

GML 1000 High Frequency Laminate

(Typical Properties of 0.030 ±0.002 inch Thickness)



Electrical Properties

	Frequency	-55°C	25°C	80°C
Dielectric Constant per IPC-TM-650 2.5.5.5	2.5 GHz	3.20±0.05	3.20±0.05	3.20±0.05
	10.0 GHz	3.20±0.05	3.20±0.05	3.20±0.05
Dissipation Factor per IPC-TM-650 2.5.5.5	2.5 GHz	0.002	0.003	0.004
	10.0 GHz	0.004	0.004	0.005
dB/inch Loss (S ₂₁ parameter from a 50 ohm 10 inch long transmission line)	1.0 GHz		0.029	
	5.0 GHz		0.125	
	10.0 GHz		0.277	
Surface Resistivity	C-96/35/90		Megohm	5X10 ⁷
Volume Resistivity	C-96/35/90		Megohm-cm	8X10 ⁹
Moisture Insulation Resistance	20 cycles -2°C/90% RH to 65°C/95% RH		Megohm	1X10 ⁷
Solvent Extract Conductivity	--		µg/cm ²	0.53

Physical Properties

Copper peel strength (1 oz copper)		Condition A	Lb /inch width	5.0
		After 20 sec @550°F	Lb /inch width	5.0
Flexural Strength	Length	Condition A	PSI	43,500
	Cross	Condition A	PSI	38,000
Flexural Modulus	Length	Condition A	MPSI	2.3
	Cross	Condition A	MPSI	2.1
Moisture Absorption		D-24/23	%	0.06

Thermal Properties

Glass Transition Temperature (DMA)		Condition A	°C	135
Thermal Stress		@550°F	seconds	20+
Z-Axis Expansion RT→T _g		Condition A	ppm/°C	70
Z-Axis Expansion T _g →260°C		Condition A	ppm/°C	400
X/Y Axis Expansion		Condition A	ppm/°C	32 / 32
Thermal Conductivity		@120°C	W/m/K	0.228
Dimensional Stability	Length	E-4/105 + E-2/150	inch/inch	-0.00066
	Cross	E-4/105 + E-2/150	inch/inch	-0.00075

Description

GIL Technologies new GML 1000 copper clad laminate has been specifically designed for the High Frequency Microstrip Antenna and Wireless Communications Market. GML 1000's dielectric constant (Dk) is low and stable when used over broad temperature and humidity operating ranges. The low insertion loss makes GML 1000 the most cost effective option when compared to PTFE and other recognized microwave laminates.

Features and Benefits

- Dk stable -55°C to 125°C
- Dk stable in humid and dry environments
- UL 94 V-0 Approved. File #E87492 (Oxygen Index >40%)
- No special through-hole treatments
- Fabrication and assembly in standard PWB operations
- Standard FR4 feeds & speeds for drilling & routing
- Excellent mechanical and electrical properties
- **Absolutely the BEST cost performance available**

- Typical properties of 030" laminate clad with 1 ounce copper.
Properties of other thicknesses and copper weights may vary.

Rev E

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