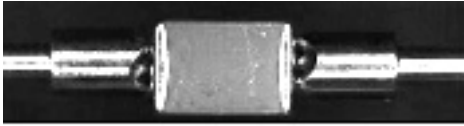
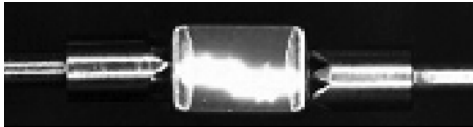


Surface Mount Multilayer Ceramic Chip Capacitors Prohibit Surface Arc-over in High Voltage Applications



HVArc Guard® Capacitor with no Surface Arc-over



Standard Capacitor with Surface Arc-over

FEATURES

For this Worldwide Patented Technology

- MLCC that protects against surface arc-over
- Surface mount, wet build process
- Reliable Noble Metal Electrode (NME) system
- Higher capacitances and smaller case sizes that save board space, as compared to standard high voltage MLCCs
- Voltage breakdowns as much as double of competitor products
- Excellent high voltage performance
- Available with polymer termination for increase resistance to board flex cracking. Please contact factory for availability.
- Speciality: High voltage applications
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Power Supplies
- DC-to-DC converters (Buck and Boost)
- Voltage multipliers for flyback converters
- Lighting and AC power applications, please contact: mlcc@vishay.com

ELECTRICAL SPECIFICATIONS

Note:

Electrical characteristics at + 25 °C unless otherwise specified

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

Capacitance Range: 10 pF to 8200 pF

Voltage Range: 1000 Vdc to 2500 Vdc

Temperature Coefficient of Capacitance (TCC):

0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C

Dissipation Factor:

0.1 % max. at 1.0 V_{rms} and 1 MHz for values ≤ 1000 pF

0.1 % max. at 1.0 V_{rms} and 1 kHz for values > 1000 pF

Aging Rate: 0 % 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:

1000 Vdc-rated: 150 % of rated voltage

1500 Vdc, 2500 Vdc-rated: 120 % of rated voltage

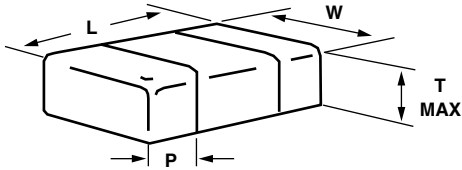
VJ HVArc Guard® COG (NP0)

Vishay Vitramon

Surface Mount Multilayer Ceramic Chip Capacitors
Prohibit Surface Arc-over in High Voltage Applications



DIMENSIONS in inches [millimeters]



PART ORDERING NUMBER	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATION PAD (P)	
				MINIMUM	MAXIMUM
VJ0805	0.079 ± 0.008 [2.00 ± 0.20]	0.049 ± 0.008 [1.25 ± 0.020]	0.057 [1.45]	0.010 [0.25]	0.028 [0.71]
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]
VJ2220	0.220 ± 0.010 [5.59 ± 0.25]	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	A	102	J	X	G	A	T	5Z ⁽²⁾
CASE CODE	DIELECTRIC	CAPACITANCE NOMINAL CODE	CAPACITANCE TOLERANCE	TERMINATION	DC VOLTAGE RATING ⁽¹⁾	MARKING	PACKAGING	PROCESS CODE
0805 1206 1210 2220 2225	A = COG	Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. Examples: 102 = 1000 pF	J = ± 5 % K = ± 10 % M = ± 20 %	X = Ni barrier 100 % tin plated matte finish F = Silver Palladium B = Polymer 100 % tin plated matte finish ⁽³⁾ N = Non-magnetic	G = 1000 V R = 1500 V O = 2500 V	A = Unmarked	C = 7" reel/ paper tape T = 7" reel/ plastic tape P = 11 1/4" reel/ paper tape R = 11 1/4" reel/ plastic tape	5Z = HVArc Guard®

Notes

- (1) DC voltage rating should not be exceeded in application
- (2) Process code with 2 digits has to be added
- (3) Please contact factory for Polymer termination availability

- Lighting and AC power applications please contact: mlcc@vishay.com
- Polymer (B-termination) have increased dimensions:
1206 and smaller case sizes: Length 0.002" (0.05 mm)
1210 and larger case sizes: Length 0.004" (0.10 mm)



VJ HVArc Guard® C0G (NP0)

Surface Mount Multilayer Ceramic Chip Capacitors
Prohibit Surface Arc-over in High Voltage Applications

Vishay Vitramon

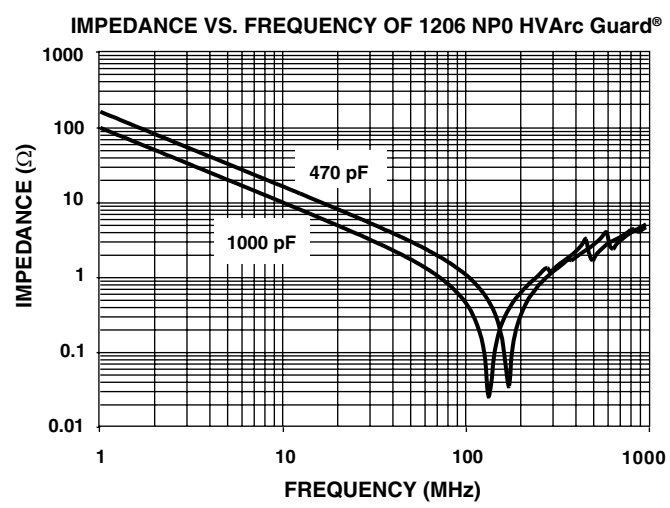
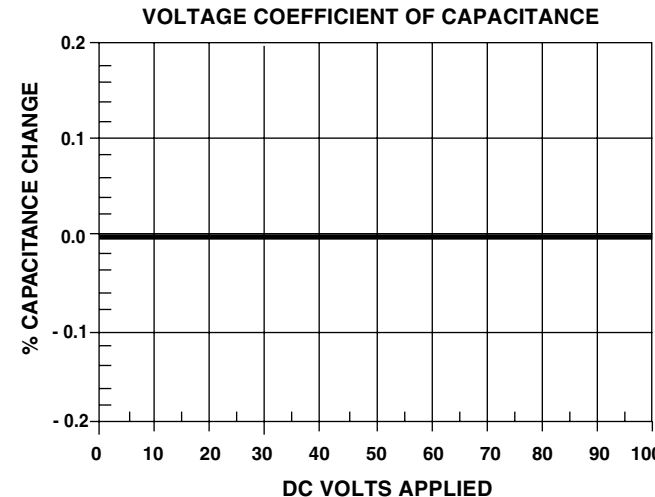
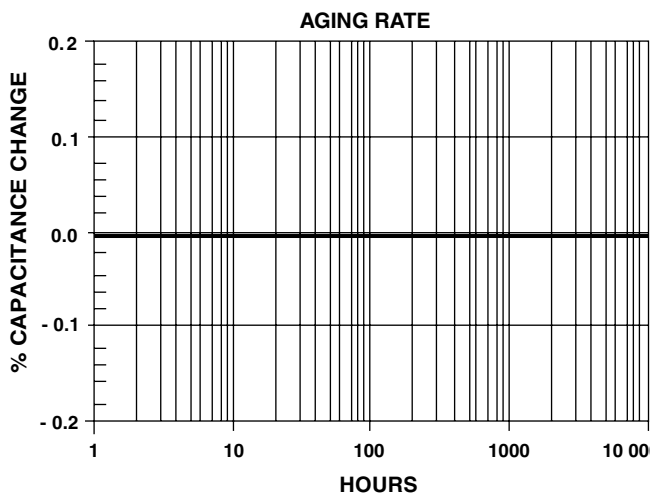
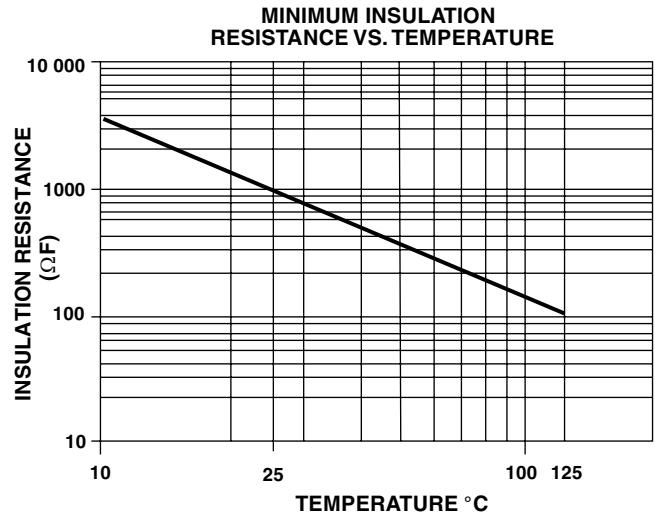
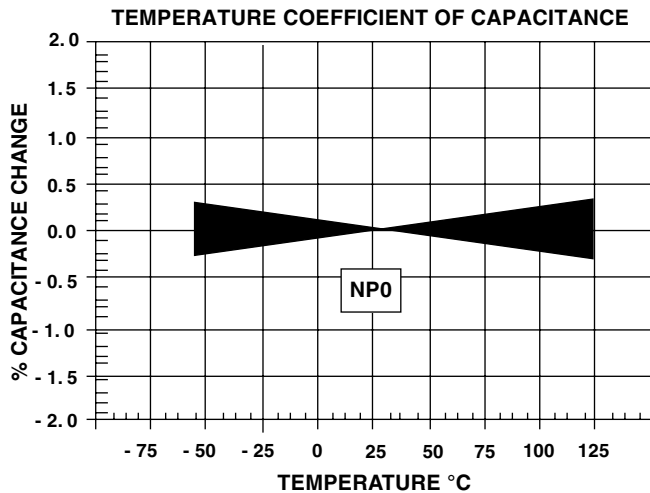
HVARC GUARD® C0G (NP0) CAPACITANCE RANGE												
EIA CODE		0805		1206		1210		2220		2225		
VOLTAGE (Vdc)		1000	1500	1000	1500	1000	1500	1000	1500	1000	1500	2500
VOLTAGE CODE		G	R	G	R	G	R	G	R	G	R	O
CAP. CODE	CAP.											
100	10 pF	•	•	•	•	•	•					
120	12 pF	•	•	•	•	•	•					
150	15 pF	•	•	•	•	•	•					
180	18 pF	•	•	•	•	•	•					
220	22 pF	••	••	•	•	•	•					
270	27 pF	••	••	•	•	•	•					
330	33 pF	••	••	•	•	•	•					
390	39 pF	••	••	•	•	•	•					
470	47 pF	••	••	•	•	•	•					
560	56 pF	••	••	•	•	•	•					
680	68 pF	••	••	•	•	•	•					
820	82 pF	••	••	•	•	•	•					
101	100 pF	••	••	•	•	•	•					
121	120 pF	•	•	•	•	•	•					
151	150 pF	•	•	•	•	•	•					
181	180 pF	•	•	•	•	•	•					
221	220 pF	•	•	•	•	•	•					
271	270 pF	•	•	•	•	•	•					
331	330 pF	•	•	•	•	•	•					
391	390 pF	•	•	•	•	•	•					
431	430 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									•	•	•

Notes

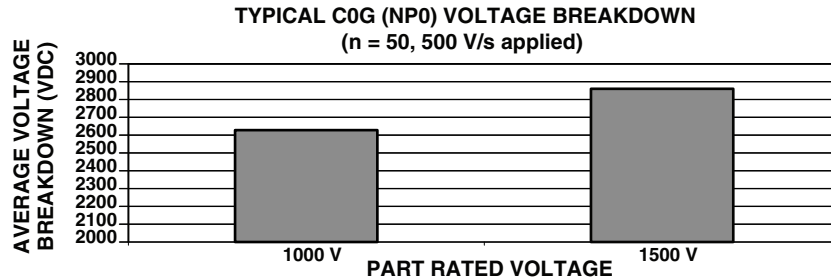
See soldering recommendations within this data book, or visit www.vishay.com/doc?45034

- Available in plastic carrier tape only
- Available in paper carrier tape only

HVARC GUARD[®] C0G (NP0) DIELECTRIC - TYPICAL PARAMETERS



TYPICAL C0G (NP0) VOLTAGE BREAKDOWN

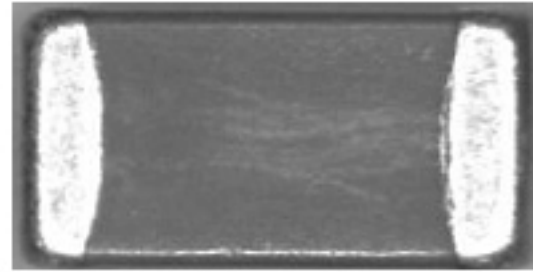


TYPICAL

Crack caused by surface arc from end termination to top electrode layer cause component failure

ARCING ON MLCCS (shown in polarized light)

Corona traces due to arc-over become conductive paths leading to component failure



STANDARD PACKAGING QUANTITIES

BODY SIZE	TAPE SIZE	7" REEL QUANTITIES		11 1/4" AND 13" REEL QUANTITIES	
		PAPER TAPE PACKAGING CODE	PLASTIC TAPE PACKAGING CODE	PAPER TAPE PACKAGING CODE	PLASTIC TAPE PACKAGING CODE
0805	8 mm	C: 3000	T: 3000	P: 10 000	R: 10 000
1206 ⁽⁶⁾	8 mm	N/a	T: 2500	N/a	R: 10 000
1210 ⁽⁶⁾	8 mm	N/a	T: 2500	N/a	R: 10 000
2220	12 mm	N/a	T: 1000	N/a	R: 5000
2225	12 mm	N/a	T: 1000	N/a	R: 5000

Notes

- (1) Vishay Vitramon uses embossed plastic carrier tape and punch paper carrier tape
- (2) Paper tape is not available for case sizes > 1206 or for component thickness > 0.035" [0.89 mm]
- (3) 11 1/4" reel is standard for large quantities. 13" is maybe used for large "T" dimension parts
- (4) REFERENCE: EIA Standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"
- (5) N/a = Not available
- (6) Packaging quantity can vary with product thickness

Contact mlcc@vishay.com with respect to specific part number requirements



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.