

Surface Mount Multilayer Ceramic Chip Capacitors

DSCC Qualified Type 03029



FEATURES

- US defense supply center approved
- Federal stock control number, CAGE CODE 95275
- Small case size (0402)
- Stable BP, BR and BX dielectrics
- Excellent aging characteristics
- Lead (Pb)-free termination code "M"
- Tin/lead termination code "Z"
- Surface mount, wet build process
- Reliable Noble Metal Electrode (NME) system
- Made with a combination of design, materials and tight process control to achieve very high field reliability
- Compliant to RoHS directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition



Available
RoHS*
COMPLIANT
HALOGEN
FREE
Available

APPLICATIONS

- Broadband wireless communication
- Satellite communication
- WiFi (802.11) and WiMax (802.16)
- Subscriber based wireless devices
- Microwave systems

ELECTRICAL SPECIFICATIONS

Note

- Electrical characteristics at + 25 °C unless otherwise specified

Operating Temperature

- 55 °C to + 125 °C

Capacitance Range

BP: = 0.5 pF to 180 pF

BR: = 100 pF to 3900 pF

BX: = 100 pF to 3900 pF

Voltage Range

16 V_{DC} to 100 V_{DC}

Temperature Coefficient of Capacitance (TCC)

BP: = 0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C
with zero (0) V_{DC} applied

BP: = 0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C
with 100 % rated V_{DC} applied

BR: = ± 15 % from - 55 °C to + 125 °C
with zero (0) V_{DC} applied

BR: = + 15 %, - 40 % from - 55 °C to + 125 °C
with 100 % rated V_{DC} applied

BX: = ± 15 % from - 55 °C to + 125 °C
with zero (0) V_{DC} applied

BX: = + 15 %, - 25 % from - 55 °C to + 125 °C
with 100 % rated V_{DC} applied

Dissipation Factor (DF)

BP:

0.15 % max. at 1.0 V_{RMS} and 1 MHz for values ≤ 1000 pF

0.15 % max. at 1.0 V_{RMS} and 1 kHz for values > 1000 pF

BR and BX:

≤ 25 V ± 3.5 % max. at 1.0 V_{RMS} and 1 kHz

≥ 50 V ± 2.5 % max. at 1.0 V_{RMS} and 1 kHz

Aging Rate

BP: = 0 % maximum per decade

BR, BX: = 1 % maximum per decade

Insulation Resistance (IR)

At + 25 °C and rated voltage 100 000 MΩ minimum or 1000 ΩF, whichever is less

At + 125 °C and rated voltage 10 000 MΩ minimum or 100 ΩF, whichever is less

Dielectric Strength Test

Performed per Method 103 of EIA-198-2-E.

Applied test voltages:

≤ 200 V_{DC}-rated: 200 % of rated voltage

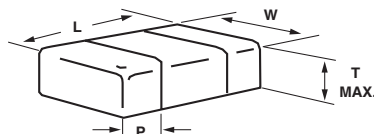
* Pb containing terminations are not RoHS compliant, exemptions may apply

QUICK REFERENCE DATA

DIELECTRIC	CASE	MAXIMUM VOLTAGE (V)	CAPACITANCE	
			MINIMUM	MAXIMUM
BP	0402	100	0.5 pF	180 pF
BR	0402	50	120 pF	4700 pF
BX	0402	50	120 pF	4700 pF

ORDERING INFORMATION

03029-	BX	102	B	J	Z	-	T
DSCC NUMBER	DIELECTRIC	CAPACITANCE NOMINAL CODE	DC VOLTAGE RATING ⁽¹⁾	CAPACITANCE TOLERANCE	TERMINATION	GROUP C TESTING OPTION	PACKAGING
CASE SIZE 0402	BP BR BX	Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. An "R" indicates a decimal point. Examples: 101 = 100 pF 1R8 = 1.8 pF	Y = 16 V Z = 25 V A = 50 V B = 100 V	C = ± 0.25 pF D = ± 0.5 pF F = ± 1 % G = ± 2 % H = ± 3 % J = ± 5 % K = ± 10 % Note C, D < 10 pF (BP) F, G, H ≥ 10 pF (BP) J, K ≥ 10 pF (BP, BR, BX)	M = Silver Palladium Z = Ni barrier with tin/lead plate min. 4 % lead	C = Full group C L = 2000 h life test only M = 1000 h life test only H = Low voltage humidity test only - = Group A test only	
						C = 7" reel/paper tape O = 7" reel/flamed paper tape J = 7" reel (low quantity) P = 11 1/4" reel/paper tape I = 11 1/4" reel/flamed paper tape B = Bulk Note "I" and "O" is used for "M" termination	

DIMENSIONS in inches (millimeters)

PART ORDERING NUMBER	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATION PAD (P)	
				MINIMUM	MAXIMUM
03029-	0.040 $\pm$ 0.004 (1.02 $\pm$ 0.10)	0.020 $\pm$ 0.004 (0.51 $\pm$ 0.10)	0.024 (0.61)	0.004 (0.10)	0.016 (0.41)

**SELECTION CHART**

STYLE		03029									
DIELECTRIC		BP				BR			BX		
EIA		0402									
VOLTAGE (V _{DC})		16	25	50	100	16	25	50	16	25	50
CAP. CODE	CAP.										
0R5	0.5 pF	•	•	•	•						
R75	0.75 pF	•	•	•	•						
1R0	1.0 pF	•	•	•	•						
1R2	1.2 pF	•	•	•	•						
1R5	1.5 pF	•	•	•	•						
1R8	1.8 pF	•	•	•	•						
2R2	2.2 pF	•	•	•	•						
2R4	2.4 pF	•	•	•	•						
2R7	2.7 pF	•	•	•	•						
3R0	3.0 pF	•	•	•	•						
3R3	3.3 pF	•	•	•	•						
3R6	3.6 pF	•	•	•	•						
3R9	3.9 pF	•	•	•	•						
4R7	4.7 pF	•	•	•	•						
5R1	5.1 pF	•	•	•	•						
5R6	5.6 pF	•	•	•	•						
6R2	6.2 pF	•	•	•	•						
6R8	6.8 pF	•	•	•	•						
7R5	7.5 pF	•	•	•	•						
8R2	8.2 pF	•	•	•	•						
9R1	9.1 pF	•	•	•	•						
100	10 pF	•	•	•	•						
110	11 pF	•	•	•	•						
120	12 pF	•	•	•	•						
130	13 pF	•	•	•	•						
150	15 pF	•	•	•	•						
160	16 pF	•	•	•	•						
180	18 pF	•	•	•	•						
200	20 pF	•	•	•	•						
220	22 pF	•	•	•	•						
240	24 pF	•	•	•	•						
270	27 pF	•	•	•	•						
300	30 pF	•	•	•	•						
330	33 pF	•	•	•	•						
360	36 pF	•	•	•	•						
390	39 pF	•	•	•	•						
430	43 pF	•	•	•	•						
470	47 pF	•	•	•	•						
510	51 pF	•	•	•	•						
560	56 pF	•	•	•	•						
620	62 pF	•	•	•	•						
680	68 pF	•	•	•	•						
750	75 pF	•	•	•	•						
820	82 pF	•	•	•	•						
910	91 pF	•	•	•	•						

SELECTION CHART											
STYLE		03029									
DIELECTRIC		BP				BR			BX		
EIA		0402									
VOLTAGE (V _{DC})		16	25	50	100	16	25	50	16	25	50
CAP. CODE	CAP.										
101	100 pF	•	•	•	•						
121	120 pF	•	•	•	•	•	•	•	•	•	•
151	150 pF	•	•	•	•	•	•	•	•	•	•
181	180 pF	•	•	•	•	•	•	•	•	•	•
221	220 pF					•	•	•	•	•	•
271	270 pF					•	•	•	•	•	•
331	330 pF					•	•	•	•	•	•
391	390 pF					•	•	•	•	•	•
471	470 pF					•	•	•	•	•	•
561	560 pF					•	•	•	•	•	•
681	680 pF					•	•	•	•	•	•
821	820 pF					•	•	•	•	•	•
102	1000 pF					•	•	•	•	•	•
122	1200 pF					•	•	•	•	•	•
152	1500 pF					•	•	•	•	•	•
182	1800 pF					•	•	•	•	•	•
222	2200 pF					•	•	•	•	•	•
272	2700 pF					•	•	•	•	•	•
332	3300 pF					•	•		•	•	
392	3900 pF					•	•		•	•	
472	4700 pF					•	•		•	•	
562	5600 pF										
682	6800 pF										
822	8200 pF										
103	0.010 μF										
123	0.012 μF										
0R5	0.5 pF										

Note

- See soldering recommendations within this data book, or visit www.vishay.com/doc?45034

DSCC PACKAGING QUANTITIES ⁽¹⁾⁽²⁾						
		7" REEL QUANTITIES		11 1/4" AND 13" REEL QUANTITIES	BULK QUANTITIES	
BODY SIZE	TAPE SIZE	PAPER TAPE PACKAGING CODE "C"/"O"	PAPER TAPE PACKAGING CODE "J"	PAPER TAPE PACKAGING CODE "P"/"I"	VIAL PACKAGING CODE "B"	WAFFLE PACKAGING CODE "W"
0402	8 mm	5000	1000	10 000	100	N/a

Notes

⁽¹⁾ Vishay Vitramon uses embossed plastic carrier tape and punch paper carrier tape

⁽²⁾ REFERENCE: EIA Standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"



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