

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 applied for "M" termination code
- Tin/lead "Z" termination code is available
- Surface-mount, precious metal technology, wet build process
- Made with a combination of design, materials and tight process control to achieve very high field reliability



Available
RoHS*
COMPLIANT

ELECTRICAL SPECIFICATIONS

Note: Electrical characteristics at + 25 °C unless otherwise specified.

Operating Temperature: BP, BR, BX: - 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 Rating: 16 Vdc to 100 Vdc

Temperature Coefficient of Capacitance (TCC):

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

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

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

BR: = + 15 %, - 40 % from - 55 °C to + 125 °C
with 100 % rated Vdc applied

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

BX: = + 15 %, - 25 % from - 55 °C to + 125 °C
with 100 % rated Vdc 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 Withstanding Voltage (DWV):

This is the maximum voltage the capacitors are tested for a 1 to 5 seconds period and the charge/discharge current does not exceed 50 mA

≤ 200 Vdc: DWV at 250 % of rated voltage

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



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Vishay Vitramon

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

ORDERING INFORMATION							
DSCC NUMBER	DIELECTRIC	CAPACITANCE NOMINAL CODE	DC VOLTAGE RATING (1)	CAPACITANCE TOLERANCE	TERMINATION	GROUP C TESTING OPTION	PACKAGING
03029-	BX	102	B	J	Z	-	T
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	Note: C, D < 10 pF (BP) F, G, H ≥ 10 pF (BP) J, K ≥ 10 pF (BP, BR, BX)	M = Palladium silver 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	T = 7" Reel Plastic tape O = 7" Reel Paper tape J = 7" Reel (low quantity) R = 11 1/4" Reel Plastic tape I = 11 1/4" Reel Paper tape B = Bulk

Note:

(1) DC voltage rating should not be exceeded in application

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DIELECTRIC											
STYLE		03029									
EIA TYPE		0402									
DIELECTRIC		BP				BR			BX		
VOLTAGE (Vdc)		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	•	•	•	•						



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DIELECTRIC											
STYLE		03029									
EIA TYPE		0402									
DIELECTRIC		BP				BR			BX		
VOLTAGE (Vdc)		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										

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"	PAPER TAPE PACKAGING CODE "J"	PAPER TAPE PACKAGING CODE "P"		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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