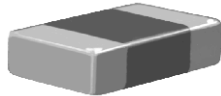


## Surface Mount Multilayer Ceramic Chip Capacitors for TCC Critical Applications



### FEATURES

- Designed for excellent T/VCC
- Temperature voltage coefficient (T/VCC) does not exceed - 25 % at rated voltage
- Excellent aging characteristics
- Surface mount, precious metal technology, wet build process



RoHS  
COMPLIANT

### GENERAL SPECIFICATIONS

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

**Capacitance Range:** 120 pF to 2.7  $\mu$ F

**Voltage Range:** 25 Vdc to 100 Vdc

**Temperature Coefficient of Capacitance (TCC):**

+ 15 %, - 25 % from - 55 °C to + 125 °C, with rated voltage applied

$\pm$  15 % from - 55 °C to + 125 °C, with 0 Vdc applied

**Dissipation Factor (DF):**

2.5 % maximum at 1.0  $V_{rms}$  and 1 kHz

**Aging Rate:** 1 % maximum per decade

**Insulation Resistance (IR):**

At + 25 °C and rated voltage 100 000  $M\Omega$  minimum or 1000  $\Omega$ F, whichever is less

At + 125 °C and rated voltage 10 000  $M\Omega$  minimum or 100  $\Omega$ F, whichever is less

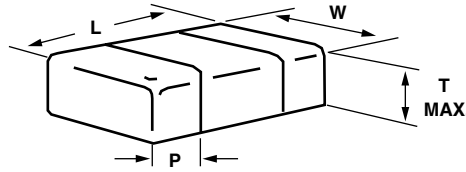
**Dielectric Withstanding Voltage (DWV):**

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

$\leq$  100 V DC: DWV at 250 % of rated voltage

## Vishay Vitramon Surface Mount Multilayer Ceramic Chip Capacitors for TCC Critical Applications

### DIMENSIONS in inches [millimeters]



EIA STYLE	PART ORDERING NUMBER	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATION (P)	
					MINIMUM	MAXIMUM
0402	VJ0402	0.040 + 0.004/- 0.002 [1.00 + 0.10/- 0.05]	0.020 + 0.004/- 0.002 [0.50 + 0.10/- 0.05]	0.024 [0.60]	0.004 [0.10]	0.016 [0.41]
0603	VJ0603	0.063 ± 0.005 [1.60 ± 0.12]	0.031 ± 0.005 [0.80 ± 0.12]	0.036 [0.92]	0.012 [0.30]	0.018 [0.46]
0805	VJ0805	0.079 ± 0.008 [2.00 ± 0.20]	0.049 ± 0.008 [1.25 ± 0.20]	0.057 [1.45]	0.010 [0.25]	0.028 [0.71]
1206	VJ1206	0.126 ± 0.008 [3.20 ± 0.20]	0.063 ± 0.008 [1.60 ± 0.20]	0.067 [1.70]	0.010 [0.25]	0.028 [0.71]
1210	VJ1210	0.126 ± 0.008 [3.20 ± 0.20]	0.098 ± 0.008 [2.50 ± 0.20]	0.067 [1.70]	0.010 [0.25]	0.028 [0.71]
-	VJ1808	0.177 ± 0.010 [4.50 ± 0.25]	0.080 ± 0.010 [2.03 ± 0.25]	0.067 [1.70]	0.010 [0.25]	0.030 [0.76]
1812	VJ1812	0.177 ± 0.010 [4.50 ± 0.25]	0.126 ± 0.008 [3.20 ± 0.20]	0.086 [2.18]	0.010 [0.25]	0.030 [0.76]
1825	VJ1825	0.177 ± 0.010 [4.50 ± 0.25]	0.252 ± 0.010 [6.40 ± 0.25]	0.086 [2.18]	0.010 [0.25]	0.030 [0.76]
-	VJ2220	0.220 ± 0.008 [5.59 ± 0.20]	0.200 ± 0.010 [5.08 ± 0.25]	0.086 [2.18]	0.010 [0.25]	0.030 [0.76]
-	VJ2225	0.220 ± 0.010 [5.59 ± 0.25]	0.250 ± 0.010 [6.35 ± 0.25]	0.086 [2.18]	0.010 [0.25]	0.030 [0.76]

### ORDERING INFORMATION

VJ0805	X	102	K	X	A	A	C	### <sup>(2)</sup>
CASE SIZE	DIELECTRIC	CAPACITANCE NOMINAL CODE	CAPACITANCE TOLERANCE	TERMINATION	DC VOLTAGE RATING <sup>(1)</sup>	MARKING	PACKAGING	PROCESS CODE
0402 0603 0805 1206 1210 1808 1812 1825 2220 2225	X = BX	Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. <b>Example:</b> 102 = 1000 pF	J = ± 5 % K = ± 10 % M = ± 20 %	X = Ni barrier 100 % tin plated F = AgPd	X = 25 V A = 50 V B = 100 V	A = Unmarked M = Marked <b>Note:</b> Marking is only available for 0805 and 1206 on request	T = 7" reel/plastic tape C = 7" reel/paper tape R = 11 1/4" reel/plastic tape P = 11 1/4" reel/paper tape O = 7" reel/flamed paper tape I = 11 1/4"/13" reel/flamed paper tape <b>Note:</b> "I" and "O" is used for "F" termination	

**Notes:**

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

(2) Process Code may be added with up to three digits, used to control non-standard products and/or special requirements



Surface Mount Multilayer Ceramic Chip Capacitors  
for TCC Critical Applications

Vishay Vitramon

SELECTION CHART																												
STYLE		VJ0402		VJ0603		VJ0805			VJ1206			VJ1210 <sup>(1)</sup>			VJ1808 <sup>(1)</sup>			VJ1812 <sup>(1)</sup>			VJ1825 <sup>(1)</sup>			VJ2220 <sup>(1)</sup>		VJ2225 <sup>(1)</sup>		
EIA TYPE		0402		0603		0805			1206			1210			-			1812			1825			-		-		
VOLTAGE (Vdc)		25	50	25	50	25	50	100	25	50	100	25	50	100	25	50	100	25	50	100	25	50	100	50	100	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			**		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
153	0.015 µF			**		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
183	0.018 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
223	0.022 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
273	0.027 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
333	0.033 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
393	0.039 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
473	0.047 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
563	0.056 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
683	0.068 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
823	0.082 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
104	0.10 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
124	0.12 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
154	0.15 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
184	0.18 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
224	0.22 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
274	0.27 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
334	0.33 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
394	0.39 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
474	0.47 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
564	0.56 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
684	0.68 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
824	0.82 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
105	1.0 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
125	1.2 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
155	1.5 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
185	1.8 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
225	2.2 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
275	2.7 µF					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

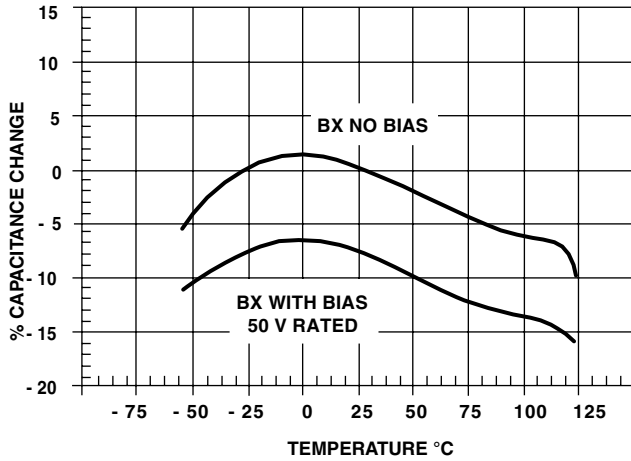
Notes:

<sup>(1)</sup> See soldering recommendations within this data book, or visit [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)

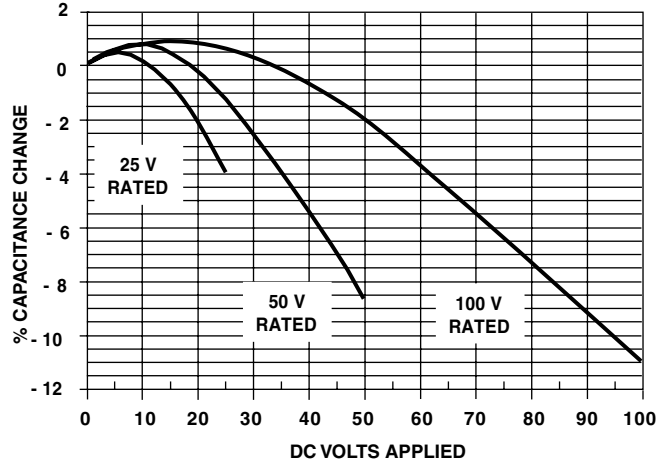
\*\* Paper Tape • Plastic Tape

**BX DIELECTRIC - TYPICAL PARAMETERS**

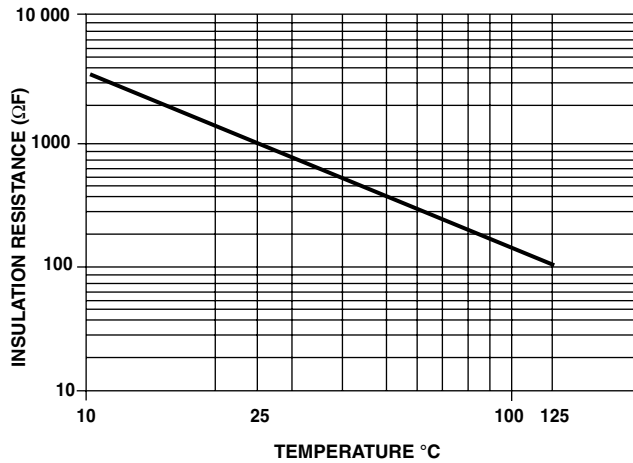
TEMPERATURE COEFFICIENT OF CAPACITANCE



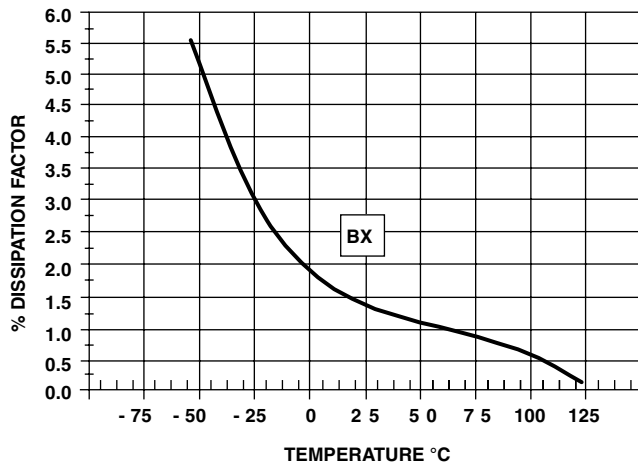
VOLTAGE COEFFICIENT OF CAPACITANCE - BX



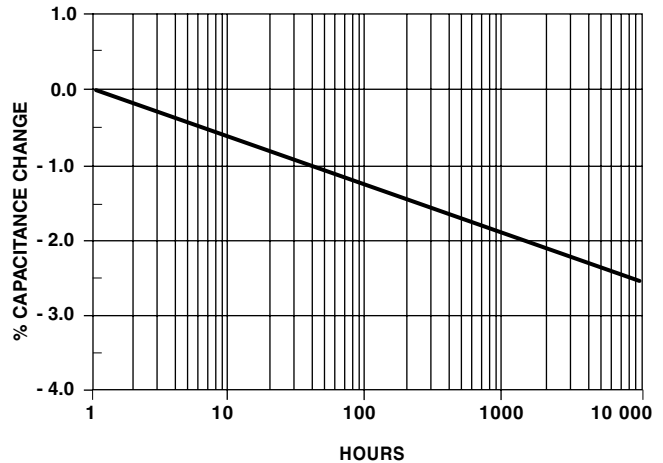
MINIMUM INSULATION RESISTANCE VS. TEMPERATURE



DISSIPATION FACTOR VS. TEMPERATURE



AGING RATE - BX





## Disclaimer

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