

TLC-32

Low Cost RF Substrate



Your Dreams, Our Challenge

Benefits

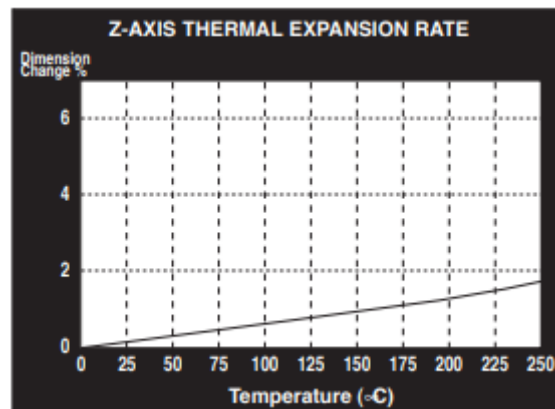
- Excellent PIM Values in PCBs (measured at lower than -160 dBc*)
- Low Cost
- Tightly Controlled Dk
- Low Df
- Excellent Dimensional Stability
- High Flexural Strength
- UL 94 V-0 Rating

Applications

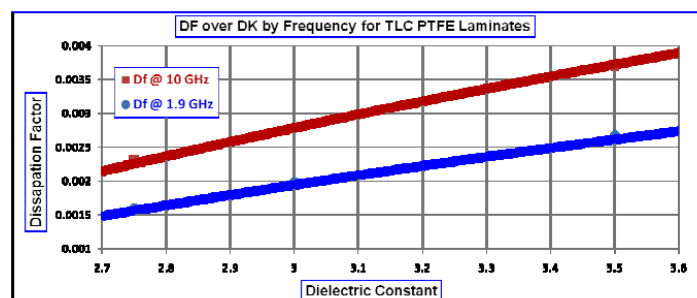
- LNBS
- Power Amplifiers
- PCS/PCN Large Format Antennas
- Passive Components



TLC-32 laminates are engineered to provide a cost effective substrate suitable for a wide range of microwave applications. TLC-32 laminates offer superior electrical performance compared to thermoset laminates (e.g. FR-4, PPO, BT, polyimide and cyanate ester). TLC-32's construction also provides exceptional mechanical stability. TLC-32 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.



*Measurement using manufactured PCB coupon with 20 watts per channel @ 800 and 1800 MHz.



Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 10 GHz	3.02 ± 0.05		IPC-650 2.5.5.5
Dissipation Factor	@ 10 GHz	0.0030		IPC-650 2.5.5.5
Volume Resistivity		10 ⁷	Mohms/cm	IPC-650 2.5.17.1
Surface Resistivity		10 ⁷	Mohms	IPC-650 2.5.17.1
Thermal Properties				
Thermal Conductivity		0.24	W/M*K	ASTM F 433
CTE (50-150°C)	X	9	ppm/°C	ASTM D 3386/TMA
	Y	12		
	Z	70		
Mechanical Properties				
Peel Strength	1 oz. copper	>2.1 (12)	N/mm (lbs/in)	IPC-650 2.4.8
Flexural Strength	MD	>276 (40,000)	N/mm ² (lbs/in)	IPC-650 2.4.4
	CD	>241 (35,000)	N/mm ² (lbs/in)	
Chemical / Physical Properties				
Arc Resistance		>180	Seconds	IPC-650 2.5.1
UL-94 Flammability Rating			V-0	UL-94

Typical Thicknesses¹

Inches	mm
≥ 0.0145	≥ 0.37
≥ 0.0085	≥ 0.22
≥ 0.0100	≥ 0.25

Available Sheet Sizes²

Inches	mm	Inches	mm
12 x 18	305 x 457	16 x 36	406 x 914
16 x 18	406 x 457	24 x 36	610 x 914
18 x 24	457 x 610	18 x 48	457 x 1,220

* All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a company representative directly.

* TLC-32 can be manufactured in increments of 0.0085" (0.213mm).

* Standard panel size is 18" x 24" (457 mm x 610 mm).

* Please contact AGC for availability of additional thicknesses, other sizes & any other type of cladding.

