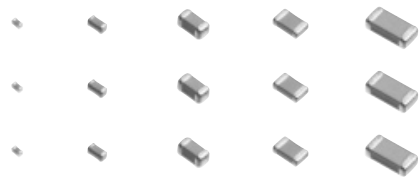


Multilayer Ceramic Capacitors
(For General Electronic Equipment)

Series: **ECJ**



■ Features

- Small size and wide capacitance range
- High humidity resistance and long life
- Excellent solderability and resistance to soldering heat
- Low inductance (ESL) and excellent frequency characteristics
- RoHS compliant

■ Recommended Applications

- Class 1 (T.C. Type)
Tuned circuits, and filter circuitry, where low loss and high stability of capacitance and high insulation resistance is required
- Class 2 (Hi-K Type)
Coupling and By-passing

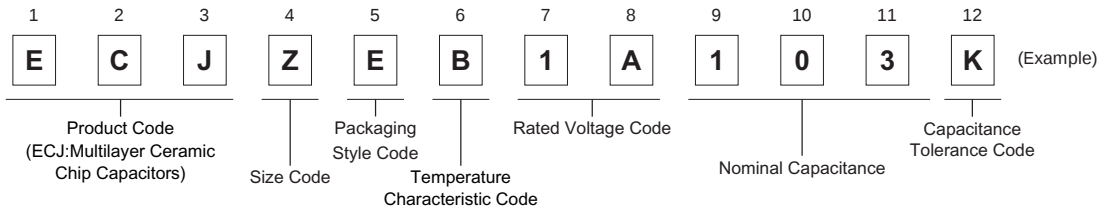
■ Handling Precautions

See Page 49 to 54

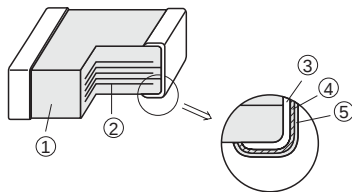
■ Packaging Specifications

See Page 46, 47, 58

■ Explanation of Part Numbers

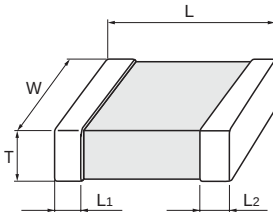


■ Construction



No	Name	
1	Ceramic dielectric	
2	Internal electrode	
3	Terminal electrode	Substrate electrode
4		Intermediate electrode
5		External electrode

■ Dimensions in mm (not to scale)



Size Code	Size (EIA)	L	W	T	L ₁ , L ₂
Z	0201	0.60±0.03	0.30±0.03	0.30±0.03	0.15±0.05
0	0402	1.00±0.05	0.50±0.05	0.50±0.05	0.2±0.1
1	0603	1.6±0.1	0.8±0.1	0.8±0.1	0.3±0.2
2	0805	2.0±0.1	1.25±0.10	0.6±0.1	0.50±0.25
				0.85±0.10	
				1.25±0.10	
3	1206	3.20±0.15	1.60±0.15	1.25±0.15	0.6±0.3
				0.6±0.1	
				0.85±0.10	
				1.15±0.10	
		3.2±0.2	1.6±0.2	1.6±0.2	

■ Packaging Styles and Standard Packaging Quantity

Quantity (Taping: pcs./reel, Bulk case : pcs./case)

Packaging Style Code	Size		0201	0402	0603	0805			1206			
	Packaging Styles	Thickness (mm)	T=0.3	T=0.5	T=0.8	T=0.6	T=0.85	T=1.25	T=0.6	T=0.85	T=1.15	T=1.6
E	ø180 reel	Paper taping (Pitch: 2 mm)	15,000	10,000	—	—	—	—	—	—	—	—
V		Paper taping (Pitch: 4 mm)	—	—	4,000	5,000	4,000	—	5,000	4,000	—	—
F		Embossed taping (Pitch: 4 mm)	—	—	—	—	—	3,000	—	—	3,000	—
Y			—	—	—	—	—	—	—	—	—	2,000
W	ø330 reel*	Paper taping (Pitch: 2 mm)	—	50,000	—	—	—	—	—	—	—	—
Z		Paper taping (Pitch: 4 mm)	—	—	10,000	20,000	10,000	—	20,000	10,000	—	—
C	Bulk case		—	50,000	15,000	10,000	—	—	—	—	—	—

* For Part Number applicable to ø330 reel, please contact us.

■ Temperature Characteristics

● Class 1

Temperature Characteristic Code	Temperature Characteristics		Temp. Coeff. (ppm/°C)	Rate of Capacitance change at each Temperature (%)			
				-25 °C		85 °C	
				max.	min.	max.	min.
C	C4	>10 pF CG	0± 30	0.33	-0.14	0.20	-0.20
		>4 pF CH	0± 60	0.49	-0.27	0.39	-0.39
		3 pF CJ	0±120	0.82	-0.54	0.78	-0.78
		<2 pF CK	0±250	1.54	-1.13	1.63	-1.63
G	SL		+350 to -1000	—	—	2.28	-6.50

Temperature coefficient: calculated between 20 °C to 85 °C

For applicable "temperature characteristics", see the lists of standard products on page 13 to 20.

● Class 2

Temperature Characteristic Code	Temperature Characteristics	Capacitance Change	Measurement Temperature Range	Reference Temperature
B	B	±10 %	-25 to 85 °C	20 °C
	X7R	±15 %	-55 to 125 °C	25 °C
	X5R	±15 %	-55 to 85 °C	25 °C
F	F	+30, -80 %	-25 to 85 °C	20 °C
	Y5V	+22, -82 %	-30 to 85 °C	25 °C

For applicable "temperature characteristics", see the lists of standard products on page 13 to 20.

■ Rated Voltage

Code	1H	1E	1C	1A	0J
Rated Voltage	DC 50 V	DC 25 V	DC 16 V	DC 10 V	DC 6.3 V

■ Nominal Capacitance

Ex	0R5	010	100	104
Nominal Capacitance	0.5 pF	1 pF	10 pF	100,000 pF (0.1 µF)

■ Capacitance Tolerance

Class	Temperature Characteristics			Tol. Code	Capacitance Tolerance
1	C4, SL	Capacitance range	C < 5 pF	C	±0.25 pF
			C <10 pF	D	±0.5 pF
			C =10 pF	F	±1 pF
			C >10 pF	J	±5 %
				K	±10 %
2	B, X7R, X5R			K	±10 %
				M	±20 %
	F, Y5V			Z	+80, −20 %

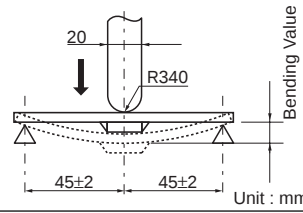
Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

Feb. 2006

■ Specification and Test Method

Item	Specification		Test Method
	Class 1	Class 2	
Operating Temperature Range	Temp. Char. C1 : -55 to 125 °C : -25 to 85 °C (Size 1206, 5600 to 10000 pF) Temp. Char. SL : -55 to 125 °C	Temp. Char. B, X7R : -55 to 125 °C Temp. Char. B, X5R : -55 to 85 °C Temp. Char. F, Y5V : -30 to 85 °C	
Dielectric Withstanding Voltage	No dielectric breakdown and /or damage		Test voltage: Class 1:Rated voltage ×300 % Class 2:Rated voltage ×250 % Duration:1 to 5 s Charge/discharge current : 50 mA max.
Insulation Resistance (I R)	10000 MΩ or 500/C (MΩ) whichever is less. Note:100/C(MΩ)min. for DC 10 V max. C:Nominal Cap. in μF		Measuring voltage:Rated voltage Duration: 60±5 s Charge/discharge current : 50 mA max.
Capacitance	within the specified tolerance.		Measuring temperature: 20±2 °C
Q Factor or Dissipation Factor (tan δ)	Q: C<30 pF: Q>400+20C 30 pF<C<1000 pF:Q>1000 tan δ: C>1000 pF: tan δ<0.002 (C:Nominal Cap. in pF)	tan δ: Temp. Char. B, X7R, X5R: 0.15 max. Temp. Char. F, Y5V: 0.2 max. Please see the technical specifications for details.	Class 1:
			Nominal capacitance
			Measuring frequency
			Measuring voltage
			Class 2: Preconditioning: The capacitors shall be kept in temperature of 150 +0/-10 °C for 1 hour and subjected to standard condition* 48±4 hours before initial measurement.
Temperature Characteristics	Temp. Char. CG : 0± 30 ppm/ °C CH : 0± 60 ppm/ °C CJ : 0±120 ppm/ °C CK : 0±250 ppm/ °C SL : +350 to -1000 ppm/ °C	Temp. Char. B : ±10 % X7R : ±15 % X5R : ±15 % F : +30, -80 % Y5V : +22, -82 %	Nominal capacitance
			Measuring frequency
			Measuring voltage
			Maximum capacitance change at stage 1 to 5
			Temp. Char.
Adhesion	Terminal electrodes shall be free from peeling or signs of peeling.		Temp. Char.
			1
			2
			3 (Ref. Temp.)
			4
			5
			See the technical specifications for details such as measuring voltage.
			Applied force: Size: 0201: 2 N Size: 0402 to 1206: 5N Duration: 10 s Size: 0201, 0402
			1.0 0.5R Sample
			0.3/Size:0201 0.5/Size:0402 PC board
			Size: 0603 to 1206
			1.0 Sample
			Unit : mm

*Standard condition : Temperature 15 to 35 °C, Relative humidity 45 to 75 %

Item	Specification		Test Method												
	Class 1	Class 2													
Bending Strength	Appearance: No mechanical damage Capacitance change: Within $\pm 5\%$ or $\pm 0.5\text{ pF}$ whichever is larger.	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R : within $\pm 12.5\%$ F, Y5V : within $\pm 30\%$	Bending value:1 mm Bending speed:1 mm/  Unit : mm												
Vibration Proof	Appearance: No mechanical damage. Capacitance: within the specified tolerance Q, tan δ : Initial standard value		Total amplitude : 1.5 mm Vibration frequency : 10 to 55 to 10 Hz for 1 min. 3 perpendicular directions for 2 hours each, a total of 6 hours												
Resistance to Soldering Heat	Appearance: No mechanical damage Capacitance change: Within $\pm 2.5\%$ or $\pm 0.25\text{ pF}$ whichever is larger. Q,tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R : within $\pm 7.5\%$ F, Y5V : within $\pm 20\%$ tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Soldering bath method Preconditioning:Heat treatment/Class 2 ^(※1) Solder temperature:270 $\pm$ 5 °C Dipping period:3.0 $\pm$ 0.5 s Preheat condition: <table border="1"> <thead> <tr> <th>Order</th><th>Temp. (°C)</th><th>Size 0805 max.</th><th>Size 1206 min.</th></tr> </thead> <tbody> <tr> <td>1</td><td>80 to 100</td><td>120 to 180 s</td><td>300 to 360 s</td></tr> <tr> <td>2</td><td>150 to 200</td><td>120 to 180 s</td><td>300 to 360 s</td></tr> </tbody> </table> Recovery (Standard condition): Class 1:24 $\pm$ 2 h Class 2:48 $\pm$ 4 h	Order	Temp. (°C)	Size 0805 max.	Size 1206 min.	1	80 to 100	120 to 180 s	300 to 360 s	2	150 to 200	120 to 180 s	300 to 360 s
Order	Temp. (°C)	Size 0805 max.	Size 1206 min.												
1	80 to 100	120 to 180 s	300 to 360 s												
2	150 to 200	120 to 180 s	300 to 360 s												
Solderability	More than 95 % of the soldered area of both terminal electrodes should be covered with fresh solder.		Soldering bath method Solder temperature:230 $\pm$ 5 °C Dipping period:4 $\pm$ 1 s Solder:H63A (JIS Z 3282)												
Temperature Cycle	Appearance: No mechanical damage Capacitance change: Within $\pm 2.5\%$ or $\pm 0.25\text{ pF}$ whichever is larger. Q,tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R : within $\pm 7.5\%$ F, Y5V : within $\pm 20\%$ tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Preconditioning:Heat treatment (150 °C, 1h) /Class 2 Condition of one cycle Step 1:Minimum operationing temp. 30 $\pm$ 3 min Step 2:Room temp. 3 min max. Step 3:Maximum operationing temp. 30 $\pm$ 3 min Step 4:Room temp. 3 min max. Number of cycles:5 cycles Recovery (Standard condition) Class 1:24 $\pm$ 2 h Class 2:48 $\pm$ 4 h												
Damp Heat (Steady state)	Appearance: No mechanical damage Capacitance change: Within $\pm 5\%$ or $\pm 0.5\text{ pF}$ whichever is larger. Q: C<10 pF:Q>200+10C 10 pF<C<30 pF:Q>275+5C/2 30 pF<C<1000 pF:Q>350 tan δ : C>1000 pF:tan δ <0.004 C:Nominal capacitance in pF IR: 1000 M Ω or 50/C (M Ω) Whichever is less. C:Nominal capacitance in μF	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R: Within $\pm 20\%$ F, Y5V: Within $\pm 30\%$ tan δ : Temp. Char. B, X7R, X5R: 0.25 max. F, Y5V: 0.3 max. IR: 1000 M Ω or 50/C (M Ω) Whichever is less. Note:10/C (M Ω) min. for DC 10 V max. C:Nominal capacitance in μF Please see the technical specifications for details.	Preconditioning:Heat treatment/Class 2 ^(※1) Temperature:40 $\pm$ 2 °C Relative humidity:90 to 95 % Test period:500+24/0 h Recovery (Standard condition) Class 1:24 $\pm$ 2 h Class 2:48 $\pm$ 4 h												

(※1) Heat treatment: 1 h of heat treatment at 150 $\pm$ 10 °C followed by 48 $\pm$ 4 h recovery under the standard condition.

Item	Specification		Test Method
	Class 1	Class 2	
Damp Heat Load	Appearance: No mechanical damage Capacitance change: Within ± 7.5 % or ± 0.75 pF whichever is larger. Q: C<30 pF:Q>100+10C/3 30 pF<C<1000 pF:Q>200 tanδ: C>1000 pF:tan δ<0.004 (C:Nominal capacitance in pF) IR: 500 MΩ or 25/C (MΩ) Whichever is less. (C:Nominal capacitance in μF)	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R: Within ± 20 % F, Y5V: Within ± 30 % tanδ: Temp. Char. B, X7R, X5R: 0.25 max. F, Y5V: 0.3 max. IR: 500 MΩ or 25/C (MΩ) Whichever is less. Note:5/C (MΩ) min. for DC 10 V max. C:Nominal capacitance in μF Please see the technical specifications for details.	Preconditioning:Voltage treatment/Class 2^(*) Temperature:40$\pm$2 °C Relative humidity:90 to 95 % Applied voltage:Rated voltage Charge/discharge current: 50 mA max. Test period:500+24/0 h Recovery (Standard condition) Class 1:24$\pm$2 h Class 2:48$\pm$4 h
High Temperature Load	Appearance: No mechanical damage Capacitance change: Within ± 3 % or ± 0.3 pF whichever is larger. Q: C<10 pF:Q>200+10C 10 pF<C<30 pF:Q>275+5C/2 30 pF<C<1000 pF:Q>350 tan δ: C>1000 pF:tan δ<0.004 C:Nominal capacitance in pF IR: 1000 MΩ or 50/C (MΩ) Whichever is less. C:Nominal capacitance in μF	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R: Within ± 20 % F, Y5V: Within ± 30 % tan δ: Temp. Char. B, X7R, X5R: 0.25 max. F, Y5V: 0.3 max. IR: 1000 MΩ or 50/C (MΩ) Whichever is less. Note:10/C (MΩ) min. for DC 10 V max. C:Nominal capacitance in μF Please see the technical specifications for details.	Preconditioning:Voltage treatment/Class 2^(*) Temperature: Maximum operating temp. ± 3 °C Applied voltage: (1) Rated voltage $\times 200$ % (2) Rated voltage $\times 100$ % Please see the technical specifications for details. Charge/discharge current: 50 mA max. Test period:1000+48/0 h Recovery (Standard condition) Class 1:24$\pm$2 h Class 2:48$\pm$4 h

(*)1 Heat treatment:1 h of heat treatment at 150+0/-10 °C followed by 48 $\pm$ 4 h recovery under the standard condition

(*)2 Voltage treatment:1 h of voltage treatment under the specified temperature and voltage for testing followed by 48 $\pm$ 4 h of recovery under the standard condition

■ Standard Products for EIA "0201", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temperature Characteristics : CΔ)

Rated voltage		DC 25 V						DC 16 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.				Part No.	Dim. T (mm)	Temp. Char.			
				CK	CJ	CH	CG			CK	CJ	CH	CG
0.5	±0.25 pF(C)	ECJZEC1E0R5C	0.3	○	—	—	—						
1	±0.25 pF (C) or ±0.5 pF (D)	ECJZEC1E010□	0.3	○	—	—	—						
1.5		ECJZEC1E1R5□	0.3	○	—	—	—						
2		ECJZEC1E020□	0.3	○	—	—	—						
3		ECJZEC1E030□	0.3	—	○	—	—						
4	±0.5 pF (D)	ECJZEC1E040□	0.3	—	—	○	—						
5		ECJZEC1E050□	0.3	—	—	○	—						
6		ECJZEC1E060D	0.3	—	—	○	—						
7		ECJZEC1E070D	0.3	—	—	○	—						
8		ECJZEC1E080D	0.3	—	—	○	—						
9		ECJZEC1E090D	0.3	—	—	○	—						
10	±0.5 pF (D) or ±1 pF (F)	ECJZEC1E100□	0.3	—	—	○	○						
12	±5 % (J) or ±10 % (K)	ECJZEC1E120□	0.3	—	—	○	○						
15		ECJZEC1E150□	0.3	—	—	○	○						
18		ECJZEC1E180□	0.3	—	—	○	○						
22		ECJZEC1E220□	0.3	—	—	○	○						
27		ECJZEC1E270□	0.3	—	—	○	○						
33		ECJZEC1E330□	0.3	—	—	○	○						
39								ECJZEC1C390□	0.3	—	—	○	○
47								ECJZEC1C470□	0.3	—	—	○	○
56								ECJZEC1C560□	0.3	—	—	○	○
68								ECJZEC1C680□	0.3	—	—	○	○
82							ECJZEC1C820□	0.3	—	—	○	○	
100							ECJZEC1C101□	0.3	—	—	○	○	

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "E" (T = 0.3 mm): 15,000 pcs./reel

Recommend soldering method: Reflow soldering.

● Class 2 Capacitors

◆ Temperature Characteristic Code : B (Temperature Characteristics : B, X7R, X5R)

Rated voltage		DC 50 V					DC 25 V					DC 16 V					DC 10 V					DC 6.3 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			
				B	X7R	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R	
150	±10 % (K) or ±20 % (M)	ECJZEB1H151□	0.3	○	○	—	ECJZEB1E151□	0.3	○	○	—																
220		ECJZEB1H221□	0.3	○	○	—	ECJZEB1E221□	0.3	○	○	—																
330		ECJZEB1H331□	0.3	○	○	—	ECJZEB1E331□	0.3	○	○	—																
470		ECJZEB1H471□	0.3	○	○	—	ECJZEB1E471□	0.3	○	○	—																
680		ECJZEB1H681□	0.3	○	○	—	ECJZEB1E681□	0.3	○	○	—																
1000		ECJZEB1H102□	0.3	○	○	—	ECJZEB1E102□	0.3	○	○	—																
1500							ECJZEB1E152□	0.3	○	○	—	ECJZEB1C152□	0.3	○	○	—											
2200							ECJZEB1E222□	0.3	○	○	—	ECJZEB1C222□	0.3	○	○	—											
3300												ECJZEB1C332□	0.3	○	○	—	○	ECJZEB1A332□	0.3	○	—	○					
4700																		ECJZEB1A472□	0.3	—	—	○	ECJZEB0J472□	0.3	—	—	○
6800																		ECJZEB1A682□	0.3	—	—	○	ECJZEB0J682□	0.3	—	—	○
10000																		ECJZEB1A103□	0.3	—	—	○	ECJZEB0J103□	0.3	—	—	○
15000																							ECJZEB0J153□	0.3	—	—	○
22000																							ECJZEB0J223□	0.3	—	—	○
33000																							ECJZEB0J333□	0.3	—	—	○
47000																							ECJZEB0J473□	0.3	—	—	○
68000																							ECJZEB0J683□	0.3	—	—	○
100000																							ECJZEB0J104□	0.3	—	—	○
220000																						ECJZEB0J224M	0.3	—	—	○	

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "E" (T = 0.3 mm): 15,000 pcs./reel

Recommend soldering method: Reflow soldering.

■ Standard Products for EIA "0402", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temp. Char. : C.Δ)

Rated voltage		DC 50 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			
				CK	CJ	CH	CG
0.5	±0.25 pF (C)	ECJ0EC1H0R5C	0.5	○	—	—	—
1		ECJ0EC1H010□	0.5	○	—	—	—
1.5		ECJ0EC1H1R5□	0.5	○	—	—	—
2	±0.25 pF (C)	ECJ0EC1H020□	0.5	○	—	—	—
3	or	ECJ0EC1H030□	0.5	—	○	—	—
4	±0.5 pF (D)	ECJ0EC1H040□	0.5	—	—	○	—
5		ECJ0EC1H050□	0.5	—	—	○	—
6		ECJ0EC1H060D	0.5	—	—	○	—
7	±0.5 pF(D)	ECJ0EC1H070D	0.5	—	—	○	—
8		ECJ0EC1H080D	0.5	—	—	○	—
9		ECJ0EC1H090D	0.5	—	—	○	—
10	±0.5 pF (D) or ±1 pF (F)	ECJ0EC1H100□	0.5	—	—	○	○
12		ECJ0EC1H120□	0.5	—	—	○	○
15		ECJ0EC1H150□	0.5	—	—	○	○
18		ECJ0EC1H180□	0.5	—	—	○	○
22		ECJ0EC1H220□	0.5	—	—	○	○
27		ECJ0EC1H270□	0.5	—	—	○	○
33		ECJ0EC1H330□	0.5	—	—	○	○
39		ECJ0EC1H390□	0.5	—	—	○	○
47	±5 % (J) or	ECJ0EC1H470□	0.5	—	—	○	○
56	±10 % (K)	ECJ0EC1H560□	0.5	—	—	○	○
68		ECJ0EC1H680□	0.5	—	—	○	○
82		ECJ0EC1H820□	0.5	—	—	○	○
100		ECJ0EC1H101□	0.5	—	—	○	○
120		ECJ0EC1H121□	0.5	—	—	○	○
150		ECJ0EC1H151□	0.5	—	—	○	○
180		ECJ0EC1H181□	0.5	—	—	○	○
220		ECJ0EC1H221□	0.5	—	—	○	○

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "E" (T = 0.5 mm): 10,000 pcs./reel.

Recommend soldering method: Reflow soldering.

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
					SL
0.5	±0.25 pF (C)	ECJ0EG1H0R5C	0.5	○	
1		ECJ0EG1H010□	0.5	○	
1.5		ECJ0EG1H1R5□	0.5	○	
2	±0.25 pF (C)	ECJ0EG1H020□	0.5	○	
3	or	ECJ0EG1H030□	0.5	○	
4	±0.5 pF (D)	ECJ0EG1H040□	0.5	○	
5		ECJ0EG1H050□	0.5	○	
6		ECJ0EG1H060D	0.5	○	
7	±0.5 pF(D)	ECJ0EG1H070D	0.5	○	
8		ECJ0EG1H080D	0.5	○	
9		ECJ0EG1H090D	0.5	○	
10	±0.5 pF (D) or ±1 pF (F)	ECJ0EG1H100□	0.5	○	
12		ECJ0EG1H120□	0.5	○	
15		ECJ0EG1H150□	0.5	○	
18		ECJ0EG1H180□	0.5	○	
22		ECJ0EG1H220□	0.5	○	
27		ECJ0EG1H270□	0.5	○	
33		ECJ0EG1H330□	0.5	○	
39		ECJ0EG1H390□	0.5	○	
47	±5 % (J) or	ECJ0EG1H470□	0.5	○	
56	±10 % (K)	ECJ0EG1H560□	0.5	○	
68		ECJ0EG1H680□	0.5	○	
82		ECJ0EG1H820□	0.5	○	
100		ECJ0EG1H101□	0.5	○	
120		ECJ0EG1H121□	0.5	○	
150		ECJ0EG1H151□	0.5	○	
180		ECJ0EG1H181□	0.5	○	
220		ECJ0EG1H221□	0.5	○	

◆ Temperature Characteristic Code : B (Temperature Characteristics : B, X7R, X5R)

For capacitance 1 μ F or more, see page 6 and 7 for High Capacitance.

For capacitance 1 μ F or more, see page 6 and 7 for High Capacitance.

■ Standard Products for EIA "0603", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temp. Char. : C.4)

Rated voltage		DC 50 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			
				CK	CJ	CH	CG
0.5	±0.25 pF (C)	ECJ1VC1H0R5C	0.8	○	—	—	—
1		ECJ1VC1H010□	0.8	○	—	—	—
1.5		ECJ1VC1H1R5□	0.8	○	—	—	—
2	±0.25 pF (C)	ECJ1VC1H020□	0.8	○	—	—	—
3	or	ECJ1VC1H030□	0.8	—	○	—	—
4	±0.5 pF (D)	ECJ1VC1H040□	0.8	—	—	○	—
5		ECJ1VC1H050□	0.8	—	—	○	—
6		ECJ1VC1H060D	0.8	—	—	○	—
7	±0.5 pF (D)	ECJ1VC1H070D	0.8	—	—	○	—
8		ECJ1VC1H080D	0.8	—	—	○	—
9		ECJ1VC1H090D	0.8	—	—	○	—
10	±0.5 pF (D) or ±1 pF (F)	ECJ1VC1H100□	0.8	—	—	○	○
12		ECJ1VC1H120□	0.8	—	—	○	○
15		ECJ1VC1H150□	0.8	—	—	○	○
18		ECJ1VC1H180□	0.8	—	—	○	○
22		ECJ1VC1H220□	0.8	—	—	○	○
27		ECJ1VC1H270□	0.8	—	—	○	○
33		ECJ1VC1H330□	0.8	—	—	○	○
39		ECJ1VC1H390□	0.8	—	—	○	○
47		ECJ1VC1H470□	0.8	—	—	○	○
56		ECJ1VC1H560□	0.8	—	—	○	○
68		ECJ1VC1H680□	0.8	—	—	○	○
82		ECJ1VC1H820□	0.8	—	—	○	○
100	±5 % (J) or	ECJ1VC1H101□	0.8	—	—	○	○
120	±10 % (K)	ECJ1VC1H121□	0.8	—	—	○	○
150		ECJ1VC1H151□	0.8	—	—	○	○
180		ECJ1VC1H181□	0.8	—	—	○	○
220		ECJ1VC1H221□	0.8	—	—	○	○
270		ECJ1VC1H271□	0.8	—	—	○	○
330		ECJ1VC1H331□	0.8	—	—	○	○
390		ECJ1VC1H391□	0.8	—	—	○	○
470		ECJ1VC1H471□	0.8	—	—	○	○
560		ECJ1VC1H561□	0.8	—	—	○	○
680		ECJ1VC1H681□	0.8	—	—	○	○
820		ECJ1VC1H821□	0.8	—	—	○	○
1000		ECJ1VC1H102□	0.8	—	—	○	○

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "V" (T = 0.8 mm): 4,000 pcs./reel

Recommend soldering method: Reflow soldering.

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
					SL
0.5	±0.25 pF (C)	ECJ1VG1H0R5C	0.8	○	
1		ECJ1VG1H010□	0.8	○	
1.5		ECJ1VG1H1R5□	0.8	○	
2	±0.25 pF (C)	ECJ1VG1H020□	0.8	○	
3	or	ECJ1VG1H030□	0.8	○	
4	±0.5 pF (D)	ECJ1VG1H040□	0.8	○	
5		ECJ1VG1H050□	0.8	○	
6		ECJ1VG1H060D	0.8	○	
7	±0.5 pF (D)	ECJ1VG1H070D	0.8	○	
8		ECJ1VG1H080D	0.8	○	
9		ECJ1VG1H090D	0.8	○	
10	±0.5 pF (D) or ±1 pF (F)	ECJ1VG1H100□	0.8	○	
12		ECJ1VG1H120□	0.8	○	
15		ECJ1VG1H150□	0.8	○	
18		ECJ1VG1H180□	0.8	○	
22		ECJ1VG1H220□	0.8	○	
27		ECJ1VG1H270□	0.8	○	
33		ECJ1VG1H330□	0.8	○	
39		ECJ1VG1H390□	0.8	○	
47		ECJ1VG1H470□	0.8	○	
56		ECJ1VG1H560□	0.8	○	
68		ECJ1VG1H680□	0.8	○	
82		ECJ1VG1H820□	0.8	○	
100	±5 % (J) or	ECJ1VG1H101□	0.8	○	
120	±10 % (K)	ECJ1VG1H121□	0.8	○	
150		ECJ1VG1H151□	0.8	○	
180		ECJ1VG1H181□	0.8	○	
220		ECJ1VG1H221□	0.8	○	
270		ECJ1VG1H271□	0.8	○	
330		ECJ1VG1H331□	0.8	○	
390		ECJ1VG1H391□	0.8	○	
470		ECJ1VG1H471□	0.8	○	
560		ECJ1VG1H561□	0.8	○	
680		ECJ1VG1H681□	0.8	○	
820		ECJ1VG1H821□	0.8	○	
1000		ECJ1VG1H102□	0.8	○	

■ Standard Products for EIA "0603", Taped Version

● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : B, X7R, X5R)

Rated voltage		DC 50 V					DC 25 V					DC 16 V					DC 10 V					DC 6.3 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			
				B	X7R	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R	
1000	±10 % (K) or ±20 % (M)	ECJ1VB1H102□	0.8	○	○	—																					
1200		ECJ1VB1H122K	0.8	○	○	—																					
1500		ECJ1VB1H152□	0.8	○	○	—																					
1800		ECJ1VB1H182K	0.8	○	○	—																					
2200		ECJ1VB1H222□	0.8	○	○	—																					
2700		ECJ1VB1H272K	0.8	○	○	—																					
3300		ECJ1VB1H332□	0.8	○	○	—																					
3900		ECJ1VB1H392K	0.8	○	○	—																					
4700		ECJ1VB1H472□	0.8	○	○	—																					
5600		ECJ1VB1H562K	0.8	○	○	—																					
6800		ECJ1VB1H682□	0.8	○	○	—																					
8200		ECJ1VB1H822K	0.8	○	○	—																					
10000			ECJ1VB1H103□	0.8	○	○	—	ECJ1VB1E103□	0.8	○	○	—	ECJ1VB1C103□	0.8	○	○	—										
12000			ECJ1VB1H123K	0.8	○	○	—	ECJ1VB1E123K	0.8	○	○	—	ECJ1VB1C123K	0.8	○	○	—										
15000			ECJ1VB1H153□	0.8	○	○	—	ECJ1VB1E153□	0.8	○	○	—	ECJ1VB1C153□	0.8	○	○	—										
18000			ECJ1VB1H183K	0.8	○	○	—	ECJ1VB1E183K	0.8	○	○	—	ECJ1VB1C183K	0.8	○	○	—										
22000			ECJ1VB1H223□	0.8	○	○	—	ECJ1VB1E223□	0.8	○	○	—	ECJ1VB1C223□	0.8	○	○	—										
27000			ECJ1VB1H273K	0.8	○	○	—	ECJ1VB1E273K	0.8	○	○	—	ECJ1VB1C273K	0.8	○	○	—										
33000			ECJ1VB1H333□	0.8	○	○	—	ECJ1VB1E333□	0.8	○	○	—	ECJ1VB1C333□	0.8	○	○	—										
39000			ECJ1VB1H393K	0.8	○	○	—	ECJ1VB1E393K	0.8	○	○	—	ECJ1VB1C393K	0.8	○	○	—										
47000			ECJ1VB1H473□	0.8	○	○	—	ECJ1VB1E473□	0.8	○	○	—	ECJ1VB1C473□	0.8	○	○	—										
56000			ECJ1VB1H563K	0.8	○	○	—	ECJ1VB1E563K	0.8	○	○	—	ECJ1VB1C563K	0.8	○	○	—										
68000			ECJ1VB1H683□	0.8	○	○	—	ECJ1VB1E683□	0.8	○	○	—	ECJ1VB1C683□	0.8	○	○	—										
82000			ECJ1VB1H823K	0.8	○	○	—	ECJ1VB1E823K	0.8	○	○	—	ECJ1VB1C823K	0.8	○	○	—										
100000			ECJ1VB1H104□	0.8	○	○	—	ECJ1VB1E104□	0.8	○	○	—	ECJ1VB1C104□	0.8	○	○	—										
150000													ECJ1VB1C154□	0.8	—	—	○	ECJ1VB1A154□	0.8	○	—	○					
220000													ECJ1VB1C224□	0.8	—	—	○	ECJ1VB1A224□	0.8	○	—	○					
330000													ECJ1VB1C334□	0.8	—	—	○	ECJ1VB1A334□	0.8	—	—	○					
470000													ECJ1VB1C474□	0.8	—	—	○	ECJ1VB1A474□	0.8	—	—	○	ECJ1VB0J3474□	0.8	○	—	○
680000													ECJ1VB1C684□	0.8	—	—	○	ECJ1VB1A684□	0.8	—	—	○	ECJ1VB0J684□	0.8	○	—	○

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "V" (T = 0.8 mm): 4,000 pcs./reel

Recommend soldering method: Reflow soldering.

For capacitance 1 μF or more, see page 6 and 7 for High Capacitance.

◆ Temperature Characteristics Code : F (Temperature Characteristics : F, Y5V)

Rated voltage		DC 50 V			DC 25 V			DC 16 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.		Part No.	Dim. T (mm)	Temp. Char.		Part No.	Dim. T (mm)	Temp. Char.	
			F	Y5V	F		Y5V	F	Y5V				
10000	+80, -20 % (Z)	ECJ1VF1H103Z	0.8	○	○								
22000		ECJ1VF1H223Z	0.8	○	○								
47000		ECJ1VF1H473Z	0.8	○	○								
100000		ECJ1VF1H104Z	0.8	○	○	ECJ1VF1E104Z	0.8	○	○	ECJ1VF1C104Z	0.8	○	○
220000										ECJ1VF1C224Z	0.8	○	○
470000										ECJ1VF1C474Z	0.8	○	○

Standard packaging quantity of Packaging Style Code "V" (T = 0.8 mm): 4,000 pcs./reel

Recommend soldering method: Reflow soldering.

For capacitance 1 μF or more, see page 6 and 7 for High Capacitance.

■ Standard Products for EIA "0805", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temp. Char. : C.4)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
				CH	CG
27		ECJ2VC1H270□	0.6	○	○
33		ECJ2VC1H330□	0.6	○	○
39		ECJ2VC1H390□	0.6	○	○
47		ECJ2VC1H470□	0.6	○	○
56		ECJ2VC1H560□	0.6	○	○
68		ECJ2VC1H680□	0.6	○	○
82		ECJ2VC1H820□	0.6	○	○
100		ECJ2VC1H101□	0.6	○	○
120		ECJ2VC1H121□	0.6	○	○
150		ECJ2VC1H151□	0.6	○	○
180		ECJ2VC1H181□	0.6	○	○
220	±5 % (J)	ECJ2VC1H221□	0.6	○	○
270	or	ECJ2VC1H271□	0.6	○	○
330	±10 % (K)	ECJ2VC1H331□	0.6	○	○
390		ECJ2VC1H391□	0.6	○	○
470		ECJ2VC1H471□	0.6	○	○
560		ECJ2VC1H561□	0.6	○	○
680		ECJ2VC1H681□	0.6	○	○
820		ECJ2VC1H821□	0.6	○	○
1000		ECJ2VC1H102□	0.6	○	○
1200		ECJ2VC1H122□	0.6	○	—
1500		ECJ2VC1H152□	0.6	○	—
1800		ECJ2VC1H182□	0.6	○	—
2200		ECJ2VC1H222□	0.6	○	—
2700		ECJ2VC1H272□	0.85	○	—

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
					SL
27		ECJ2VG1H270□	0.6	○	
33		ECJ2VG1H330□	0.6	○	
39		ECJ2VG1H390□	0.6	○	
47		ECJ2VG1H470□	0.6	○	
56		ECJ2VG1H560□	0.6	○	
68		ECJ2VG1H680□	0.6	○	
82		ECJ2VG1H820□	0.6	○	
100		ECJ2VG1H101□	0.6	○	
120		ECJ2VG1H121□	0.6	○	
150		ECJ2VG1H151□	0.6	○	
180		ECJ2VG1H181□	0.6	○	
220	±5 % (J)	ECJ2VG1H221□	0.6	○	
270	or	ECJ2VG1H271□	0.6	○	
330	±10 % (K)	ECJ2VG1H331□	0.6	○	
390		ECJ2VG1H391□	0.6	○	
470		ECJ2VG1H471□	0.6	○	
560		ECJ2VG1H561□	0.6	○	
680		ECJ2VG1H681□	0.6	○	
820		ECJ2VG1H821□	0.6	○	
1000		ECJ2VG1H102□	0.6	○	
1200		ECJ2VG1H122□	0.6	○	
1500		ECJ2VG1H152□	0.6	○	
1800		ECJ2VG1H182□	0.6	○	
2200		ECJ2VG1H222□	0.6	○	
2700		ECJ2VG1H272□	0.6	○	

□: Capacitance tolerance code.

Dimensional tolerance of L, W, T: ± 0.1 mm

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel

Recommend soldering method: Reflow soldering.

■ Standard Products for EIA "0805", Taped Version

● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : B, X7R, X5R)

Rated voltage		DC 50 V					DC 25 V					DC 16 V					DC 10 V				
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.		
				B	X7R	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R
1000	±10 % (K) or ±20 % (M)	ECJ2VB1H102□	0.6	○	○	—															
1200		ECJ2VB1H122K	0.6	○	○	—															
1500		ECJ2VB1H152□	0.6	○	○	—															
1800		ECJ2VB1H182K	0.6	○	○	—															
2200		ECJ2VB1H222□	0.6	○	○	—															
2700		ECJ2VB1H272K	0.6	○	○	—															
3300		ECJ2VB1H332□	0.6	○	○	—															
3900		ECJ2VB1H392K	0.6	○	○	—															
4700		ECJ2VB1H472□	0.6	○	○	—															
5600		ECJ2VB1H562K	0.6	○	○	—															
6800		ECJ2VB1H682□	0.6	○	○	—															
8200		ECJ2VB1H822K	0.6	○	○	—															
10000		ECJ2VB1H103□	0.6	○	○	—															
12000		ECJ2VB1H123K	0.6	○	○	—															
15000		ECJ2VB1H153□	0.6	○	○	—															
18000		ECJ2VB1H183K	0.6	○	○	—															
22000		ECJ2VB1H223□	0.6	○	○	—															
27000		ECJ2VB1H273K	0.85	○	○	—															
33000		ECJ2VB1H333□	0.85	○	○	—															
39000		ECJ2VB1H393K	0.85	○	○	—															
47000		ECJ2FB1H473□	1.25	○	○	—	ECJ2VB1E473□	0.85	○	○	—										
56000		ECJ2FB1H563K	1.25	○	○	—	ECJ2VB1E563K	0.85	○	○	—										
68000		ECJ2FB1H683□	1.25	○	○	—	ECJ2VB1E683□	0.85	○	○	—										
82000		ECJ2FB1H823K	1.25	○	○	—	ECJ2VB1E823K	0.85	○	○	—										
100000		ECJ2FB1H104□	1.25	○	○	—	ECJ2VB1E104□	0.85	○	○	—	ECJ2VB1C104□	0.85	○	○	—					
150000							ECJ2FB1E154□	1.25	○	○	—	ECJ2VB1C154□	0.85	○	○	—					
220000							ECJ2FB1E224□	1.25	○	○	—	ECJ2VB1C224□	0.85	○	○	—					
330000												ECJ2FB1C334□	1.25	○	○	—					
470000												ECJ2FB1C474□	1.25	○	○	—					
680000												ECJ2FB1C684□	1.25*	—	—	○	ECJ2FB1A684□	1.25	—	—	○

□: Capacitance tolerance code.

Dimensional tolerance of L, W, T: ± 0.1 mm for no mark, ± 0.15 mm for "*" mark

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel, "F" (T = 1.25 mm): 3,000 pcs./reel

Soldering method of dimension T>1 mm: Avoid flow soldering.

For capacitance 1 μ F or more, see page 6 and 7 for High Capacitance.

◆ Temperature Characteristic Code : F (Temperature Characteristics : F, Y5V)

Rated voltage		DC 50 V				DC 25 V				DC 16 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.		Part No.	Dim. T (mm)	Temp. Char.		Part No.	Dim. T (mm)	Temp. Char.	
				F	Y5V			F	Y5V			F	Y5V
10000		ECJ2VF1H103Z	0.6	○	○								
22000		ECJ2VF1H223Z	0.6	○	○								
47000		ECJ2VF1H473Z	0.6	○	○								
100000	+80, -20 % (Z)	ECJ2VF1H104Z	0.85	○	○	ECJ2VF1E104Z	0.6	○	○	ECJ2VF1C104Z	0.6	○	○
220000		ECJ2VF1H224Z	0.85	○	○	ECJ2VF1E224Z	0.85	○	○	ECJ2VF1C224Z	0.6	○	○
470000						ECJ2FF1E474Z	1.25	○	○	ECJ2VF1C474Z	0.85	○	○

Dimensional tolerance of L, W, T: ± 0.1 mm

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel, "F" (T = 1.25 mm): 3,000 pcs./reel

Soldering method of dimension T>1 mm: Avoid flow soldering.

For capacitance 1 μ F or more, see page 6 and 7 for High Capacitance.

- Class 1

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V		
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.
				CH
3300	±5 % (J) or	ECJ3VC1H332□	0.6	○
3900		ECJ3VC1H392□	0.6	○
4700		ECJ3VC1H472□	0.6	○
5600		ECJ3VC1H562□	0.85	○
6800	±10 % (K)	ECJ3VC1H682□	0.85	○
8200		ECJ3FC1H822□	1.15	○
10000		ECJ3FC1H103□	1.15	○

Rated voltage		DC 50 V		
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char. SL
3300	±5 % (J) or ±10 % (K)	ECJ3VG1H332□	0.6	○
3900		ECJ3VG1H392□	0.6	○
4700		ECJ3VG1H472□	0.6	○
5600		ECJ3VG1H562□	0.6	○

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel, "F" (T = 1.15 mm): 3,000 pcs./reel
Soldering method of dimension T>1 mm: Avoid flow soldering.

◆ Temperature Characteristics Code : B (Temperature Characteristics : B, X7R, X5R)

Rated voltage		DC 50 V					DC 25 V					DC 16 V				
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.			Part No.	Dim. T (mm)	Temp. Char.		
				B	X7R	X5R			B	X7R	X5R			B	X7R	X5R
100000	±10 % (K)						ECJ3VB1E104□	0.85	○	○	—	ECJ3VB1C104□	0.85	○	○	—
150000							ECJ3VB1E154□	0.85	○	○	—	ECJ3VB1C154□	0.85	○	○	—
220000	or	ECJ3YB1H224□	1.6	○	○	—	ECJ3VB1E224□	0.85	○	○	—	ECJ3VB1C224□	0.85	○	○	—
330000	±20 % (M)						ECJ3VB1E334□	0.85	○	○	—	ECJ3VB1C334□	0.85	○	○	—
470000							ECJ3FB1E474□	1.15	○	○	—	ECJ3VB1C474□	0.85	○	○	—
680000							ECJ3YB1E684□	1.6	○	○	—	ECJ3VB1C684□	0.85	○	○	—

For capacitance 1 μ F or more, see page 6 and 7 for High Capacitance.