MULTILAYER CERAMIC CHIP CAPACITORS

VJ....W1BC Ultra High Q/Low ESR

Capacitors - Ultra-high Q / Low ESR at High Frequency

Surface-Mount MLCC Capacitors for Ultra High Q/Low ESR Applications

KEY BENEFITS

- Ultra stable Class 1 dielectric
- Ultra high Q and low ESR at high frequency
- High SRF characteristic
- Ultra low capacitance to 0.1 pF
- High precision capacitance tolerance ± 0.05 pF
- 100 % tin terminations
- Available in standard case sizes: 0201, 0402, 0603, 0805

APPLICATIONS

- Mobile/cellular communication
- Satellite and cable TV tuners
- Vehicle location systems
- GPS (Global Positioning Systems)
- Radar systems
- WLAN
- RF modules

RESOURCES

- Datasheet: VJ....W1BC Ultra High Q/Low ESR - http://www.vishay.com/doc?28547
- For technical questions contact resistors@vishay.com

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Surface-Mount Multilayer Ceramic Chip Capacitors for Ultra High Q/Low ESR Applications

RoHS COMPLIANT
HALOGEN FREE

FEATURES

- Ultra stable class 1 dielectric
- Ultra High Q and low ESR at high frequency
- Four standard sizes
- High SRF characteristic
- Ultra low capacitance to 0.1 pF
- High precision capacitance tolerance ± 0.05 pF
- Supplied in tape on reel
- Ni-barrier with 100 % tin terminations
- Dry sheet manufacturing technology
- Base Metal Electrode system (BME)
- Compliant to RoHS Directive 2011/65/EU
- Halogen-free according to IEC 61249-2-21 definition

APPLICATIONS

- Mobile telecommunication
- WLAN
- RF modules
- Tuner

ELECTRICAL SPECIFICATIONS

Note

- Electrical characteristics at 25 °C, 30 % to 70 % related humidity, unless otherwise specified

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

Capacitance Range: 0.1 pF to 100 pF

Voltage Range: 10 V_{DC} to 250 V_{DC}

Temperature Coefficient of Capacitance (TCC):
0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C
0201: ≥ 22 pF: 0 ppm/°C ± 60 ppm/°C from - 55 °C to + 125 °C

Dissipation Factor:
Cap < 30 pF: Q ≥ 400 + 20 C
Cap ≥ 30 pF: Q ≥ 1000

Test Conditions for Capacitance and DF Measurement:
Cap. ≤ 1000 pF 1.0 V_{RMS} ± 0.2 V_{RMS}, 1 MHz ± 10 %
Cap. > 1000 pF 1.0 V_{RMS} ± 0.2 V_{RMS}, 1 kHz ± 10 %

Aging Rate: 0 % maximum per decade

Insulation Resistance (IR): after 120 s at U_R (DC)
≥ 10 GΩ or R x C ≥ 500 Ω x F whichever is less

Dielectric Strength Test:

This is the maximum voltage the capacitors are tested for 1 s to 5 s period and the charge/discharge current does not exceed 50 mA
≤ 100 V_{DC}: DWV at 250 % of rated voltage
250 V_{DC}: DWV at 200 % of rated voltage

Revision 17-Feb-12

SELECTION CHART

DIELECTRIC		ULTRA HIGH Q										
STYLE		VJ0201		VJ0402		VJ0603			VJ0805			TOLERANCE
SIZE CODE		0201		0402		0603			0805			
VOLTAGE V_{DC}		10 V	25 V	50 V	100 V	50 V	100 V	250 V	50 V	100 V	250 V	
VOLTAGE CODE		Q	X	A	B	A	B	P	A	B	P	
CAP. CODE	CAP.											
0R1	0.1 pF	L	L	N	N							B
0R2	0.2 pF	L	L	N	N							V, B
0R3	0.3 pF	L	L	N	N	S	S	S	T	T	T	V, B
0R4	0.4 pF	L	L	N	N	S	S	S	T	T	T	V, B
0R5	0.5 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
0R6	0.6 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
0R7	0.7 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
0R8	0.8 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
0R9	0.9 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
1R0	1.0 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
1R2	1.2 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
1R5	1.5 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
1R8	1.8 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
2R2	2.2 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
2R4	2.4 pF							S				V, B, C
2R7	2.7 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
3R3	3.3 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
3R9	3.9 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
4R7	4.7 pF	L	L	N	N	S	S	S	T	T	T	V, B, C
5R6	5.6 pF	L	L	N	N	S	S	S	T	T	T	B, C, D
6R8	6.8 pF	L	L	N	N	S	S	S	T	T	T	B, C, D
8R2	8.2pF	L	L	N	N	S	S	S	T	T	T	B, C, D
100	10 pF	L	L	N	N	S	S	S	T	T	T	F, G, J
110	11 pF	L	L	N		S	S	S	T	T	T	F, G, J
120	12 pF	L	L	N		S	S	S	T	T	T	F, G, J
130	13 pF	L	L	N		S	S	S	T	T	T	F, G, J
150	15 pF	L	L	N		S	S	S	T	T	T	F, G, J
160	16 pF	L	L	N		S	S	S	T	T	T	F, G, J
180	18 pF	L	L	N		S	S	S	T	T	T	F, G, J
200	20 pF	L		N		S	S	S	T	T	T	F, G, J
220	22 pF	L		N		S	S	S	T	T	T	F, G, J
240	24 pF	L				S	S	S	T	T	T	F, G, J
270	27 pF	L				S	S	S	T	T	T	F, G, J
300	30 pF	L				S	S	S	T	T	T	F, G, J
330	33 pF	L				S	S	S	T	T	T	F, G, J
360	36 pF					S	S	S	T	T	T	F, G, J
390	39 pF					S	S	S	T	T	T	F, G, J
430	43 pF					S	S	S	T	T	T	F, G, J
470	47 pF					S	S	S	T	T	T	F, G, J

Note

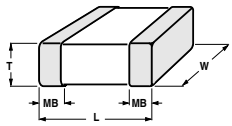
- Letters indicate product thickness, see packaging quantities

ORDERING INFORMATION

VJ0402	L	100	F	X	A	C	W1BC
SIZE CODE	DIELECTRIC	CAPACITANCE	TOLERANCE (1)	TERMINATION	VOLTAGE	PACKAGING	PROCESS CODE FOR BASIC COMMODITY
0201 0402 0603 0805	L = Ultra High Q	Expressed in pF two significant digits followed by the number of zeros: 0R3 = 0.3 pF 1R0 = 1.0 pF 150 = 15 pF	Cap. value ≤ 5 pF V = ± 0.05 pF B = ± 0.10 pF C = ± 0.25 pF D = ± 0.50 pF 5 pF > Cap. value < 10 pF B = ± 0.10 pF C = ± 0.25 pF D = ± 0.50 pF Cap. value ≥ 10 pF F = ± 1 % G = ± 2 % J = ± 5 %	X = Ni barrier 100 % tin termination	Q = 10 V X = 25 V A = 50 V B = 100 V P = 250 V	C = 7" reel/ paper tape P = 13" reel/ paper tape	

Note
(1) Details see selection chart

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)
0402 (1005)	0.040 ± 0.002 (1.00 ± 0.05)	0.020 ± 0.002 (0.50 ± 0.05)	0.022 (0.55)	0.010 + 0.002/- 0.004 (0.25 + 0.05/- 0.10)
0603 (1608)	0.063 ± 0.004 (1.60 ± 0.10)	0.030 ± 0.004 (0.80 ± 0.10)	0.035 (0.87)	0.015 ± 0.006 (0.40 ± 0.15)
0805 (2012)	0.080 ± 0.008 (2.00 ± 0.20)	0.050 ± 0.008 (1.25 ± 0.20)	0.038 (0.95)	0.020 ± 0.008 (0.50 ± 0.20)