

# TLC-32

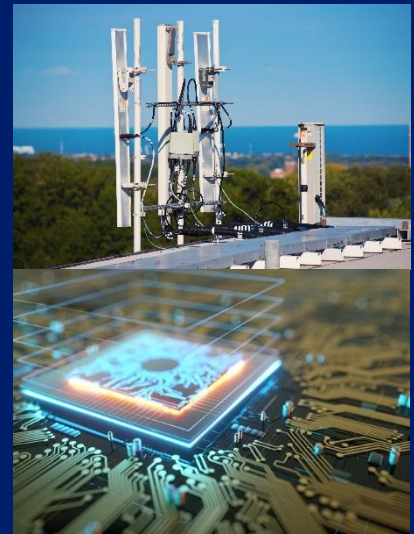
## Low-Cost RF Substrate

### Benefits

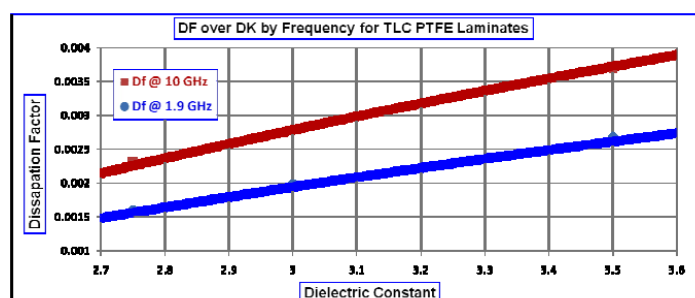
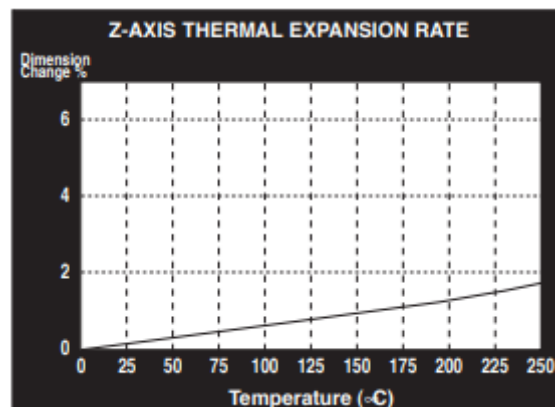
- Low Cost
- Tightly Controlled Dk
- Low Df
- Excellent Dimensional Stability
- High Flexural Strength
- UL 94 V-0 Rating

### 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.



Properties	Conditions	Typical Value	Unit	Test Method
<b>Electrical Properties</b>				
Dielectric Constant	@ 1MHz	3.20 ± 0.05		IPC-650 2.5.5.3
Dissipation Factor	@ 10 GHz	0.0030		IPC-650 2.5.5.5.1(Modified)
Volume Resistivity		10 <sup>8</sup>	Mohm-cm	IPC-650 2.5.17.1
Surface Resistivity		10 <sup>8</sup>	Mohm	IPC-650 2.5.17.1
<b>Thermal Properties</b>				
Thermal Conductivity	unclad	0.24	W/M*K	ASTM F 433
CTE (50-150°C)	X	9	ppm/°C	ASTM D 3386/TMA
	Y	12		
	Z	70		
<b>Mechanical Properties</b>				
Peel Strength	1 oz. copper	2.1 (12)	N/mm (lb/in)	IPC-650 2.4.8
Flexural Strength	MD	165 (24,000)	N/mm <sup>2</sup> (lb/in)	IPC-650 2.4.4
	CD	131 (19,000)	N/mm <sup>2</sup> (lb/in)	
<b>Chemical / Physical Properties</b>				
Arc Resistance		180	Seconds	IPC-650 2.5.1
UL-94 Flammability Rating		V-0		UL-94

#### Typical Thicknesses

Inches	mm
0.0100	0.25
0.0200	0.51
0.0300	0.76
0.0600	1.52
0.1200	3.04

#### Available Sheet Sizes

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.

\* 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.

