

TacLam TLG

Bromine Free
Dielectric Constant Tolerance of +/- 0.05
Excellent Performance at a Low Cost
High Volume Applications
Dimensionally Stable

TACONIC

An ISO 9001:2000 Registered Company

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APPLICATIONS

RFID
WiFi
Antennas
Military
Automotive
LNA and LNB
Multi-Layer Microwave
Power Amplifiers

TacLam TLG

TLG, Taconic's bromine free high performance product line, is the result of Taconic's expertise and extensive experience in providing the circuit board market with state-of-the-art high performance laminate materials.

Our unique combination of materials and processes allows us to lower our manufacturing cost and give our customers a high performance laminate material at a very competitive price.

TLG is offered with DKs of 3.0, 3.2, 3.38 and 3.5 with a tolerance of +/- 0.05. Using PTFE building blocks gives TLG a low dissipation factor of 0.0026 - 0.0030 when measured at 10 GHz.

TLG exhibits a linear z axis CTE up to the material's melt point of over 315°C. Using TMA testing, TLG has no discernible Tg point on the TMA curve until its melt point. Because of its woven glass reinforcement, TLG has excellent x-y dimensional stability.

Due to TLG's composition, it can be manufactured with copper that has a much lower tooth profile than competitive microwave materials, while still attaining good peel strength.

TLG materials can be sheared, drilled and milled using the accepted methods for PTFE/woven glass laminates. Plating of through holes requires treatment of the hole walls using a plasma epoxy desmear or permanganate cycle and either a plasma fluoropolymer treatment or sodium treatment. TLG has low moisture absorption and is very resistant to solvents and reagents used during manufacturing.

For multilayer applications, TacLam TLG is also available as a prepreg - designated as TacPreg TPG.

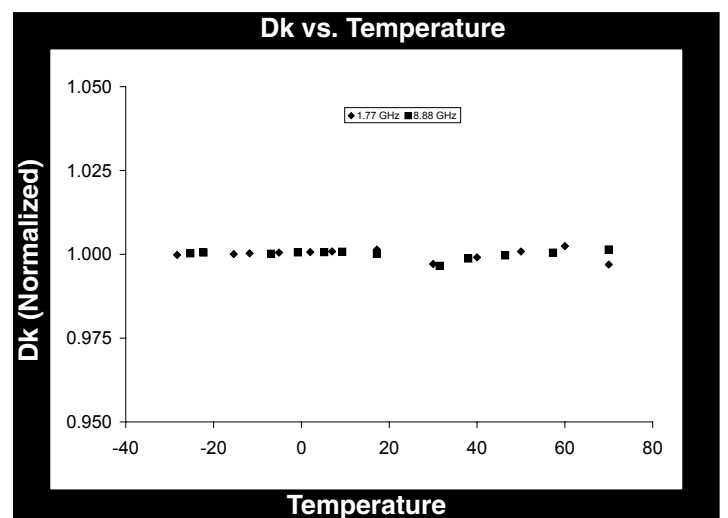
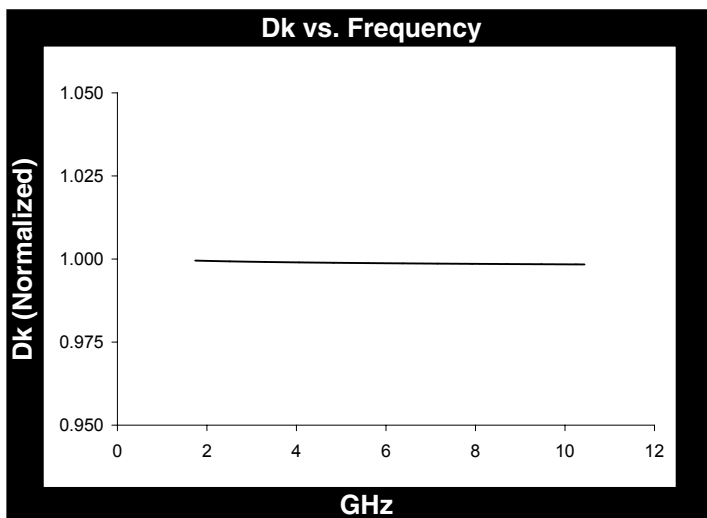
TLG laminates are generally ordered clad on both sides with 1/2, 1 or 2 oz. electrodeposited copper.

TLG laminates are tested in accordance with IPC-TM 650. A certificate of compliance containing lot-specific data accompanies each shipment.

See "How to Order" on back page for a complete product listing.

TLG Typical Values

Property	Test Method	Unit	Value				Unit	Value			
			TLG-30	TLG-32	TLG-34	TLG-35		TLG-30	TLG-32	TLG-34	TLG-35
Material			TLG-30	TLG-32	TLG-34	TLG-35		TLG-30	TLG-32	TLG-34	TLG-35
Dielectric Constant (1.9 GHz)	IPC-TM-650 2.5.5.5.1		3.00	3.20	3.38	3.50		3.00	3.20	3.38	3.50
Dissipation Factor (1.9 GHz)	IPC-TM-650 2.5.5.5.1		0.0024	0.0028	0.0029	0.0028		0.0024	0.0028	0.0029	0.0028
Dielectric Constant (10 GHz)	IPC-TM-650 2.5.5.5.1		3.00	3.20	3.38	3.50		3.00	3.20	3.38	3.50
Dissipation Factor (10 GHz)	IPC-TM-650 2.5.5.5.1		0.0026	0.0030	0.0031	0.0030		0.0026	0.0030	0.0031	0.0030
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.16				%	0.16			
Dielectric Breakdown	ASTM D 149	kV	42				kV	42			
Volume Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm/cm	8.23 x 10 ⁷				Mohm/cm	8.23 x 10 ⁷			
Surface Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm	1.52 x 10 ⁶				Mohm	1.52 x 10 ⁶			
Arc Resistance	IPC-TM-650 2.5.1	seconds	144				seconds	144			
Flexural Strength (MD)	ASTM D 790	psi	20,000				N/mm ²	138			
Flexural Strength (CD)	ASTM D 790	psi	22,100				N/mm ²	152			
Tensile Strength (MD)	ASTM D 3039	psi	10,200				N/mm ²	70			
Tensile Strength (CD)	ASTM D 3039	psi	6,000				N/mm ²	41			
Young's Modulus	ASTM D 3039	psi	1.28 x 10 ⁶				N/mm ²	8,825			
Poisson's Ratio	ASTM D 3039		0.20					0.20			
Peel Strength - 1 oz ED	IPC-TM-650 2.4.8 (Thermal Stress)	lbs/linear inch	13				N/mm	2.3			
Peel Strength - 1 oz ED RTF (CL1)	IPC-TM-650 2.4.8 (Thermal Stress)	lbs/linear inch	5.5				N/mm	1			
Thermal Conductivity	ASTM F 433	W/m/K	0.27				W/m/K	0.27			
CTE (x)	ASTM D 3386 (>RT - 125°C)	ppm/°C	8				ppm/°C	8			
CTE (y)	ASTM D 3386 (>RT - 125°C)	ppm/°C	12				ppm/°C	12			
CTE (z)	ASTM D 3386 (>RT - 125°C)	ppm/°C	61				ppm/°C	61			
Flammability Rating	UL 94		V-0					V-0			



All reported values are typical and should not be used for specification purposes. In all instances, the user shall determine suitability in any given application.

How To Order

Designation	Dielectric Constant
TLG-30	3.00
TLG-32	3.20
TLG-34	3.38
TLG-35	3.50

Typical Thicknesses ¹	
0.0100"	0.25 mm
0.0200"	0.50 mm
0.0300"	0.76 mm
0.0600"	1.52 mm

Available Panel Sizes ²	
12" x 18"	304 mm x 457 mm
16" x 18"	406 mm x 457 mm
18" x 24"	457 mm x 610 mm
16" x 36"	406 mm x 914 mm
24" x 36"	610 mm x 914 mm

¹TLG can be manufactured in increments of 0.0100". Please call for availability of additional thicknesses.

²Our standard sheet size is 36" x 48" (914 mm x 1220 mm). Please contact our customer service department for availability of other sizes.

Available Copper Cladding						
Designation	Weight	Copper Thickness		R _{MS} Treated Side		Description
CLH (SH)	1/2 oz / ft ²	~0.0007"	~18 μm	13 μin	0.3 μm	Reverse treated / Electrodeposited
CL1 (S1)	1 oz / ft ²	~0.0014"	~35 μm	13 μin	0.3 μm	Reverse treated / Electrodeposited
CH (HH)	1/2 oz / ft ²	~0.0007"	~18 μm	27 μin	0.7 μm	Electrodeposited
C1 (H1)	1 oz / ft ²	~0.0014"	~35 μm	64 μin	1.6 μm	Electrodeposited

An example of our part number is: **TLG-32-0600-S1/S1 - 18" x 24" (457 mm x 610 mm)**

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