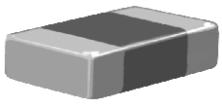
Surface Mount Multilayer Ceramic Chip Capacitors for Power Supply Applications



FEATURES

- Rugged, surface-mountable, multilayer ceramic capacitors, made with Advanced X7R dielectric
- Efficient low-power consumption, ripple current capable to 1.2 A_{rms} at 100 kHz
- High voltage breakdown compared to standard design
- Excellent reliability and thermal shock performance
- Surface mount, precious metal technology, wet build process

RoHS COMPLIANT

APPLICATIONS

- Ideal for power supplies
- For input/output filters

ELECTRICAL SPECIFICATIONS

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

Operating Temperature: - 55 °C to + 125 °C

Capacitance Range: 1000 pF to 1.8 µF

Voltage Rating: 50 Vdc to 630 Vdc

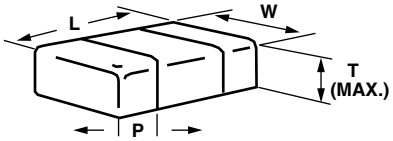
Temperature Coefficient of Capacitance (TCC):
X7R: ± 15 % from - 55 °C to + 125 °C, with 0 Vdc applied

Aging Rate: 1 % maximum per decade

Insulation Resistance (IR):
At + 25 °C and rated voltage 100 000 MΩ minimum or 1000 ΩF, 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
≤ 250 Vdc: DWV at 250 % of rated voltage
500 Vdc: DWV at 200 % of rated voltage
630 Vdc: DWV at 150 % of rated voltage

DIMENSIONS in inches [millimeters]



PART ORDERING NUMBER	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATION PAD (P)	
				MINIMUM	MAXIMUM
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]	0.030 [0.76]
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]	0.030 [0.76]
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]
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	0.228 ± 0.008 [5.79 ± 0.20]	0.197 ± 0.008 [5.00 ± 0.20]	0.086 [2.18]	0.010 [0.25]	0.030 [0.76]
VJ2225	0.220 ± 0.010 [5.59 ± 0.25]	0.262 ± 0.010 [6.65 ± 0.25]	0.086 [2.18]	0.010 [0.25]	0.030 [0.76]

ORDERING INFORMATION

VJ1812	Y	824	K	X	B	A	T	3E
CASE CODE	DIELECTRIC	CAPACITANCE NOMINAL CODE	CAPACITANCE TOLERANCE	TERMINATION	DC VOLTAGE RATING (1)	MARKING	PACKAGING	PROCESS CODE
1206 1210 1812 1825 2220 2225	Y = X7R	Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. **Examples:** 824 = 820 000 pF	J = ± 5 % K = ± 10 % M = ± 20 %	X = Ni barrier 100 % tin plated F = AgPd	A = 50 V B = 100 V C = 200 V P = 250 V E = 500 V L = 630 V	A = Unmarked	T = 7" reel/ plastic tape	3E = RuGGed

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

SELECTION CHART

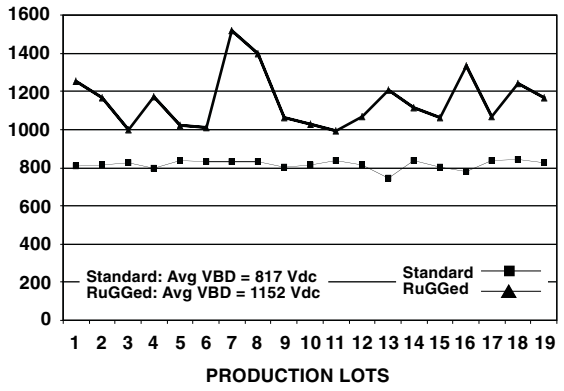
CASE TYPE		1206					1210 (1)					1812 (1)					1825 (1)			2220 (1)				2225 (1)			
VOLTAGE (Vdc)		50	100	200	500	630	50	100	200	500	630	50	100	200	500	630	100	200	500	100	200	250	500	100	200	500	630
CAP. CODE	CAP.																										
102	1000 pF															•											
122	1200 pF															•											
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	10 nF	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
123	12 nF	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
153	15 nF	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
183	18 nF	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
223	22 nF	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
273	27 nF	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
333	33 nF	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
393	39 nF	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
473	47 nF	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
563	56 nF	•	•	•			•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
683	68 nF	•	•	•			•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
823	82 nF	•	•	•			•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
104	0.1 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	1.00 µF						•					•	•				•	•		•				•	•		
125	1.20 µF											•					•			•				•	•		
155	1.50 µF																•			•				•			
185	1.80 µF																							•			
205	2.00 µF																										

Note:

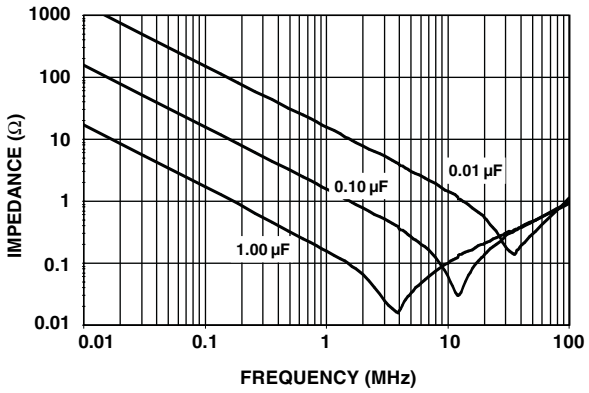
(1) See soldering recommendations within this data book, or visit www.vishay.com/doc?45034

RUGGED CHIP - TYPICAL PARAMETERS

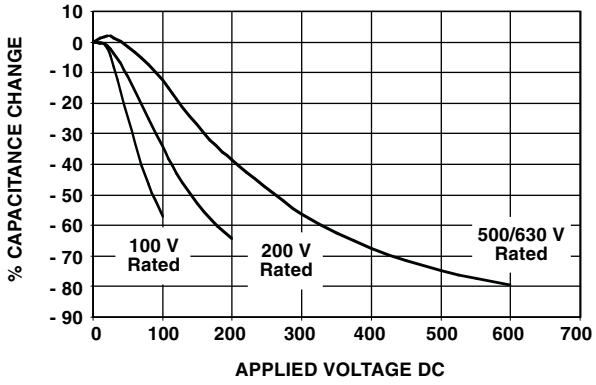
VOLTAGE BREAKDOWN - RuGGed VS. STANDARD
100 V Rated MLCCs



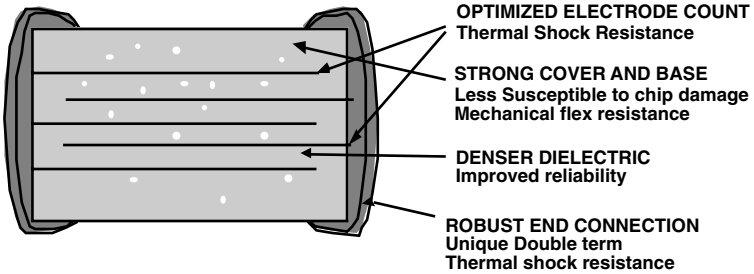
IMPEDANCE VS. FREQUENCY
X7R RuGGed Chip



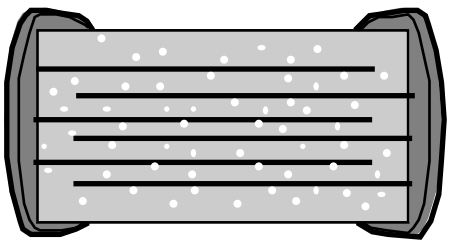
VOLTAGE COEFFICIENT OF CAPACITANCE
X7R RuGGed Chip



RuGGed POWER SUPPLY CAPACITOR



STANDARD MLCC DESIGN



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