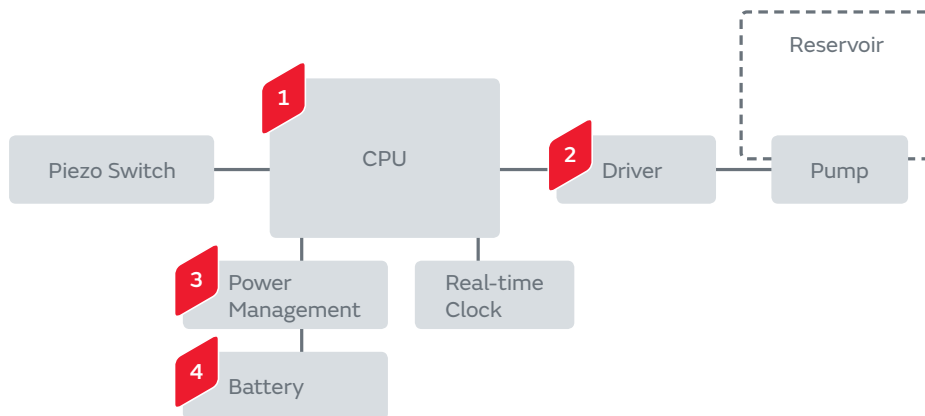
Micro DC-DC Converters LXDC Series

Thermistors NCP/PRF/PRG Series

General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion
Chip Ferrite Beads	BLM Series	Noise Suppression
3 Terminal Capacitors	NFM Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression
Microwave Absorbers	EA Series	Noise Suppression
Ferrite Cores	FS Series	Noise Suppression
Thin Type Sandwich Cores	FSSA Series	Noise Suppression

Air Dispenser



1 CPU

Low ESL Monolithic
Ceramic Capacitors
LLL/LLA/LLM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



2 Driver

Thermistors
NCP/NXRT/NTP/PRF Series



3 Power Management

Micro
DC-DC Converters
LXDC Series



Monolithic
Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature
Guaranteed Low Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Thermistors
NCP/NTP/PRF Series



4 Battery

Supercapacitors (EDLC)
DMF/DMT Series



Thermistors
NXR/PRF/PRG Series



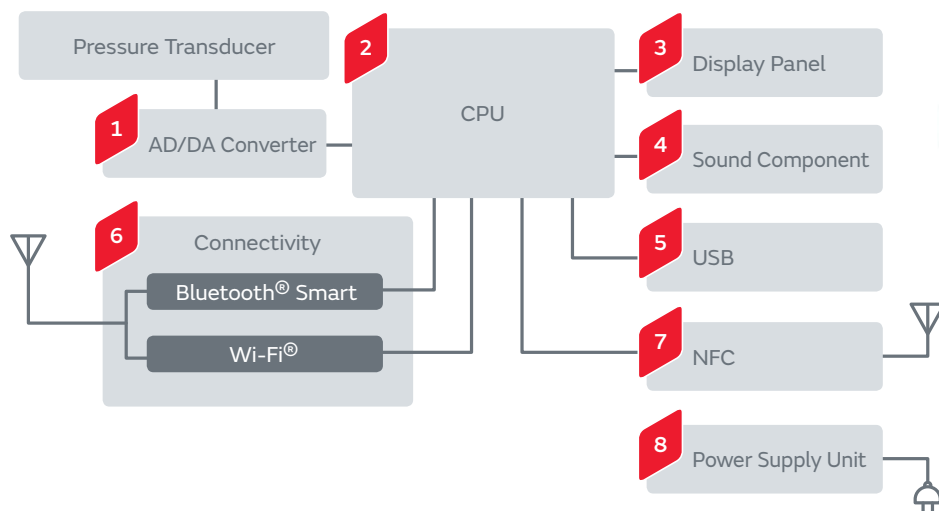
Small Energy Devices
UMAC Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Blood Pressure Monitor



1 AD/DA Converter

Chip Ferrite Beads
BLM Series



Thermistors
NCP Series



2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G/CSTCE-G/CSTCE-V Series



Thermistors
NCP/NXR Series



3 Display Panel

3 Terminal Capacitors
NFM/NFE Series



Chip Ferrite Beads
BLM Series



Thermistors
NCP Series



4 Sound Component

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



5 USB

Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRC Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



6 Connectivity

ESD Protection Devices
LXES Series



Micro DC-DC Converters
LXDC Series



Bluetooth® Smart Modules



Wi-Fi® Modules



Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRC Series



Thermistors
PRG Series



7 NFC

NFC Antennas
FLAN Series



Micro DC-DC Converters
LXDC Series



Crystal Units
XRCGB Series



Chip Ferrite Beads
BLM Series



Chip Inductors (Chip Coils)
LQM/LQH/LQB Series



Trimmer Capacitors
TZY2 Series



ESD Protection Devices
LXES Series



8 Power Supply Unit

Thermistors
NCP Series



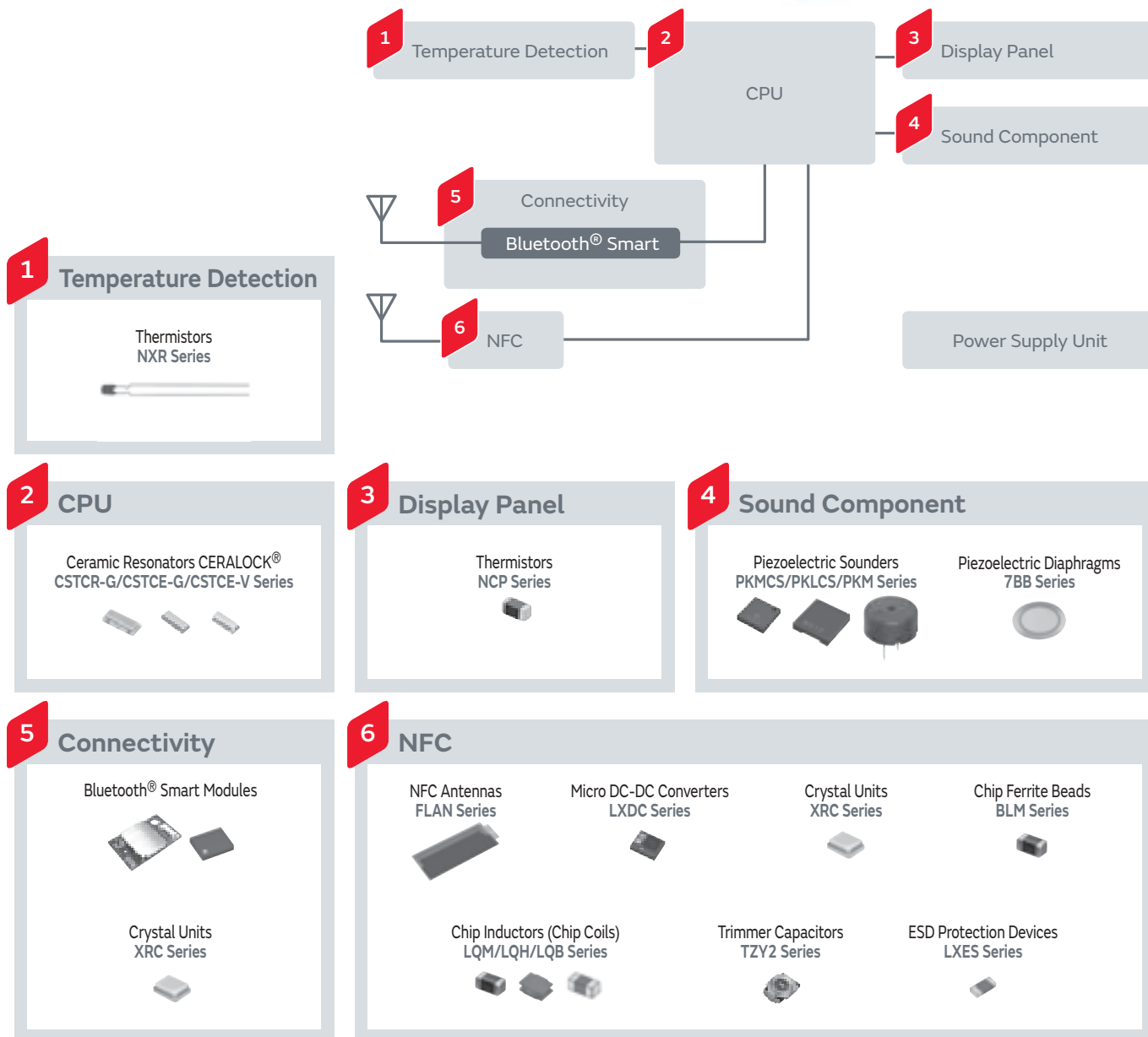
Thermistors
PRF/PRG Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Supercapacitors (EDLC)	DMF/DMT Series	Power Line/Battery Peak Assist	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Thermometer



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Supercapacitors (EDLC)	DMF/DMT Series	Power Line/Battery Peak Assist	
Chip Inductors (Chip Coils)	LQM/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Blood Glucose Meter



1 AD/DA Converter

Chip Ferrite Beads
BLM Series



Thermistors
NCP Series

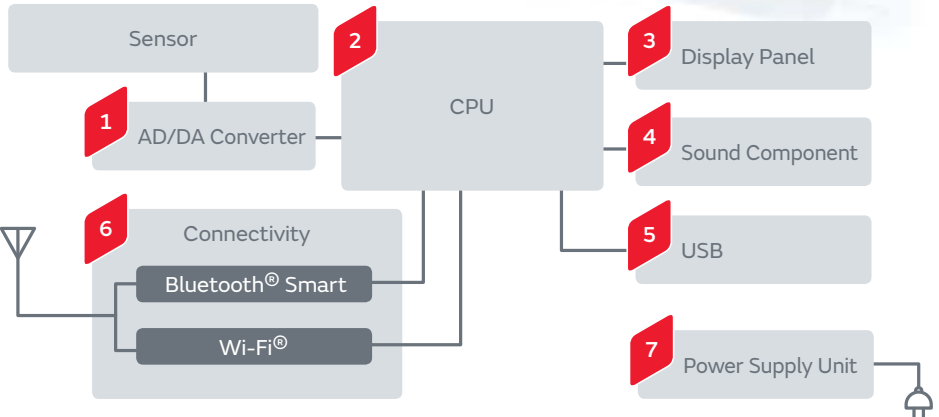


2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G/CSTCE-G/CSTCE-V Series



Thermistors
NCP/NXR Series



3 Display Panel

3 Terminal Capacitors
NFM Series



Chip Ferrite Beads
BLM Series

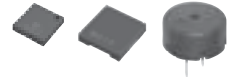


Thermistors
NCP Series



4 Sound Component

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



Piezoelectric Diaphragms
7BB Series



5 USB

Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRC Series



Thermistors
PRG Series



6 Connectivity

Bluetooth® Smart Modules



Wi-Fi® Modules



Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRC Series



Thermistors
PRG Series



7 Power Supply Unit

Thermistors
NCP Series



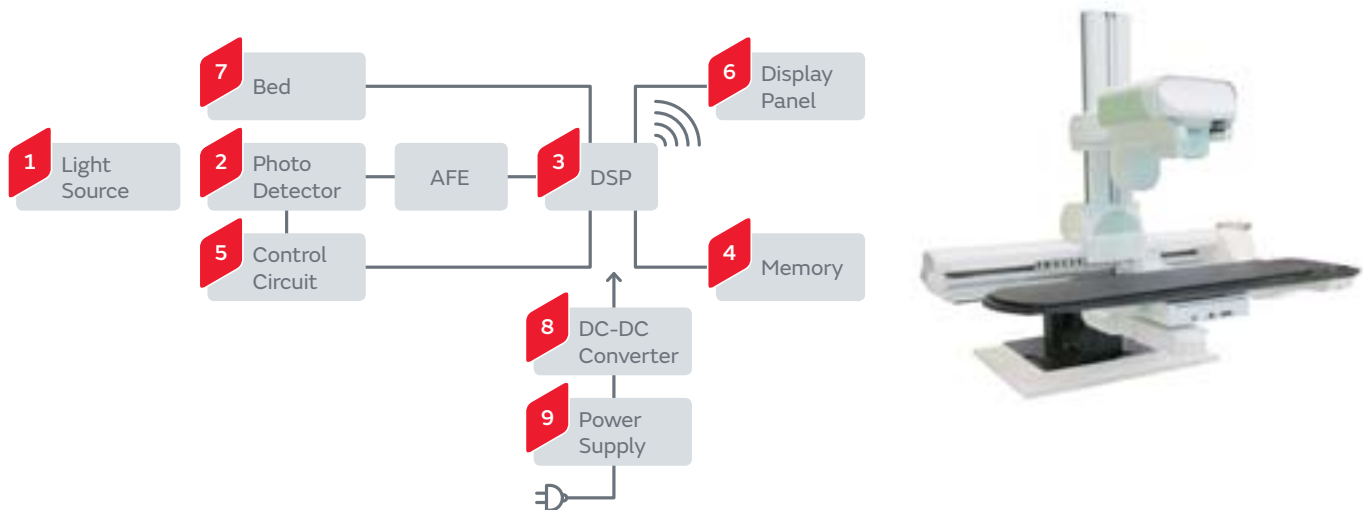
Thermistors
PRF/PRG Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Supercapacitors (EDLC)	DMF/DMT Series	Power Line/Battery Peak Assist	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Diagnostic Imaging Apparatus



1 Light Source

High Voltage Ceramic Capacitors
DHS/DHK Series



2 Photo Detector

Thermistors
NCP/PRF Series



3 DSP

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Crystal Units
XRC Series

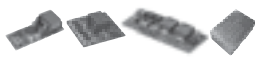


4 Memory

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT/MYS Series



Micro DC-DC Converters
LXDC Series



Supercapacitors (EDLC)
DMF/DMT Series



Small Energy Devices
UMAC Series

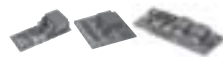


5 Control Circuit

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



6 Display Panel

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Piezoelectric Sounders
PKMCS/PKLCS Series



Thermistors
PRF/PRG Series



7 Bed

Inclinometers
SCA100T/103T Series



8 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



9

Power Supply

Medical Standards-Compliant
AC-DC Converters
MVAD/MVAB Series



Micro DC-DC Converters
LXDC Series



Supercapacitors
(EDLC)
DMF/DMT Series



Monolithic
Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Thermistors
NCP/NTP/PRF Series



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



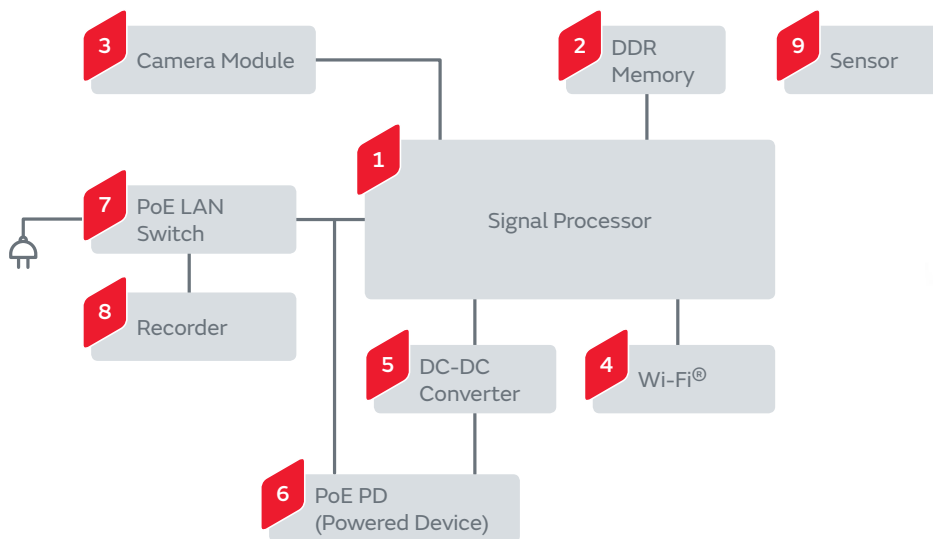
Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Security Camera



1 Signal Processor

Polymer Aluminum Electrolytic Capacitors ECAS Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRC Series



3 Terminal Capacitors NFM Series



Thermistors NCP/PRF Series



2 DDR Memory

Micro DC-DC Converters LXDC Series



Polymer Aluminum Electrolytic Capacitors ECAS Series



Chip Ferrite Beads BLM Series



3 Camera Module

Chip Ferrite Beads BLM Series



4 Wi-Fi®

Wi-Fi® Modules



Micro DC-DC Converters LXDC Series



Chip Inductors (Chip Coils) LQB Series



Chip Multilayer LC Filters LF Series



Chip Multilayer Diplexers LFD Series



Chip Multilayer Hybrid Baluns LDB/LDM Series



Chip Multilayer Hybrid Couplers LDC/LDJ Series



5 DC-DC Converter

Micro DC-DC Converters LXDC Series



Metal Terminal Type Monolithic Ceramic Capacitors KRM Series



Polymer Aluminum Electrolytic Capacitors ECAS Series



Power Inductors LQH/DFEC Series



Thermistors NCP/PRF Series



6 PoE PD (Powered Device)

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Crystal Units
XRC Series



Thermistors
NCP/NXRT/NTP/PRF Series



7 PoE LAN Switch

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Crystal Units
XRC Series



Thermistors
NCP/NXRT/NTP/PRF Series



8 Recorder

Shock Sensors
PKGS Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



9 Sensor

Pyroelectric Infrared Sensors
IRA Series



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Monolithic Ceramic Capacitors

GJM Series

High Frequency Filter Circuit



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH/DFEC Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM Series

Noise Suppression



Feed Through Chip EMI Filters

NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



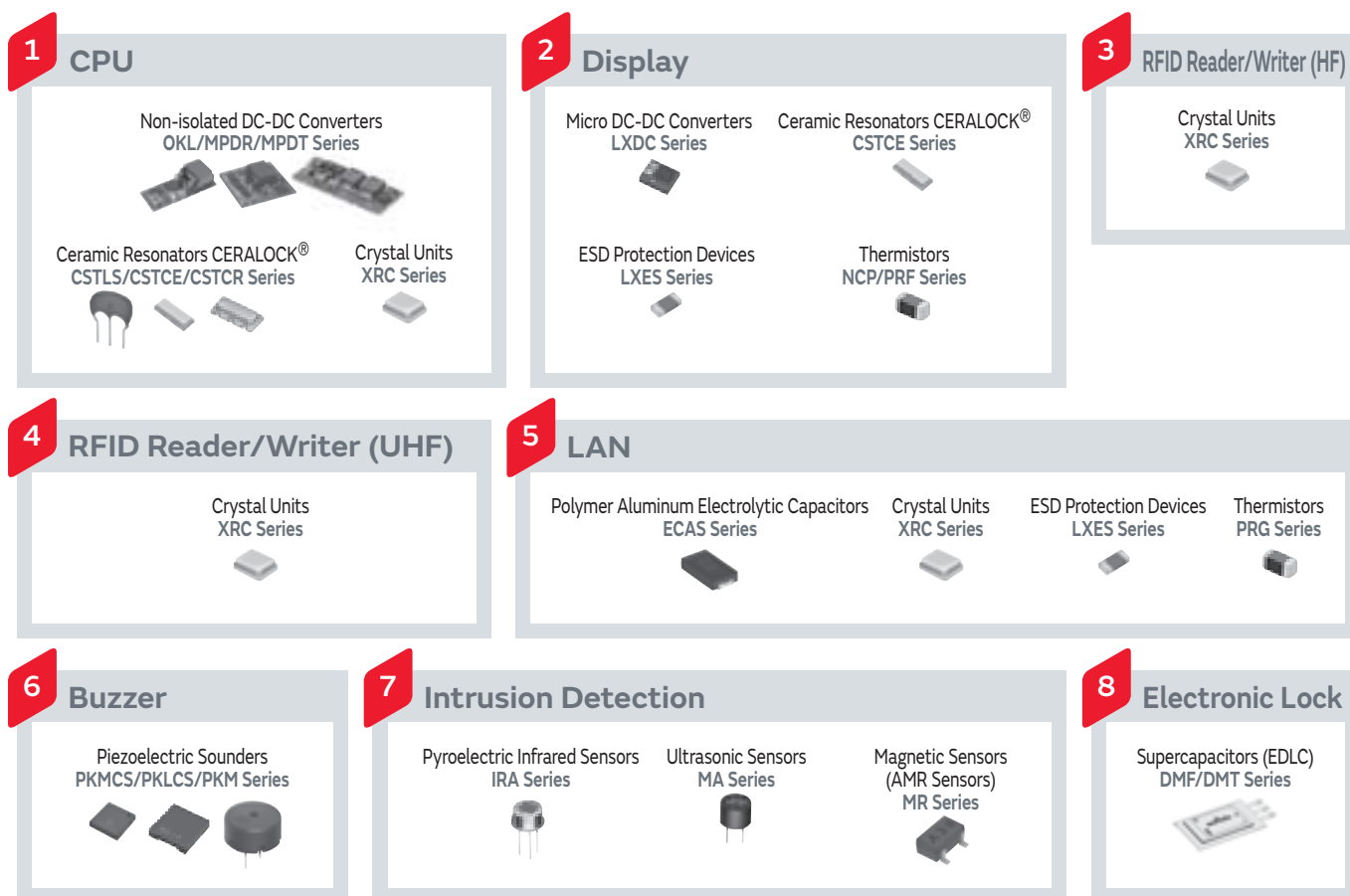
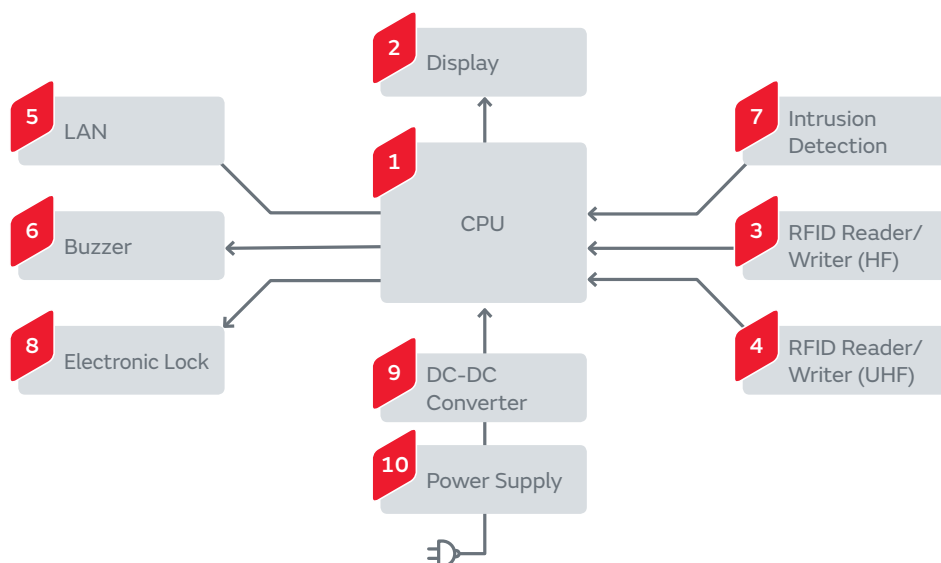
Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Entrance and Exit Management System



9

DC-DC Converter

Micro DC-DC Converters
LXDC Series



Thermistors
NCP/PRF Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



10

Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type
Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



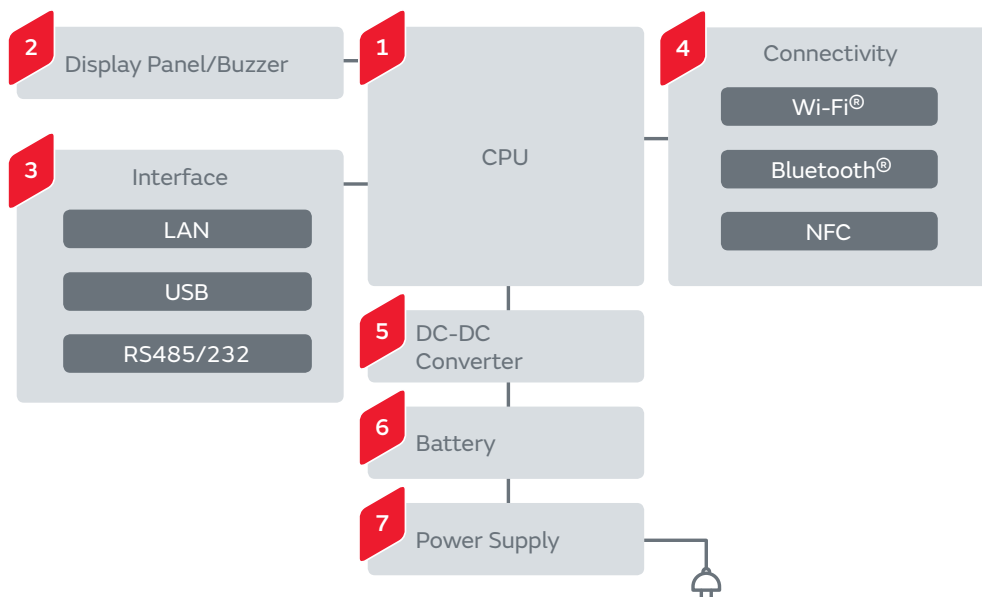
Thermistors
NCP/NTP/PRF Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Electronic POS



1 CPU

- Supercapacitors (EDLC) DMF/DMT Series
- ESD Protection Devices LXES Series
- Micro DC-DC Converters LXDC Series

3 Interface

- Polymer Aluminum Electrolytic Capacitors ECAS Series
- Crystal Units XRC Series
- Chip Common Mode Choke Coils DLW/DLP Series
- ESD Protection Devices LXES Series
- Thermistors PRG Series

2 Digital Panel/Buzzer

- Metal Terminal Type Monolithic Ceramic Capacitors KCM Series
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series
- Power Inductors LQH Series
- Thermistors PRF/PRG Series
- Piezoelectric Sounders PKMCS/PKLC Series
- Piezoelectric Buzzers PKB Series

4 Connectivity

- Bluetooth® Modules
- Bluetooth® - Wi-Fi® Combo Modules
- Bluetooth® Smart Modules
- Wi-Fi® Modules
- NFC Antennas FLAN Series
- Crystal Units XRC Series

5 DC-DC Converter

- Micro DC-DC Converters LXDC Series
- Metal Terminal Type Monolithic Ceramic Capacitors KRM Series
- Polymer Aluminum Electrolytic Capacitors ECAS Series
- Power Inductors LQH/DEM/DFEC Series
- Thermistors NCP/PRF Series

6 Battery

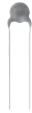
- Thermistors NCP/PRF/PRG Series

7 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



AC Line Filters
PLA/PLY Series



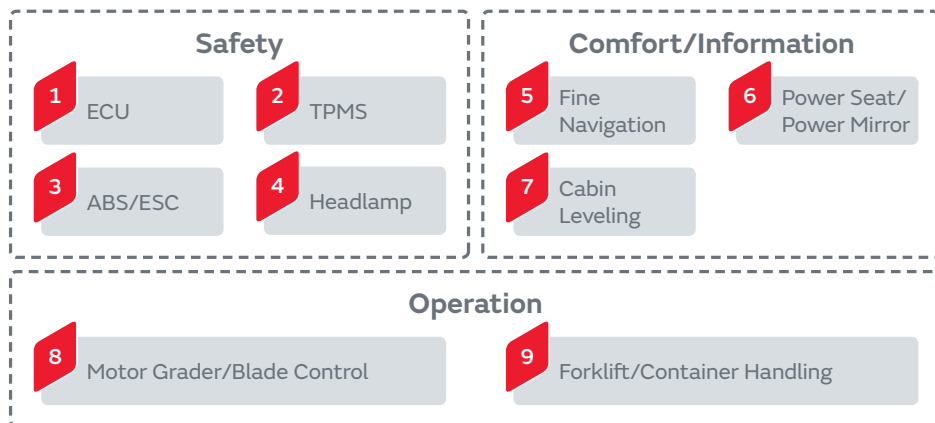
Thermistors
NCP/NTP/PRF/PTG Series



General Purpose

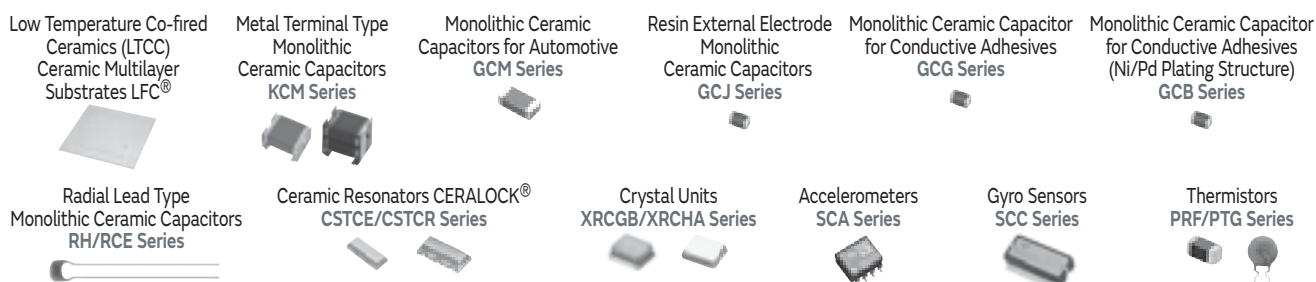
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Heavy Duty Vehicles

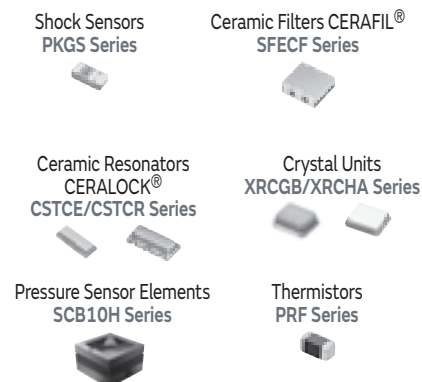


Safety

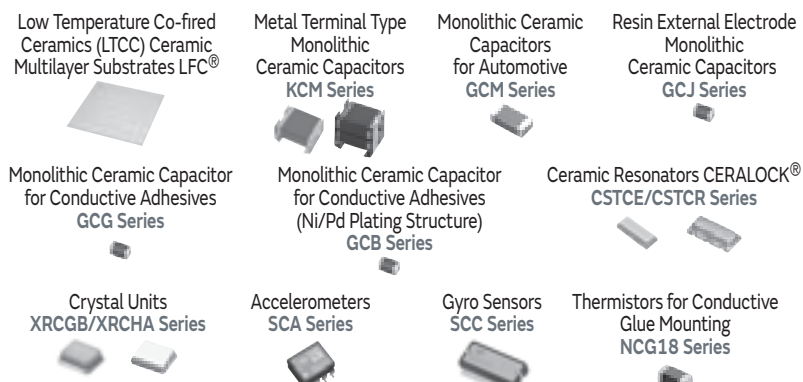
1 ECU



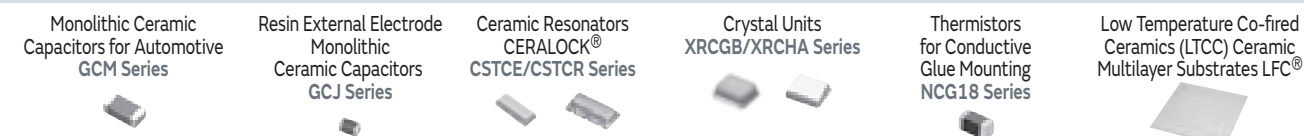
2 TPMS



3 ABS/ESC



4 Headlamp



Comfort/Information

5 Fine Navigation

Accelerometers
SCA Series



Gyro Sensors
SCC Series



MEMS Gyro Sensors
SCR Series



6 Power Seat/Power Mirror

Piezoelectric Sounders
PKLCS Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



Thermistors
PRF/PTG Series



7 Cabin Leveling

Accelerometers
SCA Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Gyro Sensors
SCC Series



Crystal Units
XRCGB/XRCHA Series



Operation

8 Motor Grader/Blade Control

Accelerometers
SCA Series



Gyro Sensors
SCC Series



MEMS Gyro Sensors
SCR Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series



9 Forklift/Container Handling

Accelerometers
SCA Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB/XRCHA Series

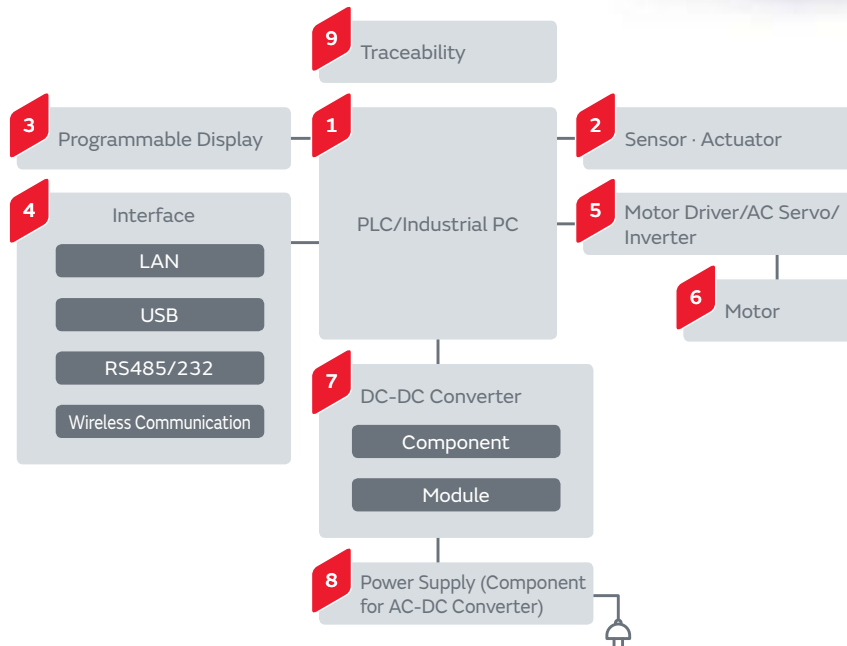


General Purpose	Monolithic Ceramic Capacitors	GRT Series	Coupling/Decoupling	
	Monolithic Ceramic Capacitors for Medium Voltage	GRM Series	For Snubber	
	Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
	Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling	
	Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
	Chip Ferrite Beads	BLM Series	Noise Suppression	
	EMI Suppression Filters	NFL/NFE Series	Noise Suppression	
	Chip Common Mode Choke Coils	DLW Series	Common Mode Noise Suppression	
	Ferrite Cores	FS Series	Noise Suppression	

General Purpose (High Reliability)	Monolithic Ceramic Capacitors For Automotive	GCM Series	Coupling/Decoupling		150°C
	Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		125°C
	Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling		150°C
	Chip Inductors (Chip Coils)	LQH32CH/MBH/DFEH Series	Voltage Conversion		105°C
	Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke		125°C
	Chip Ferrite Beads	BLM_SH Series	Noise Suppression		125°C
	3 Terminal Capacitors	NFM_H/NFE_H Series	Noise Suppression		125°C
	Chip Common Mode Choke Coils	DLW31/DLW43 Series	Common Mode Noise Suppression		125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

Industrial Automation



1 PLC/Industrial PC

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units
XRC Series



Chip Ferrite Beads
BLM Series



3 Terminal Capacitors
NFM Series



Supercapacitors (EDLC)
DMF/DMT Series



Thermistors
NCP/PRF Series



4 Interface (LAN · USB · RS485/232 · Wireless Communication)

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



Wireless Communication Modules
Based on the ISA100 Wireless™ Standard



2 Sensor · Actuator

Pyroelectric Infrared Sensors
IRA Series



Magnetic Sensors
(AMR Sensors)
MR Series



3 Programmable Display

Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Power Inductors
LQH Series



Supercapacitors (EDLC)
DMF/DMT Series



Chip Common Mode Choke Coils
DLW/DLP Series



5 Motor Driver/AC Servo/Inverter

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Large Current Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



6 Motor

Rotary Sensors



7 DC-DC Converter (Module - Component)

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPD/MYS Series



Micro
DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Power Inductors
LQH Series



Thermistors
NCP/PRF Series



8 Power Supply (Component for AC-DC Converter)

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Thermistors
NCP/NTP/PRF Series



9 Traceability

RFID Device MAGICSTRAP®
LXMS Series



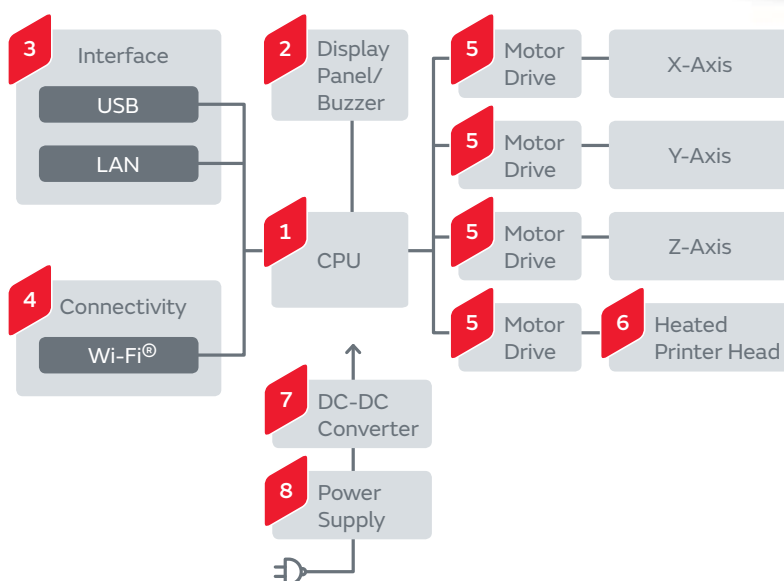
Supercapacitors (EDLC)
DMF/DMT Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

3D Printer



1 CPU

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



2 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



3 Interface

Polymer Aluminum Electrolytic Capacitors
ECAS Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



4 Connectivity

Wi-Fi® Modules



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQB Series



ESD Protection Devices
LXES Series



5 Motor Drive

Isolated
DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type
Ceramic Capacitor
DEA Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRC Series



Large Current Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



6 Heated Printer Head

Thermistors
NCP/PRF Series



7 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



8 Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



High Temperature Guaranteed
Low Loss Lead Type Ceramic Capacitor
DEA Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



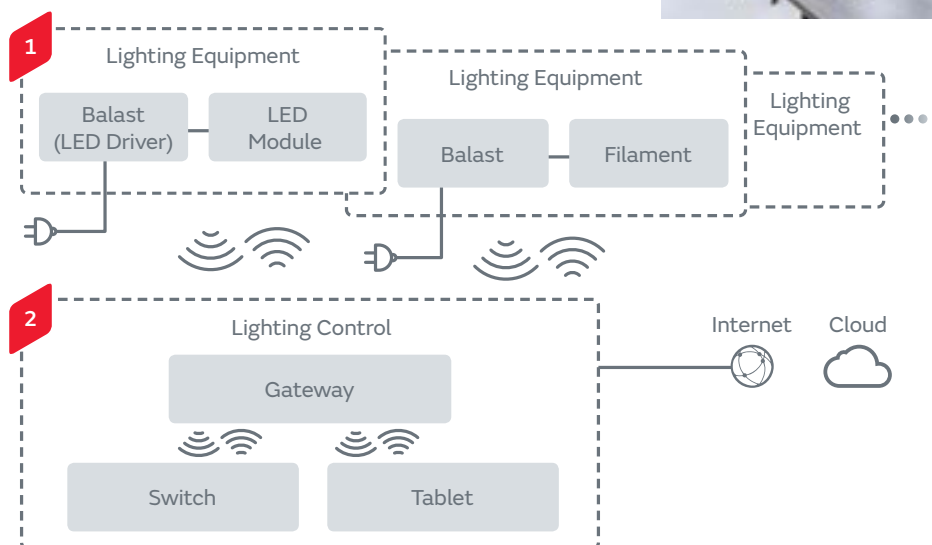
Thermistors
NCP/NTP/PRF/PRG Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Lighting



1 Lighting Equipment

Ballast for LED Lighting



Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series



High Temperature Guaranteed Low Loss Lead Type Ceramic Capacitor DEA Series



Safety Standard Certified Ceramic Capacitors Type KX/KY



Piezoelectric Sounders PKMCS/PKLC Series



Wi-Fi® Modules



Sub-GHz Modules



Thermistors NCP/NTP/PRF/PRG/PTG Series



AC Line Filters PLA/PLH/PLY Series



2 Lighting Control

Wi-Fi® Modules



Sub-GHz Modules



Pyroelectric Infrared Sensors IRA Series



Crystal Units XRC Series



Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series



General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Monolithic Ceramic Capacitors	GJM Series	High Frequency Filter Circuit	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH/DFEC Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM Series	Noise Suppression	
Feed Through Chip EMI Filters	NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Memo

Design Support Tool "SimSurfing"

<http://www.murata.com/simsurfing/>

This is the latest tool to get the electrical characteristics for capacitors, inductors, and EMI suppression filters, etc., and to simulate thermistors' behavior !



■ Characteristics viewer
You can easily search and download the following data for [Monolithic Ceramic Capacitors], [Three-terminal Capacitors], [RF Inductors], [Ferrite Beads] and [Common Mode Choke Coils], etc.

■ Component performance simulator
You can search by the simulation on simple circuits for [NTC Thermistors] and [PTC Thermistors(POSISTOR®)].

■ Selection tool
According to conditions of use, you can select our medium voltage capacitors and power inductors on [Medium Voltage Capacitors] and [Power Inductors].

■ Search tool
You can search CERALOCK® and crystal units that are most suitable for your IC and access information about the recommended circuit constant setting on [Timing Devices].

■ Usage example of "Monolithic Ceramic Capacitors"

1 Select the products

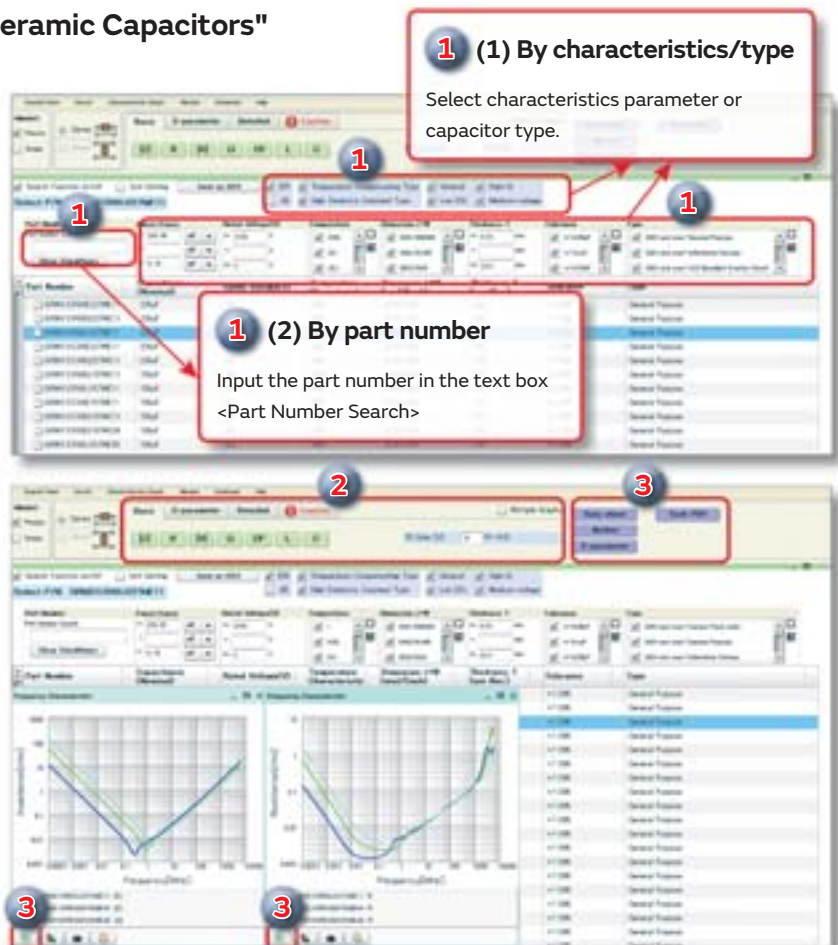
- (1) By characteristics/type
- (2) By part number

2 Show graph

Click a button on each tab of "Basic," "S-parameter," and "Detailed."

3 Data download

- Click each purple button in this area.
- Click "CSV output" button.



1 (1) By characteristics/type
Select characteristics parameter or capacitor type.

1 (2) By part number
Input the part number in the text box
<Part Number Search>

2
Click a button on each tab of "Basic," "S-parameter," and "Detailed."

3
Click each purple button in this area.
Click "CSV output" button.

* Images are as of October 2015. Be assured that this software will be updated frequently.

<http://www.murata.com/simsurfing/>

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Global Locations

For details please visit www.murata.com



⚠ Note

1 Export Control

For customers outside Japan:

No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

For customers in Japan:

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2 Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Power plant equipment
- ⑤ Medical equipment
- ⑥ Transportation equipment (vehicles, trains, ships, etc.)
- ⑦ Traffic signal equipment
- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed above

3 Product specifications in this catalog are as of November 2016. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

4 Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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