

## Multilayer Ceramic Chip Capacitors



### FEATURES

- General purpose dielectric
- Excellent aging characteristics
- Ideal for decoupling and filtering
- Wide range of case sizes, voltage ratings and capacitance values



**RoHS**  
COMPLIANT

### GENERAL SPECIFICATIONS

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

**Capacitance Range:** 100 pF to 1.0 μF

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

X7R: ± 15 % from - 55 °C to + 125 °C, with 0 Vdc applied

**Dissipation Factor (DF):**

≤ 25 V ratings: 3.5 % maximum at 1.0 Vrms and 1 kHz  
50 V, 100 V ratings: 2.5 % maximum at 1.0 Vrms and 1 kHz

**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

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 second period and the charge/discharge current does not exceed 50 mA

≤ 100 VDC: DWV at 250 % of rated voltage

ORDERING INFORMATION								
VJ0805	Y	102	K	X	A	A	T	### <sup>2)</sup>
CASE CODE	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 3640	Y = X7R	Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. <b>Examples:</b> 102 = 1000 pF	J = ± 5 % K = ± 10 % M = ± 20 %	X = Ni barrier 100 % tin plated F = AgPd	J = 16 V X = 25 V A = 50 V B = 100 V	A = Unmarked M = Marked <b>NOTE:</b> Marking is only available for 0805 and 1206.	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.	

**Note**

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.

# VJ X7R Dielectric

Vishay Vitramon

Multilayer Ceramic Chip Capacitors



<b>X7R DIELECTRIC</b>																					
STYLE		VJ0402				VJ0603				VJ0805				VJ1206				VJ1210 <sup>1)</sup>			
EIA TYPE		0402				0603				0805				1206				1210			
VOLTAGE (Vdc)		16	25	50	100	16	25	50	100	16	25	50	100	16	25	50	100	16	25	50	100
CAP. CODE	CAP.																				
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																				
335	3.3 μF																				
395	3.9 μF																				
475	4.7 μF																				
565	5.6 μF																				
685	6.5 μF																				

**Note**

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



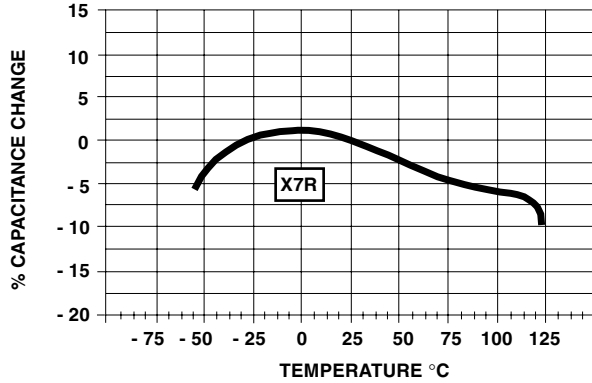
<b>X7R DIELECTRIC</b>																		
STYLE		VJ1808 <sup>1)</sup>			VJ1812 <sup>1)</sup>			VJ1825 <sup>1)</sup>			VJ2220 <sup>1)</sup>		VJ2225 <sup>1)</sup>			VJ3640 <sup>1)</sup>		
EIA TYPE		-			1812			1825			-		-			-		
VOLTAGE (Vdc)		-	50	100	25	50	100	25	50	100	50	100	25	50	100	25	50	100
CAP. CODE	CAP.																	
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																	
335	3.3 μF																	
395	3.9 μF																	
475	4.7 μF																	
565	5.6 μF																	
685	6.5 μF																	

**Note**

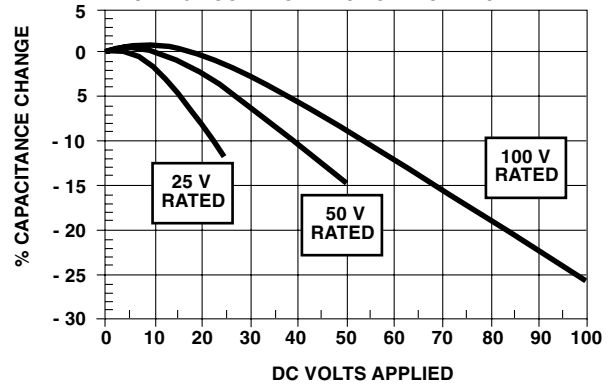
1. See soldering recommendations within this data book, or visit [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)

**X7R DIELECTRIC - TYPICAL PARAMETERS**

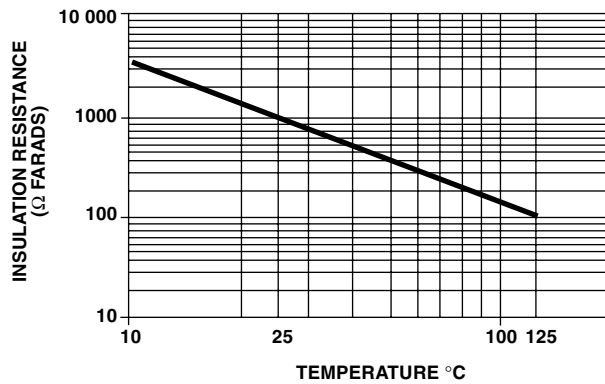
TEMPERATURE COEFFICIENT OF CAPACITANCE



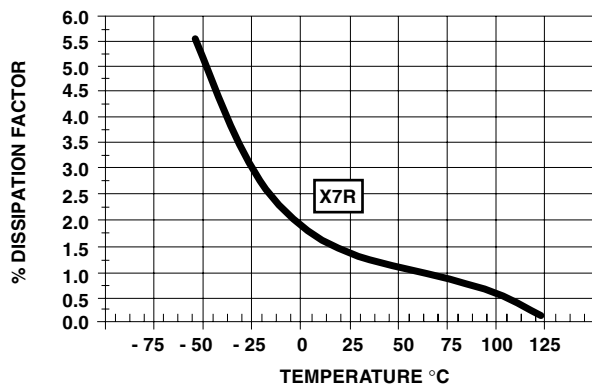
TYPICAL PARAMETER X7R VOLTAGE COEFFICIENT OF CAPACITANCE - X7R



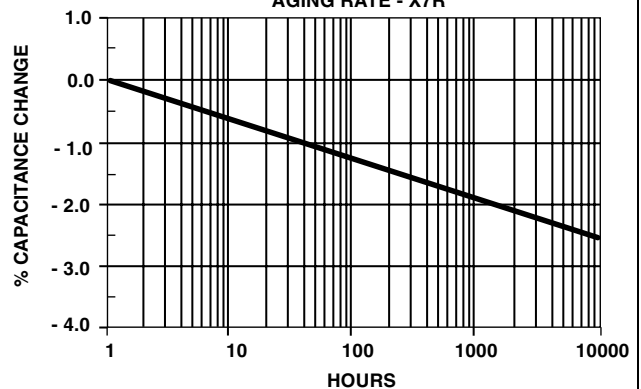
MINIMUM INSULATION RESISTANCE VS TEMPERATURE



DISSIPATION FACTOR vs TEMPERATURE



TYPICAL PARAMETER X7R AGING RATE - X7R





## Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.