



MULTILAYER CERAMIC CHIP CAPACITORS

VJ...W1BC Ultra-Small Series 0201

Surface-Mount MLCCs for Ultra-Small Commodity Applications



KEY BENEFITS

- High capacitance in unit size: 0.5 pF to 220 nF
- High-precision dimensional tolerances: 0.33 mm maximum thickness
- Suitable for use in high-accuracy automatic mounting machines
- Dry sheet manufacturing technology
- 100 % tin terminations
- Noble Metal Electrode System (NME) for C0G (NP0)
- Base Metal Electrode System (BME) for X5R, X7R
- Compliant to RoHS Directive 2011/65/EU
- Halogen-free according to IEC 61249-2-21 definition

APPLICATIONS

- Miniature microwave modules
- Handheld communication devices: mobile phones, PDAs
- High-frequency circuits

RESOURCES

- Datasheet: VJ...W1BC Ultra Small Series 0201 - <http://www.vishay.com/doc?28538>
- For technical questions contact mlcc@vishay.com

Capacitors - Ultra-Small Size

One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components





MULTILAYER CERAMIC CHIP CAPACITORS

VJ...W1BC Ultra-Small Series 0201



Surface-Mount Multilayer Ceramic Chip Capacitors for Ultra-Small Commodity Applications

ELECTRICAL SPECIFICATIONS			
Size	0201		
Dielectric	COG (NP0)	X7R	X5R
Capacitance	0.5 pF to 100 pF	100 pF to 10 nF	100 pF to 220 nF
Capacitance Tolerance (%)	Cap. ≤ 5 pF: B (± 0.1 pF), C (± 0.25 pF) 5 pF < Cap. < 10 pF: C (± 0.25 pF), D (± 0.5 pF) Cap. ≥ 10 pF: F (± 1%), G (2%), J (5%), K (± 10%)	J (± 5%) K (± 10%) M (± 20%)	J (± 5%) K (± 10%) M (± 20%)
Rated Voltage (V _{DC})	16 V, 25 V, 50 V	10 V, 16 V, 50 V	6.3 V, 10 V, 16 V, 50 V
tan δ/Q (%)	Cap. < 30 pF, Q ≥ 400 + 20 C Cap. ≥ 30 pF, Q ≥ 1000	10 V ≤ 5% 16 V ≤ 3.5% 50 V ≤ 3.0%	6.3 V: ≤ 10% 10 V: ≤ 5.0% 16 V: ≤ 3.5% 50 V: ≤ 3.0%
Insulation Resistance at U _R	≥ 10 GΩ	≥ 10 GΩ or R x C ≥ 500 ΩF, whichever is less	
Operating Temperature	-55 °C to +125 °C		-55 % to +85 °C
Capacitance Change	± 30 ppm	± 15 %	
Termination	Ni/Sn lead (Pb)-free termination		



RoHS COMPLIANT HALOGEN FREE

Notes

(1) Measured at 30% - 70% related humidity

NPO: apply 1.0 V_{RMS} ± 0.2 V_{RMS}, 1.0 MHz ± 10% at the conditions of 25 °C ambient temperature

X7R, X5R: apply 1.0 V_{RMS} ± 0.2 V_{RMS}, 1.0 kHz ± 10% at the conditions of 25 °C ambient temperature

(2) Preconditioning for X5R, X7R MLCC: Perform a heat treatment at 150 °C ± 10 °C for 1 h, then leave in ambient condition for 24 h ± 2 h before measurement.

SELECTION CHART											
DIELECTRIC		COG (NP0)				X7R			X5R		
STYLE											
SIZE CODE											
VOLTAGE V _{DC}		16 V	25 V	50 V	10 V	16 V	50 V	6.3 V	10 V	16 V	50 V
VOLTAGE CODE		J	X	A	Q	J	A	Y	Q	J	A
CAP. CODE	CAP.										
0R5	0.5 pF		L	L							
1R0	1.0 pF		L	L							
1R2	1.2 pF		L	L							
1R5	1.5 pF		L	L							
1R8	1.8 pF		L	L							
2R2	2.2 pF		L	L							
2R7	2.7 pF		L	L							
3R3	3.3 pF		L	L							
3R9	3.9 pF		L	L							
4R7	4.7 pF		L	L							
5R6	5.6 pF		L	L							
6R8	6.8 pF		L	L							
8R2	8.2 pF		L	L							
100	10 pF		L	L							
120	12 pF		L	L							
150	15 pF		L	L							
180	18 pF		L	L							
220	22 pF		L	L							
270	27 pF		L	L							
330	33 pF		L	L							
390	39 pF		L	L							
470	47 pF		L	L							
560	56 pF	L	L								
680	68 pF	L	L								
820	82 pF	L	L								
101	100 pF	L	L			L	L				L
121	120 pF		L	L		L	L				L
151	150 pF		L	L		L	L				L
181	180 pF		L	L		L	L				L
221	220 pF		L	L		L	L				L
271	270 pF		L	L		L	L				L
331	330 pF		L	L		L	L				L
391	390 pF		L	L		L	L				L
471	470 pF		L	L		L	L				L
561	560 pF		L	L		L	L				L
681	680 pF		L	L		L	L				L
821	820 pF		L	L		L	L				L
102	1000 pF		L	L		L	L				L
152	1500 pF		L	L		L	L		L	L	
222	2200 pF		L	L		L	L		L	L	
332	3300 pF		L	L		L	L		L	L	
472	4700 pF		L	L		L	L		L	L	
682	6800 pF		L	L		L	L		L	L	
103	0.010 μF				L				L	L	
153	0.015 μF								L	L	
223	0.022 μF								L	L	
333	0.033 μF								L	L	
473	0.047 μF								L	L	
683	0.068 μF								L	L	
104	0.10 μF								L	L	
224	0.22 μF								L	L	

Revision 17-Feb-12

Note

• Letters indicate product thickness, see packaging quantities

ORDERING INFORMATION						
VJ0201	A	100	J	X	X	C
SIZE CODE	DIELECTRIC	CAPACITANCE	TOLERANCE	TERMINATION	RATED VOLTAGE	PACKAGING
0201	A = COG (NP0) Y = X7R G = X5R	Two significant digits followed by the number of zeros. R is in place of decimal point: 0R5 = 0.5 pF 1R0 = 1.0 pF 100 = 10 pF	C = ± 0.25 pF D = ± 0.5 pF J = ± 5% K = ± 10% M = ± 20%	X = Ni Barrier	Y = 6.3 V Q = 10 V J = 16 V X = 25 V A = 50 V	C = 7" reel/paper tape
						W1BC
						PROCESS CODE FOR BASIC COMMODITY

DIMENSIONS in inches [millimeters]				
SIZE CODE	L	W	T MAX	MB
0201 [0603]	0.024 ± 0.0012 [0.60 ± 0.03]	0.012 ± 0.0012 [0.30 ± 0.03]	0.013 [0.33]	0.006 ± 0.002 [0.15 ± 0.05]

Capacitors - Ultra-Small Size