Microwave SLCs

Maxi & Maxi+ Series:
Single Layer Ceramics With & Without Borders

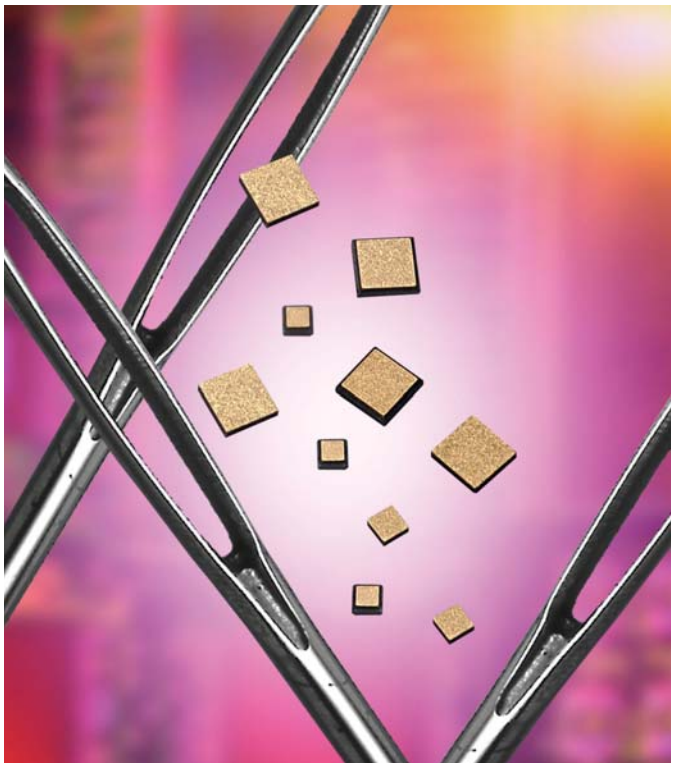
GENERAL INFORMATION

Maxi and Maxi+ are both AVX proprietary intergranular barrier layer dielectric formulations. Both use $SrTiO_3$ as their major constituent and have dielectric constants exceeding 20,000 and 30,000 respectively. Grain boundary barrier layer (GBBL) capacitors have been well discussed in various literature sources and, while simple in principle, their resulting electrical properties are dependent on a complex combination of materials and process technology.

AVX's Maxi & Maxi+ dielectrics have the distinctive properties that are ideal for extremely broadband by-pass capacitors. This built-in feature gives these products a unique disspersive effect that is illustrated in the accompanying curves. AVX's ability to control the prerequisite relationships between materials and process has resulted in dielectrics that make these Single Layer Ceramics especially well suited for applications requiring high frequency performance well into the millimeter band.

These GBBL dielectrics are also available in low loss versions that are comparable to conventional barium titanate based dielectrics. Performance is likewise similar in that these materials exhibit a very pronounced dip at their resonant frequency. These designs are excellent choices for applications requiring the combined attributes of very small size and precise cut-off frequencies. Additional information on these high Q products may be obtained by contacting the factory or your local AVX representative.

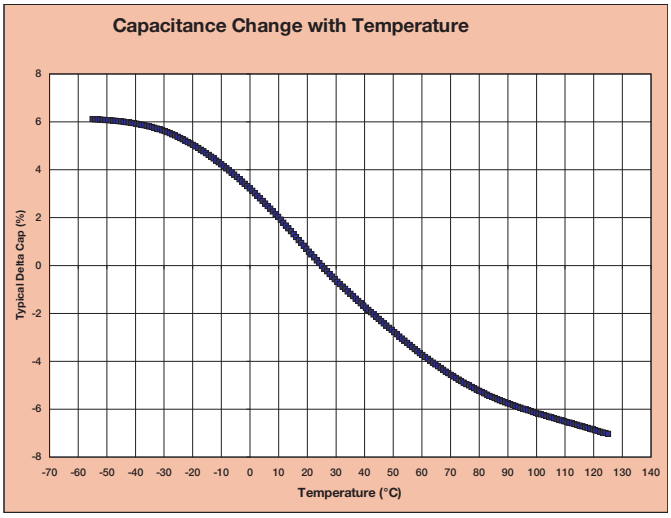
All Maxi & Maxi+ dielectrics exhibit X7R temperature performance of ±15% from –55°C to +125°C. Electrical characteristics, as outlined in MIL-C-49464, will meet those specified for Class II dielectrics, rather than the less stringent Class IV, which typically describes GBBL dielectrics.

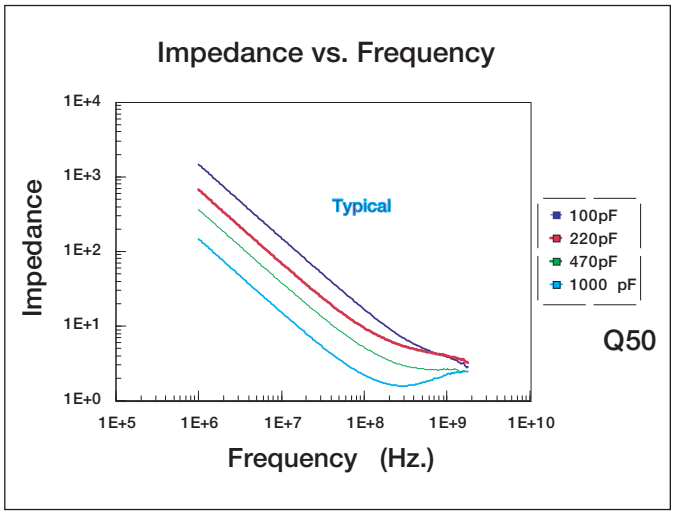


Sample kits are available

MAXI KIT Catalog # KITSLCK20KSAMPL includes 10 each: GH0158101MA6N, GH0258221MA6N, GH0258471MA6N, GH0358102MA6N, GH0458182MA6N

MAXI+ KIT Catalog # KITSLCK30KSAMPL includes 10 each: GH0159331MA6N, GH0259751MA6N, GH0359152MA6N, GH0459302MA6N, GH0559602MA6N





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DIMENSIONS: inches (millimeters)

	GH/GB01	GH/GB02	GH/GB03	GH/GB04	GH/GB05	GH/GB06
(L) Length	.015±.005 (.381±.127)	.025±.005 (.635±.127)	.035±.005 (.889±.127)	.050±.010 (1.27±.254)	.070±.010 (1.78±.254)	.090±.010 (2.29±.254)
(W) Width	.015±.005 (.381±.127)	.025±.005 (.635±.127)	.035±.005 (.889±.127)	.050±.010 (1.27±.254)	.070±.010 (1.78±.254)	.090±.010 (2.29±.254)
(T) Thickness	.007±.002 (.178±.051)					
(B) Border	.002±.001 (.051±.025)					

GH SERIES: MAXI SINGLE LAYER CAPACITORS WITHOUT BORDERS

Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)	
Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
68	330	330	750	750	1200	1200	2700	2700	4700	4700	8200

GH SERIES: MAXI+ SINGLE LAYER CAPACITORS WITHOUT BORDERS

Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)	
Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
330	390	390	1000	1000	1800	1800	3300	3300	6800	6800	10000

GB SERIES: MAXI SINGLE LAYER CAPACITORS WITH BORDERS

Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)	
Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
51	220	220	560	560	1000	1000	2200	2200	4700	4700	8200

GB SERIES: MAXI+ SINGLE LAYER CAPACITORS WITH BORDERS

Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)		Cap (pF)	
Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
220	330	330	820	820	1500	1500	2700	2700	6800	6800	10000

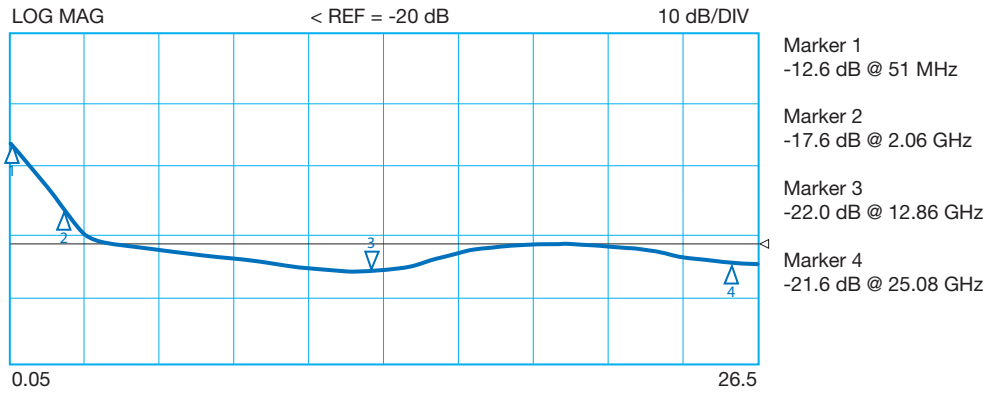
HOW TO ORDER

GH	02	5	8	102	M	A	6N
Type Code GH = w/o borders GB = w/ borders	**Case Size** 01 02 03 04 05 06	**Working Voltage Code** 5 = 50 VDC	**Dielectric Code** 8 = Maxi (k = 20,000) 9 = Maxi+ (k = 30,000)	**Capacitance Value** EIA Cap Code in pF	**Capacitance Tolerance** K = ±10% M = ±20% Z = +80% -20%	**Termination Code** A = Au (100 µ-in min) over Ti/W (1000 Å nom) also available N = Ti/W-Ni-Au	**Packaging Code** 6N = Antistatic Waffle Pack

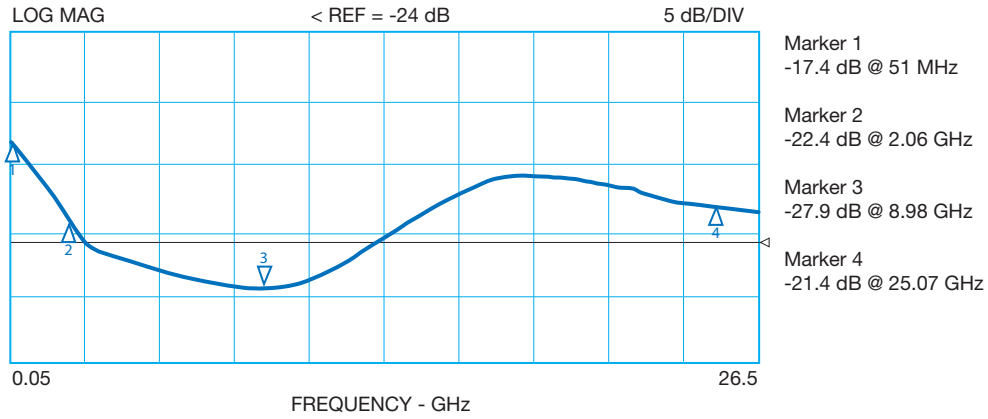
RoHS COMPLIANT

S21 FORWARD TRANSMISSION

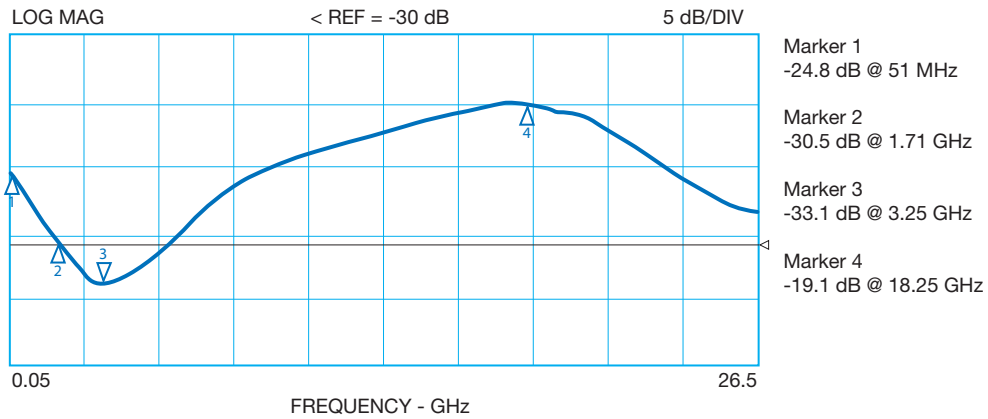
Capacitance = 220 pF Q = 50 @ 1 MHz
Size: L = .017" W = .017" T = .007"



Capacitance = 470 pF Q = 50 @ 1 MHz
Size: L = .024" W = .024" T = .007"

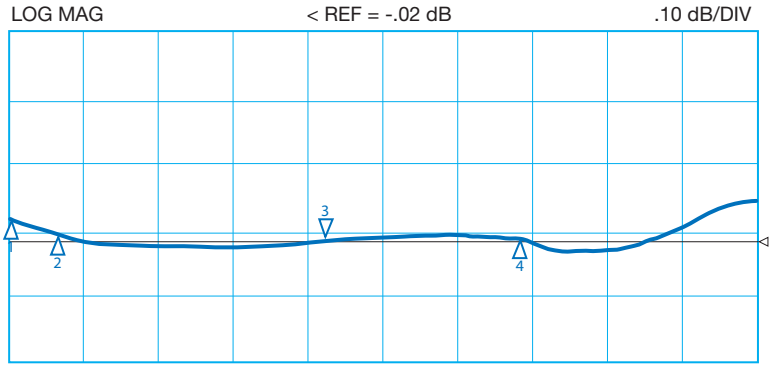


Capacitance = 1000 pF Q = 50 @ 1 MHz
Size: L = .035" W = .035" T = .007"



S21 INSERTION LOSS

Capacitance = 220 pF Q = 50 @ 1 MHz
Size: L = .017" W = .017" T = .007"



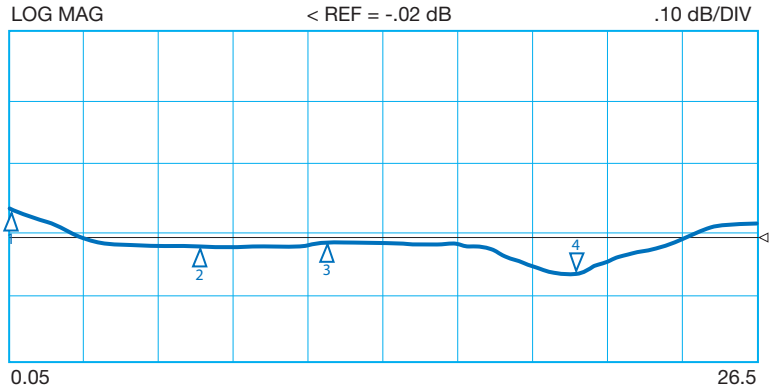
Marker 1
.00 dB @ 50 MHz

Marker 2
-.013 dB @ 1.71 GHz

Marker 3
-.022 dB @ 11.33 GHz

Marker 4
-.023 dB @ 18.25 GHz

Capacitance = 470 pF Q = 50 @ 1 MHz
Size: L = .024" W = .024" T = .007"



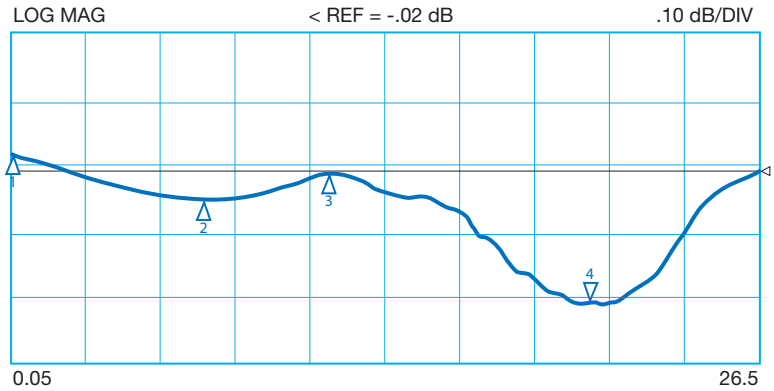
Marker 1
.018 dB @ 50 MHz

Marker 2
-.040 dB @ 6.75 GHz

Marker 3
-.035 dB @ 11.33 GHz

Marker 4
-.078 dB @ 20.36 GHz

Capacitance = 1000 pF Q = 50 @ 1 MHz
Size: L = .035" W = .035" T = .007"



Marker 1
.00 dB @ 50 MHz

Marker 2
-.059 dB @ 6.78 GHz

Marker 3
-.018 dB @ 11.33 GHz

Marker 4
-.213 dB @ 20.36 GHz

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