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Copper Barrier capacitors

C0G/NP0, High Q, X7R

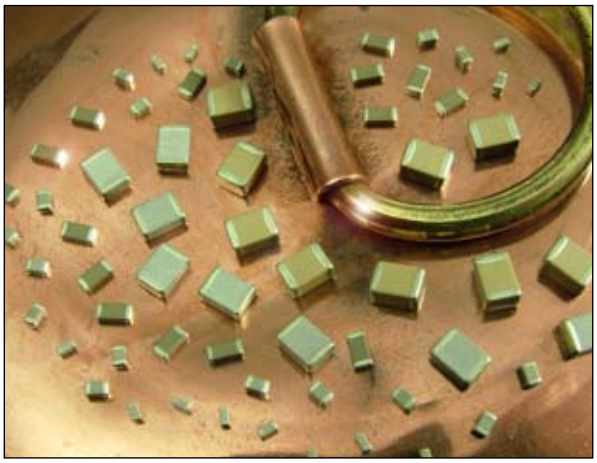
Multilayer ceramic capacitors with silver/palladium (Ag/Pd) terminations have often been used in medical applications where non-magnetic components are required, for example in MRI equipment. The use of conventional nickel barrier terminations is not suitable due to nickel exhibiting magnetic properties.

However, RoHS requirements have dictated the use of lead-free solders, and the composition of these solders has resulted in an increase in soldering temperatures. This has caused solder leaching problems for the Ag/Pd termination, and meant alternative terminations have had to be found.

As copper is non-magnetic, one solution is to use a copper barrier instead of a nickel barrier, with a tin finish on top, and this is the solution Syfer has developed.

This copper barrier termination is offered with selected non-magnetic C0G/NP0, High Q and X7R dielectrics, providing a fully non-magnetic component.

To meet high temperature 260ºC soldering reflow profiles as detailed in J-STD-020, C0G/NP0 dielectrics are supplied with sintered termination and X7R dielectrics are supplied with Syfer's award winning FlexiCap™ termination.



C0G/NP0 & High Q - maximum capacitance values

Chip Size	0402	0603	0505	0805	1206	1111 1210	1808	1812	2220	2225
Min Cap	0.1pF	0.1pF	0.2pF	0.2pF	0.5pF	0.3pF	1.0pF	1.0pF	2.0pF	2.0pF
Min Cap Tolerance	±0.05pF (<4.7pF), 0.1pF (≥4.7pF & <10pF) and ±1% (≥10pF)									
50V 63V	22pF	100pF	220pF	470pF	1.5nF	-	-	-	-	-
100V	15pF	68pF	150pF	330pF	1.0nF	2.2nF	2.2nF	4.7nF	10nF	15nF
150V	10pF	47pF	100pF	220pF	680pF	1.5nF	1.5nF	3.3nF	6.8nF	10nF
200V 250V	6.8pF	33pF	56pF	150pF	470pF	1.0nF	1.0nF	2.2nF	4.7nF	6.8nF
300V	-	27pF	47pF	120pF	390pF	820pF	820pF	1.8nF	3.9nF	5.6nF
500V	-	-	-	68pF	270pF	680pF	680pF	1.5nF	3.3nF	4.7nF
630V	-	-	-	-	150pF	390pF	390pF	1.0nF	2.2nF	3.3nF
1000V	-	-	-	-	82pF	220pF	220pF	680pF	1.5nF	2.2nF
2000V	-	-	-	-	18pF	68pF	68pF	150pF	470pF	560pF
3000V	-	-	-	-	-	-	-	68pF	150pF	220pF

X7R - maximum capacitance values

Chip Size	0402	0603	0805	1206	1210	1808	1812	2220	2225
Min Cap	47pF	100pF	330pF	680pF	1.5nF	2.2nF	3.3nF	6.8nF	10nF
Min Cap Tolerance	±5%								
16V	10nF	100nF	330nF	1.0µF	1.5µF	1.5µF	3.3µF	5.6µF	6.8µF
25V	6.8nF	68nF	220nF	820nF	1.2µF	1.2µF	2.2µF	4.7µF	5.6µF
50V 63V	4.7nF	47nF	150nF	470nF	1.0µF	680nF	1.5µF	3.3µF	3.3µF
100V	1.5nF	10nF	47nF	150nF	470nF	330nF	1.0µF	1.5µF	1.5µF
200V 250V	680pF	5.6nF	27nF	100nF	220nF	180nF	470nF	1.0µF	1.0µF
500V	-	1.5nF	8.2nF	33nF	100nF	100nF	270nF	560nF	680nF
630V	-	-	4.7nF	10nF	27nF	33nF	150nF	330nF	390nF
1000V	-	-	3.3nF	4.7nF	15nF	18nF	56nF	120nF	150nF
1200V	-	-	-	3.3nF	10nF	10nF	33nF	82nF	100nF
1500V	-	-	-	2.7nF	6.8nF	6.8nF	22nF	47nF	68nF
2000V	-	-	-	2.2nF	4.7nF	4.7nF	10nF	27nF	33nF

Reeled Quantities

7" Reel	5000	4000	2500	3000	2500	1000_{2000}	2000	500	500	500
13" Reel	13" reel quantities available on request						8000	2000	2000	2000

Note: Other capacitance values may become available, please contact our Sales Office if you need values other than those shown in the above tables.
For dimensions and soldering information, please go to our website (www.syfer.com) or see our MLC Catalogue.

Ordering information - Copper Barrier capacitors

1210	**3**	**100**	**0103**	**J**	**X**	**T**	_ _ _
Chip size	**Termination**	**Voltage**	**Capacitance in picofarads (pF)**	**Capacitance tolerance**	**Dielectric codes**	**Packaging**	Suffix
0402 0603 0505 0805 1206 1111 1210 1808 1812 2220 2225	**2** = Sintered silver base with copper barrier (100% matte tin plating). RoHS compliant. (available on C0G/NP0 & High Q only). **3** = FlexiCap™ base with copper barrier (100% matte tin plating). RoHS compliant. **4** = Sintered silver base with copper barrier (tin/lead plating). Non RoHS compliant. (available on C0G/NP0 & High Q only). **5** = FlexiCap™ base with copper barrier (tin/lead plating). Non RoHS compliant.	016 = 16V 025 = 25V 050 = 50V 063 = 63V 100 = 100V 150 = 150V 200 = 200V 250 = 250V 500 = 500V 630 = 630V 1K0 = 1000V 1K2 = 1200V 1K5 = 1500V 2K0 = 2000V 3K0 = 3000V	<10pF Insert a P for the decimal point, eg P300 = 0.3pF, 8P20 = 8.2pF. ⩾10pF 1st digit is 0. 2nd and 3rd digits are significant figures of capacitance code. The 4th digit is number of 0's following eg. 0103 = 10000pF Values <1pF in 0.1pF steps, above this values are E24 series	<4.7pF H = ±0.05pF B = ±0.1pF C = ±0.25pF D = ±0.5pF ⩾4.7pF & <10pF B = ±0.1pF C = ±0.25pF D = ±0.5pF ⩾10pF F = ±1% G = ±2% J = ±5% K = ±10%	**C** = C0G/NP0 (1B) **X** = X7R (2R1) **Q** = High Q	**T** = 178mm (7") reel **R** = 330mm (13") reel **B** = Bulk pack - tubs	Used for specific customer requirements

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