

Microwave SLCs



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

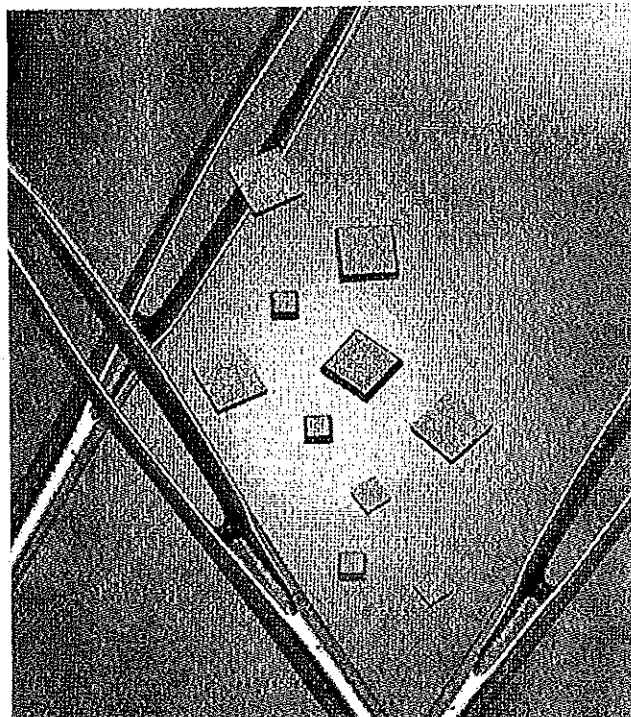
GENERAL INFORMATION

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 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.

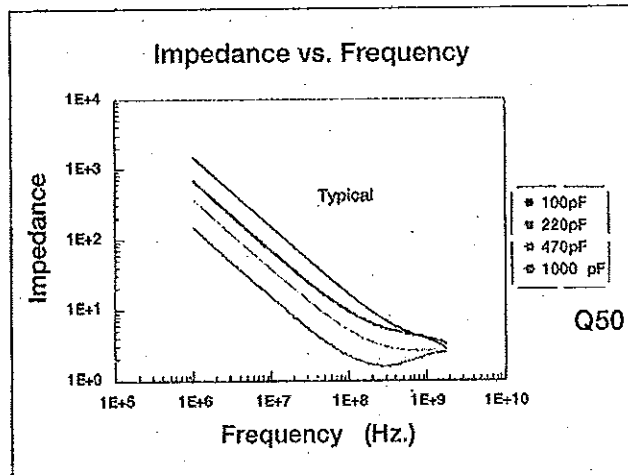
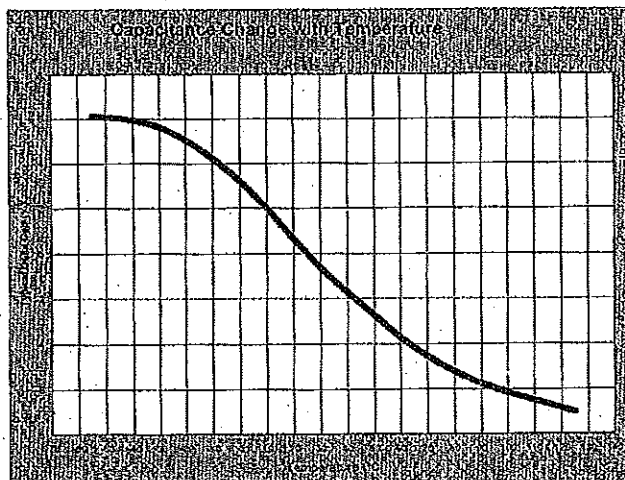
All Maxi & Maxi+ dielectrics exhibit X7R temperature performance of $\pm 15\%$ from -55°C to $+125^\circ\text{C}$. Electrical characteristics, as outlined in MIL-C-49464, will meet those specified for Class II dielectrics, rather than the less stringent Class IV, which typically describes GBBL dielectrics.



Sample kits are available

MAXI KIT Catalog # KITSLOCK20KSAMPL includes 10 each:
GH0158101MA6N, GH0258221MA6N, GH0358471MA6N,
GH0358102MA6N, GH0458182MA6N

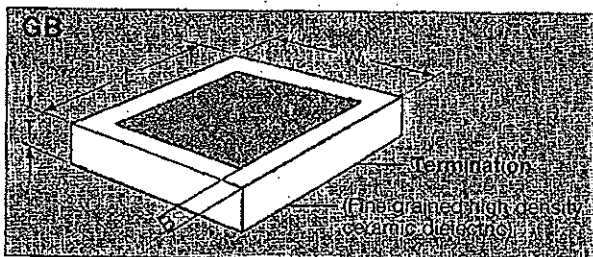
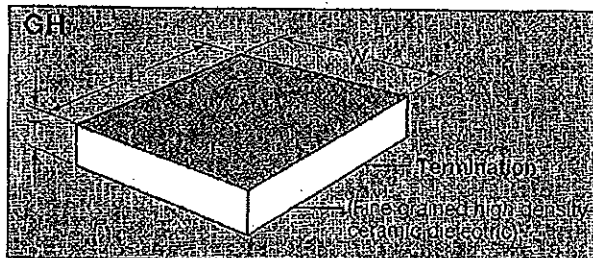
MAXI+ KIT Catalog # KITSLOCK30KSAMPL includes 10 each:
GH0159331MA6N, GH0259751MA6N, GH0359152MA6N,
GH0459302MA6N, GH0559602MA6N



Microwave Maxi Series

With and without Borders

AVX



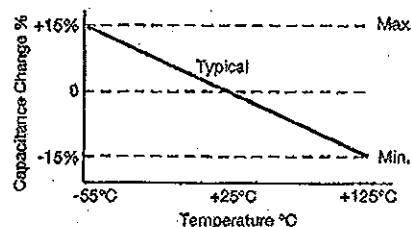
GENERAL INFORMATION

MAXI/SLC's are a thin film gold metallized (100 micro inches) ceramic capacitors uniquely suited for stripline width matching in microwave integrated circuitry offering the industry's highest capacitance per area SLC's. L&W sizes range from .010" to .100".

AVX MAXI/SLC'S FEATURES

- Capacitance change $\pm 15\%$ from -55°C to $+125^\circ\text{C}$ typical
- Gold terminations 100 μ inches over barrier layer
- Excellent bond strength (MIL-STD-883, method 2011.7)
- Available with and without borders

CAPACITANCE CHANGE WITH TEMPERATURE (X7R) $\pm 15\%$ FROM -55°C to $+125^\circ\text{C}$



HIGH CAPACITANCE SINGLE LAYER CAPACITORS

Rated Voltage = 50VDC IR (typical) = 10,000 M Ω
D.F. = 2.5% at 1VRMS and 1kHz

HOW TO ORDER

GH
Type Code
GH = No Border
GB = With Border

01
Case Size
01
02
03
04
05
06
OS = Special

5
Working Voltage Code
5 = 50WVDC

8
Dielectric Code
8 = Maxi/SLC
(K=20,000)
9 = Maxi-Plus
(K=30,000)

101
Capacitance
EIA Capacitance Code in pF.
First two digits = significant figures.
Third digit = number of zeros.

M
Capacitance Tolerance Code
K = $\pm 10\%$
M = $\pm 20\%$ STD
Z = $+60\%$ -20%
P = $+100\%$ -0%

A
Termination Code
A = 99.99% pure sputtered gold over Titanium Tungsten. (~1000 Å thickness).
Other terminations available upon request.

6N
Packaging Code
6N = Antistatic Wafer Pack

Maxi Evaluation Kit available.
Contact your AVX representative.

Microwave Maxi SLC's

Capacitance Ratings



MAXI SINGLE LAYER CAPACITORS TYPE GH WITHOUT BORDERS

Nominal Size/Capacitance (pF)/Tolerance Specifications DIMENSIONS: inches (millimeters)

AVX Style	GH01	GH02	GH03	GH04	GH05	GH06
(L) Length	0.157 (4.00)	0.228 (5.80)	0.315 (8.00)	0.433 (11.00)	0.610 (15.50)	0.866 (22.00)
(W) Width	0.157 (4.00)	0.228 (5.80)	0.315 (8.00)	0.433 (11.00)	0.610 (15.50)	0.866 (22.00)
(T) Thickness	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)

Cap. pF	Cap. Code	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+
68	680												
75	750												
82	820												
100	101												
120	121												
150	151												
220	221												
270	271												
330	331												
390	391												
470	471												
560	561												
680	681												
750	751												
820	821												
1000	102												
1200	122												
1500	152												
1800	182												
2200	222												
2700	272												
3300	332												
3900	392												
4700	472												
5600	562												
6200	622												
6900	682												
7500	752												
8200	822												
10,000	103												

MAXI SINGLE LAYER CAPACITORS TYPE GB WITH BORDERS

Nominal Size/Capacitance (pF)/Tolerance Specifications DIMENSIONS: inches (millimeters)

AVX Style		GB01	GB02	GB03	GB04	GB05	GB06
(b) Length	0.157 (4.00)	0.228 (5.80)	0.315 (8.00)	0.433 (11.00)	0.610 (15.50)	0.866 (22.00)	
(w) Width	0.157 (4.00)	0.228 (5.80)	0.315 (8.00)	0.433 (11.00)	0.610 (15.50)	0.866 (22.00)	
(t) Thickness	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	
(B) Borders	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	0.0075 (0.19)	

Cap. pF	Cap. Code	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+	Maxi	Maxi+
51	510												
56	560												
68	680												
75	750												
82	820												
100	101												
220	221												
270	271												
330	331												
390	391												
470	471												
560	561												
680	681												
750	751												
820	821												
1000	102												
1200	122												
1500	152												
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2700	272												
3300	332												
3900	392												
4700	472												
5600	562												
6200	622												
6800	682												
7500	752												
8200	822												
9100	912												



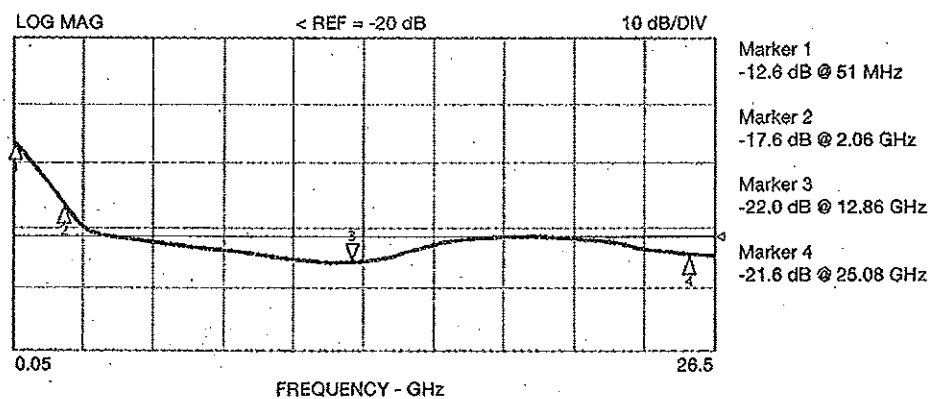
Microwave SLCs

Performance Curves

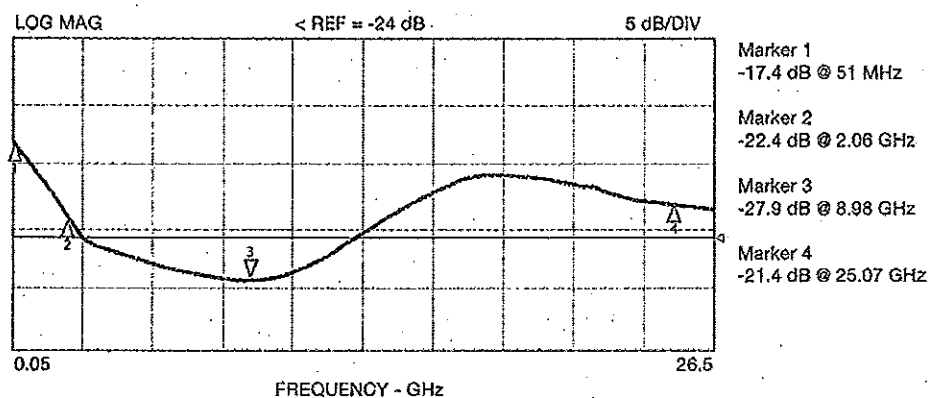


S21 FORWARD TRANSMISSION

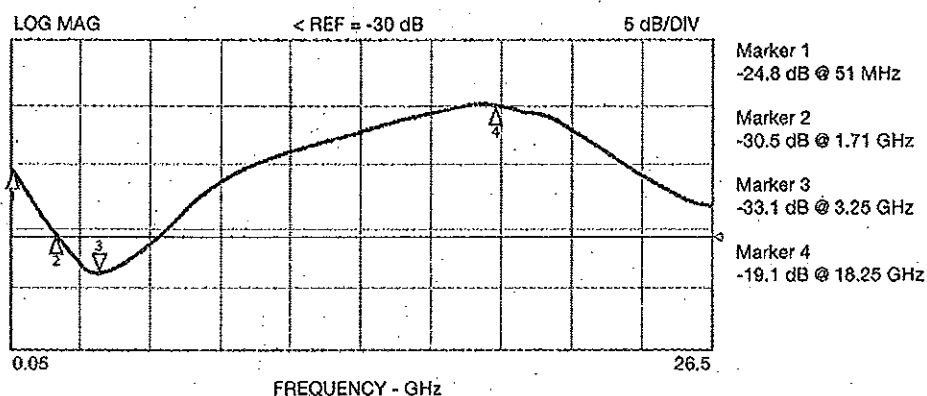
Capacitance = 220 pF Q = 50 @ 1 MHz
Size: L = .017" W = .017" T = .007"



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"



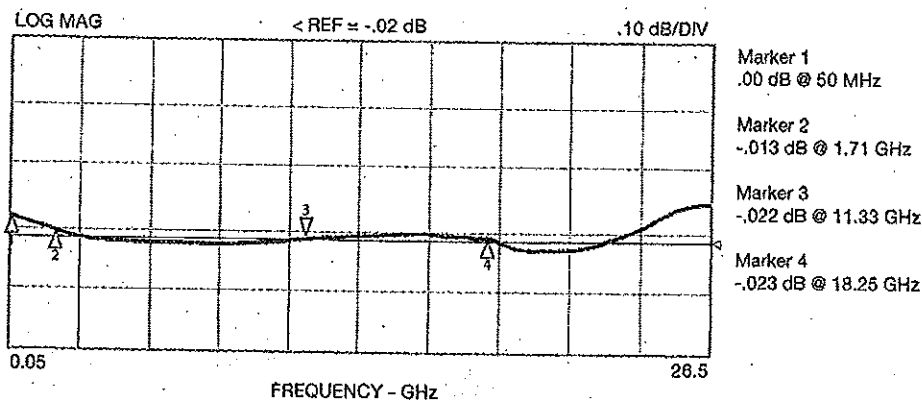
Microwave SLCs

Performance Curves

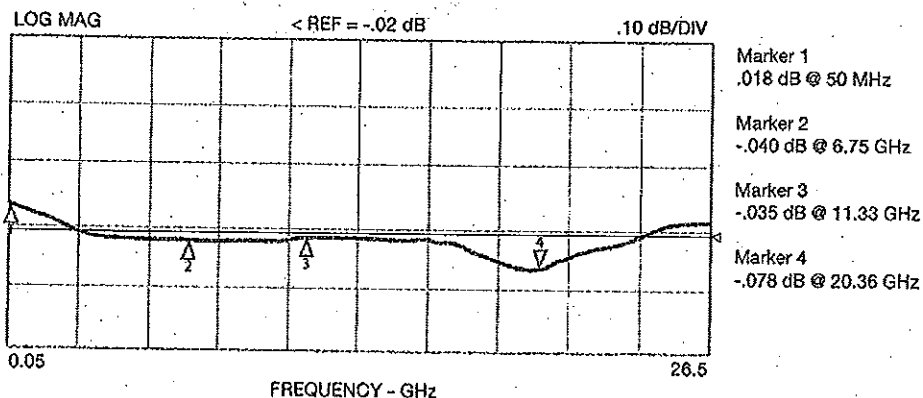


S21 INSERTION LOSS

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"

