

## TLA-6 Low Cost Antenna Dielectric Substrates

TLA - 6 laminates are engineered to provide a cost effective substrate for microwave applications. TLA-6 offer superior electrical performance compared to thermoset laminates (FR-4, PPO, BT, Polyimide, and Cyanate ester) as well as exceptional mechanical stability in antenna designs.

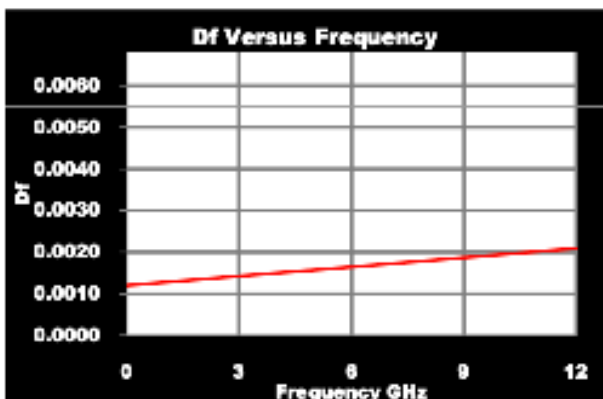
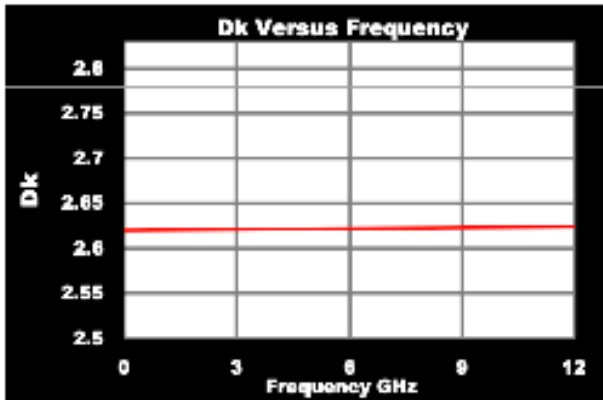
TLA-6 laminates can be sheared, drilled, milled and plated using standard methods for PTFE/woven fiberglass materials. The laminates are dimensionally stable and exhibit virtually no moisture absorption during fabrication.

TLA-6 laminates are generally ordered clad on one or both sides with 1/2, 1 and 2 oz electrodeposited copper.

### Benefits & Applications:

- Excellent Peel Strength
- Exceptionally Low Loss
- Low & Stable Dielectric Constant
- Excellent Mechanical and Thermal Properties

- Antennas



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TLA-6 Typical Values					
Property	Test Method	Unit	Value	Unit	Value
Dk @ 1.9 GHz	IPC-650 2.5.5.5.1 Mod.		2.62		2.62
Df @ 1.9 GHz	IPC-650 2.5.5.5.1 Mod.		0.0012		0.0012
Dk @10 GHz	IPC-650 2.5.5.5.1 Mod.		2.60		2.60
Df @ 10 GHz	IPC-650 2.5.5.5.1 Mod.		0.0017		0.0017
Moisture Absorption	IPC-650 2.6.2.1	%	0.02	%	0.02
Dielectric Breakdown	IPC-650 2.5.6	Kv	>60	Kv	>60
Volume Resistivity	IPC-650 2.5.17.1	Mohms/cm	10 <sup>7</sup>	Mohms/cm	10 <sup>7</sup>
Surface Resistivity	IPC-650 2.5.17.1	Mohms	10 <sup>7</sup>	Mohms	10 <sup>7</sup>
Flex Strength (MD)	IPC-650 2.4.4	psi	13,000	N/mm <sup>2</sup>	90
Flex Strength (CD)	IPC-650 2.4.4	psi	12,000	N/mm <sup>2</sup>	83
Peel Strength (1 oz RTF copper)	IPC-650 2.4.8	lbs/in	10	N/mm	1.8
Thermal Conductivity	ASTM F 433	W/M*K	0.22	W/M*K	0.22
CTE (X-Y axis) 50 - 150°	ASTM D 3386 (TMA)	ppm/°C	9-12	ppm/°C	9-12
CTE (Z axis) 50 - 150°	ASTM D 3386 (TMA)	ppm/°C	130-145	ppm/°C	130-145
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.

Designation	Dk	Typical Thicknesses <sup>1</sup>		Available Sheet Sizes <sup>2</sup>	
		Inches	mm	Inches	mm
TLA-6	2.62 ± 0.05	0.0300	0.76	12 x 18	305 x 457
		0.0370	0.94	16 x 18	406 x 457
		0.0400	1.02	18 x 24	457 x 610
		0.0570	1.45	16 x 36	406 x 914
		0.0600	1.52	24 x 36	610 x 914
		0.0770	1.96	18 x 48	457 x 1220

<sup>1</sup> Please call for availability of additional thicknesses.

<sup>2</sup> Standard sheet size is 36" x 48" (457 mm x 610 mm). Please call for availability of other sizes.

Please see our Product Selector Guide for Information on available copper cladding.

An example of our part number is: **TLA-6-0300-CV1/CV1 - 18" x 24" (457 mm x 610 mm)**