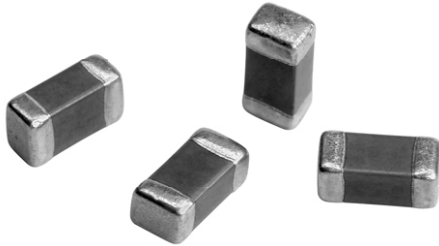


Surface Mount Multilayer Ceramic Chip Capacitors for Commodity Applications



FEATURES

- Ultra stable class 1 dielectric
- Four standard sizes
- High capacitance per unit volume
- Supplied in tape on reel
- For high frequency applications
- Ni-barrier with 100 % tin terminations
- Dry sheet manufacturing technology
- Halogen-free according to IEC 61249-2-21 definition
- Compliant to RoHS directive 2002/95/EC



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Consumer electronics
- Telecommunications
- Data processing

ELECTRICAL SPECIFICATIONS

Note:

Electrical characteristics at + 25 °C unless otherwise specified

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

Capacitance Range: 0.5 pF to 0.039 μF

Voltage Range: 10 Vdc to 100 Vdc

Temperature Coefficient of Capacitance (TCC):

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

Dissipation Factor (DF):

Cap. < 30 pF: Q 400 + 20C

Cap. ≥ 30 pF: Q ≥ 1000

Test Conditions:

Cap. ≤ 1000 pF 1.0 ± 0.2 V_{rms}, 1 MHz ± 10 %

Cap. > 1000 pF 1.0 ± 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 500 ΩF whichever is less

Dielectric Strength Test:

This is the maximum voltage the capacitors are tested 1 s to 5 s period and the charge/discharge current does not exceed 50 mA

≤ 100 Vdc: 250 % of rated voltage

ORDERING INFORMATION							
VJ0402	A	101	J	X	Q	C	W1BC
SIZE CODE	DIELECTRIC	CAPACITANCE	TOLERANCE	TERMINATION	VOLTAGE	PACKAGING	PROCESS CODE FOR BASIC COMMODITY
0402 0603 0805 1206	A = C0G (NP0)	Two significant digits followed by the number of zeros: 101 = 100 pF 102 = 1000 pF 152 = 1500 pF 103 = 10 000 pF	Cap. < 10 pF B = ± 0.10 pF C = ± 0.25 pF D = ± 0.50 pF Cap. ≥ 10 pF F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 %	X = Ni Barrier	Q = 10 V J = 16 V X = 25 V A = 50 V B = 100 V	C = 7" reel/ paper tape P = 13" reel/ paper tape T = 7" reel/ plastic tape R = 13" reel/ plastic tape	

VJ....W1BC C0G (NP0) Dielectric



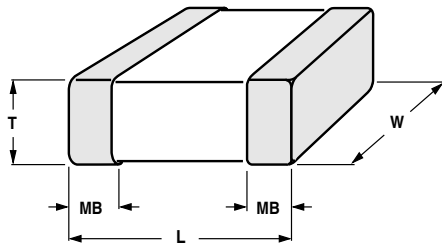
Vishay

Surface Mount Multilayer Ceramic Chip Capacitors
for Commodity Applications

SELECTION CHART																					
DIELECTRIC		NP0																			
EIA CAP. CODE	EIA SIZE CAP.	0402					0603					0805					1206				
		10 V	16 V	25 V	50 V	100 V	10 V	16 V	25 V	50 V	100 V	10 V	16 V	25 V	50 V	100 V	10 V	16 V	25 V	50 V	100 V
0R5	0.5 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A					
1R0	1.0 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A					
1R2	1.2 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A					
1R5	1.5 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
1R8	1.8 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
2R2	2.2 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
2R7	2.7 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
3R3	3.3 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
3R9	3.9 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
4R7	4.7 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
5R6	5.6 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
6R8	6.8 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
8R2	8.2 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
100	10 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
120	12 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
150	15 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
180	18 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
220	22 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
270	27 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
330	33 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
390	39 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
470	47 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
560	56 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
680	68 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
820	82 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
101	100 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
121	120 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
151	150 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
181	180 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
221	220 pF	N	N	N	N	N	S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
271	270 pF	N	N	N			S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
331	330 pF	N	N	N			S	S	S	S	S	A	A	A	A	A	B	B	B	B	B
391	390 pF	N	N	N			S	S	S	S	S	B	B	B	B	B	B	B	B	B	B
471	470 pF	N	N	N			S	S	S	S	S	B	B	B	B	B	B	B	B	B	B
561	560 pF						S	S	S	S	S	B	B	B	B	B	B	B	B	B	B
681	680 pF						S	S	S	S	S	B	B	B	B	B	B	B	B	B	B
821	820 pF						S	S	S	S	S	B	B	B	B	B	B	B	B	B	B
102	1000 pF						S	S	S	S	S	B	B	B	B	B	B	B	B	B	B
122	1200 pF						X	X	X	X		B	B	B	B	B	B	B	B	B	B
152	1500 pF						X	X	X	X		B	B	B	B	B	B	B	B	B	B
182	1800 pF						X	X	X	X		B	B	B	B	B	B	B	B	B	B
222	2200 pF						X	X	X	X		B	B	B	B	B	B	B	B	B	B
272	2700 pF						X	X	X	X		D	D	D	D	D	B	B	B	B	B
332	3300 pF						X	X	X	X		D	D	D	D	D	B	B	B	B	B
392	3900 pF											D	D	D	D	D	B	B	B	B	B
472	4700 pF											D	D	D	D		B	B	B	B	B
562	5600 pF											D	D				B	B	B	B	B
682	6800 pF											D	D				C	C	C	C	C
822	8200 pF											D	D				D	D	D	D	D
103	0.01 μF											D	D				D	D	D	D	
123	0.012 μF											D	D				D	D			
153	0.015 μF																D	D			
183	0.018 μF																D	D			
223	0.022 μF																D	D			
273	0.027 μF																D	D			
333	0.033 μF																D	D			
393	0.039 μF																G	G			
473	0.047 μF																				
563	0.056 μF																				
683	0.068 μF																				
823	0.082 μF																				
104	0.1 μF																				

Note

• Letters indicate product thickness, see Packaging Quantities

DIMENSIONS in inches [millimeters]					
	SIZE CODE	L	W	T MAX.	MB
	0402 (1002)	0.040 ± 0.002 [1.00 ± 0.05]	0.020 ± 0.002 [0.50 ± 0.05]	0.022 [0.55]	0.010 ± 0.004 [0.25 ± 0.10]
	0603 (1608)	0.063 + 0.006/- 0.004 [1.60 + 0.15/- 0.10]	0.030 ± 0.004 [0.80 ± 0.10]	0.038 [0.95]	0.012 - 0.008/+ 0.010 [0.30 - 0.20/+ 0.25]
	0805 (2012)	0.080 ± 0.008 [2.00 ± 0.20]	0.050 ± 0.008 [1.25 ± 0.20]	0.057 [1.45]	0.020 - 0.012/+ 0.008 [0.50 - 0.30/+ 0.20]
	1206 (3216)	0.126 + 0.012/- 0.008 [3.20 + 0.30/- 0.20]	0.063 + 0.012/- 0.008 [1.60 + 0.30/- 0.20]	0.075 [1.90]	0.020 ± 0.012 [0.50 ± 0.30]

STORAGE AND HANDLING CONDITIONS

- (1) To store products at 5 °C to 40 °C ambient temperature and 20 % to 70 % related humidity conditions.
- (2) The product is recommended to be used within one year after shipment. Check solderability in case of shelf life extension is needed.

Cautions:

- a. Do not store products in a corrosive environment such as sulfide, chloride gas, or acid. It may cause oxidization of electrode, which easily be resulted in poor soldering.
- b. To store products on the shelf and avoid exposure to moisture.
- c. Do not expose products to excessive shock, vibration, direct sunlight and so on.

PACKAGING QUANTITIES						
SIZE CODE (inch/mm)	MAX. THICKNESS (mm)	THICKNESS SYMBOL	PAPER TAPE		PLASTIC TAPE	
			7" reel (C)	13" reel (P)	7" reel (T)	13" reel (R)
0402 (1002)	0.55	N	10K	50K		
0603 (1608)	0.90	S	4K	15K		
	0.95	X	4K	15K		
0805 (2012)	0.75	A	4K	15K		
	0.95	B	4K	15K		
	1.40	D			3K	10K
1206 (3216)	0.95	B	4K	15K		
	1.05	C			3K	10K
	1.30	J			3K	10K
	1.35	D			3K	10K
	1.80	G			2K	
	1.80	H			2K	8K
	1.90	P			2K	

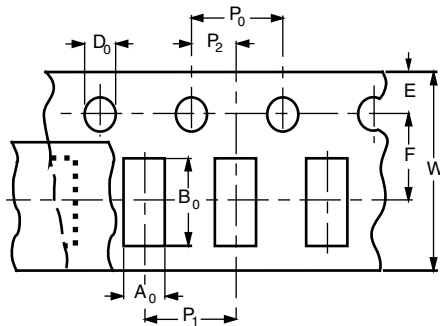
VJ...W1BC C0G (NP0) Dielectric



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PAPER TAPE SPECIFICATIONS

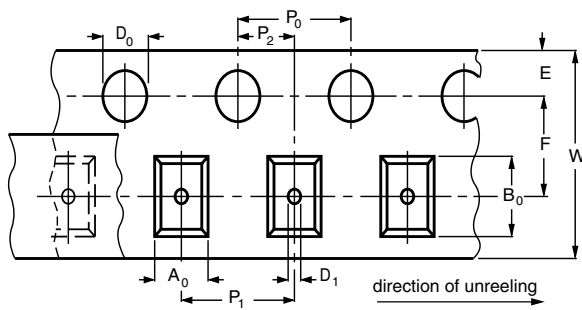


DIMENSIONS OF PAPER TAPE

in millimeters

SYM.	PRODUCT SIZE CODE			
	0402	0603	0805	1206
A_0	0.62 ± 0.05	1.02 ± 0.05	1.50 ± 0.10	2.00 ± 0.10
B_0	1.12 ± 0.05	1.82 ± 0.05	2.30 ± 0.10	3.50 ± 0.10
W	8.00 ± 0.10	8.00 ± 0.10	8.00 ± 0.10	8.00 ± 0.10
E	1.75 ± 0.05	1.75 ± 0.05	1.75 ± 0.05	1.75 ± 0.10
F	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05
D_0	1.55 ± 0.05	1.55 ± 0.05	1.55 ± 0.05	1.50 ± 0.05
P_0	4.00 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	4.00 ± 0.10
P_1	2.00 ± 0.05	2.00 ± 0.10	2.00 ± 0.10	4.00 ± 0.10
P_2	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05

BLISTER TAPE SPECIFICATIONS

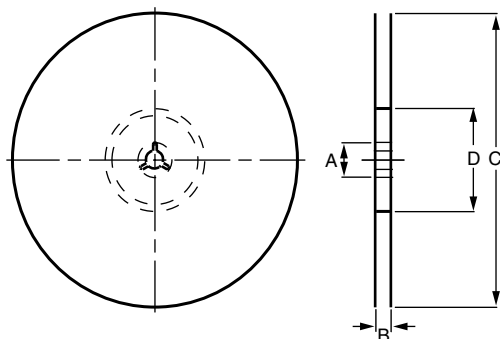


DIMENSIONS OF BLISTER TAPE

in millimeters

SYM.	PRODUCT SIZE CODE	
	0805	1206
A_0	< 1.57	< 2.00
B_0	< 2.45	< 3.70
W	8.00 ± 0.10	8.00 ± 0.10
E	1.75 ± 0.10	1.75 ± 0.10
F	3.50 ± 0.05	3.50 ± 0.05
D_0	1.50 ± 0.05	1.50 ± 0.05
D_1	1.00 ± 0.10	1.00 ± 0.10
P_0	4.00 ± 0.10	4.00 ± 0.10
P_1	4.00 ± 0.10	4.00 ± 0.10
P_2	2.00 ± 0.05	2.00 ± 0.05

REEL SPECIFICATIONS



REEL DIMENSIONS AND TAPE WIDTH

in millimeters

	$\varnothing 180 \text{ mm}; 7''$	$\varnothing 330 \text{ mm}; 13''$
A	13.0 ± 0.5	13.0 ± 0.5
B	9.0 ± 1.0	9.0 ± 1.0
C	178.0 ± 1.0	330.0 ± 1.0
D	60.0 ± 1.0	100.0 ± 1.0



Disclaimer

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

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