

Microwave SLCs

GH/GB Series – SLC's With & Without Borders Maxi & Maxi+ X7R Dielectrics

GENERAL INFORMATION

Maxi and Maxi+ are both AVX proprietary intergranular barrier layer dielectric formulations. Both use SrTiO₃ 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 dispersive 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.

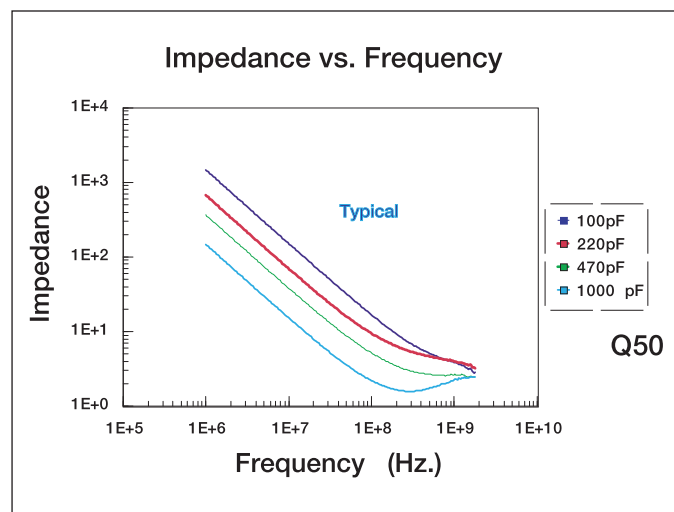
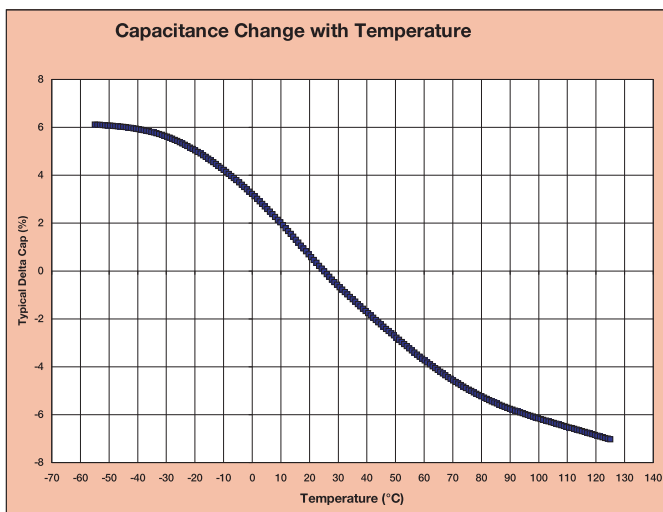
All Maxi & Maxi+ dielectrics exhibit X7R temperature performance of $\pm 15\%$ from -55°C to $+125^{\circ}\text{C}$. Electrical characteristics, as outlined in MIL-C-49464, will meet those specified for Class II dielectrics, rather than the less stringent Class IV, which typically describes GBBL dielectrics.



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



Microwave SLCs

GH/GB Series – SLC's With & Without Borders

Maxi & Maxi+ X7R Dielectrics



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



Microwave SLCs

GH/GB Series – SLC's With & Without Borders

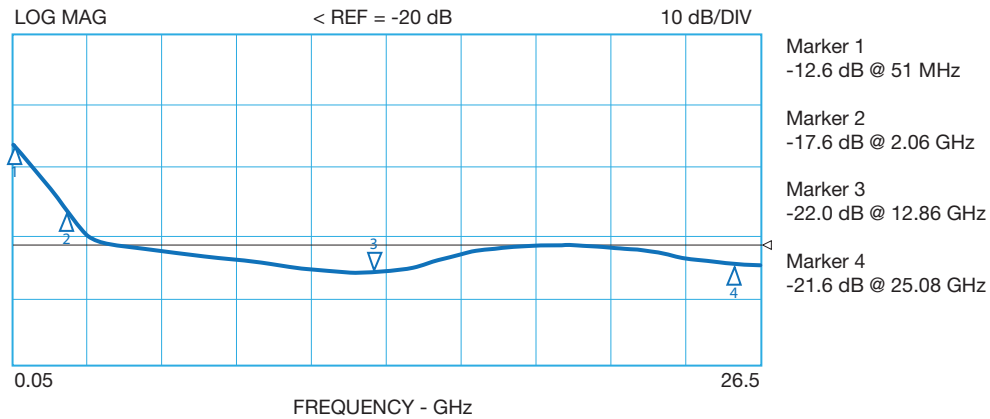
Maxi & Maxi+ X7R Dielectrics



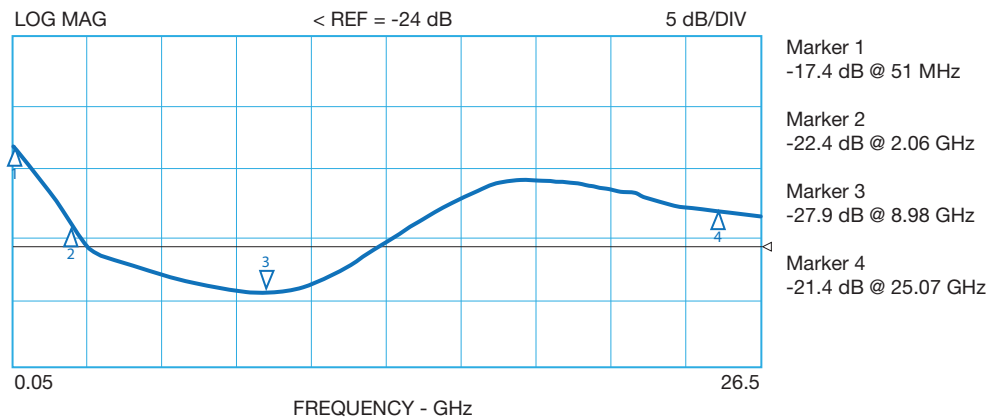
PERFORMANCE CURVES

S21 FORWARD TRANSMISSION

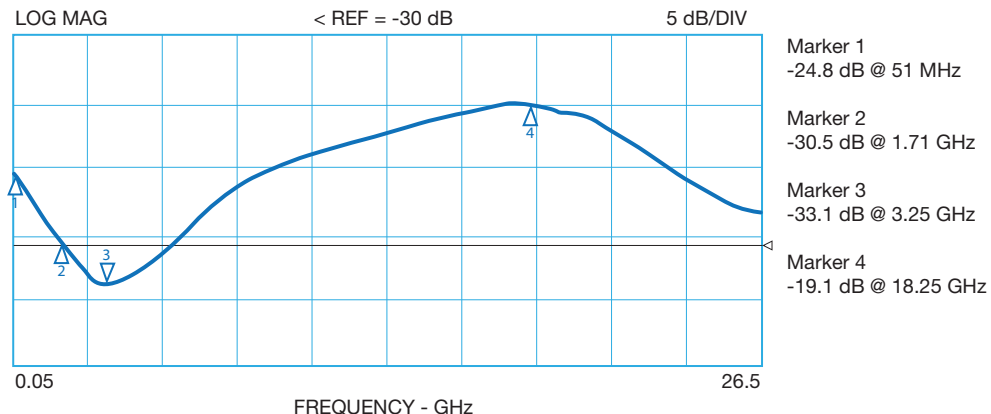
Capacitance = 220 pF Q = 50 @ 1 MHz
Size: L = .017" W = .017" T = .007"



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"

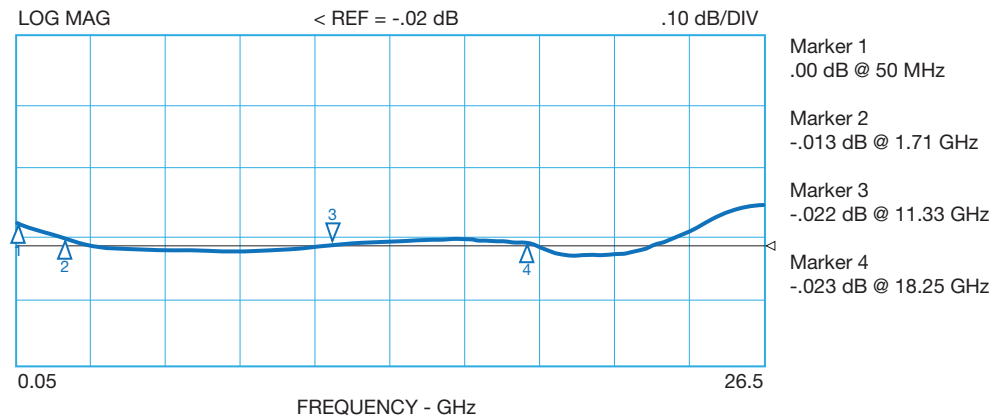


Microwave SLCs
GH/GB Series – SLC's With & Without Borders
Maxi & Maxi+ X7R Dielectrics

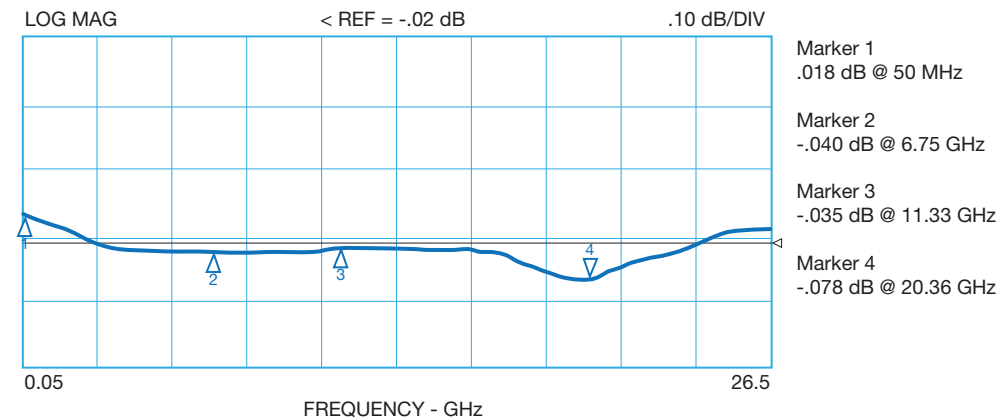


PERFORMANCE CURVES
S21 INSERTION LOSS

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"

