### 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 ±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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**Impedance vs. Frequency**

![Impedance vs. Frequency Graph](image)

**Capacitance Change with Temperature**

![Capacitance Change with Temperature](image)
Microwave SLCs

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

<table>
<thead>
<tr>
<th>GH/GB01</th>
<th>GH/GB02</th>
<th>GH/GB03</th>
<th>GH/GB04</th>
<th>GH/GB05</th>
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<tbody>
<tr>
<td>(L) Length</td>
<td>.015±.005</td>
<td>.025±.005</td>
<td>.035±.005</td>
<td>.050±.010</td>
<td>.070±.010</td>
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<tr>
<td></td>
<td>(.381±.127)</td>
<td>(.635±.127)</td>
<td>(.889±.127)</td>
<td>(1.27±.254)</td>
<td>(1.78±.254)</td>
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<tr>
<td>(W) Width</td>
<td>.015±.005</td>
<td>.025±.005</td>
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<tr>
<td></td>
<td>(.381±.127)</td>
<td>(.635±.127)</td>
<td>(.889±.127)</td>
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<td>(1.78±.254)</td>
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<tr>
<td>(T) Thickness</td>
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<tr>
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GH SERIES: MAXI SINGLE LAYER CAPACITORS WITHOUT BORDERS

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<tr>
<th>Cap (pF)</th>
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<td>Max</td>
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GH SERIES: MAXI+ SINGLE LAYER CAPACITORS WITHOUT BORDERS

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GB SERIES: MAXI SINGLE LAYER CAPACITORS WITH BORDERS

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GB SERIES: MAXI+ SINGLE LAYER CAPACITORS WITH BORDERS

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<td>Min</td>
<td>Max</td>
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<td>Max</td>
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<td>330</td>
<td>820</td>
<td>820</td>
<td>1500</td>
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</tbody>
</table>

HOW TO ORDER

GH 02

Type Code
GH = w/o borders
GB = w/ borders

Case Size
01
02
03
04
05
06

Working Voltage Code
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 TiW (1000 Å nom)
also available
N = TiW-Ni-Au

Packaging Code
6N = Antistatic Waffle Pack

RoHS Compliant
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"

LOG MAG  < REF = -.02 dB  .10 dB/DIV

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

0.05  FREQUENCY - GHz  26.5

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

LOG MAG  < REF = -.02 dB  .10 dB/DIV

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

0.05  FREQUENCY - GHz  26.5

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

LOG MAG  < REF = -.02 dB  .10 dB/DIV

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

0.05  FREQUENCY - GHz  26.5