TLE-95

Thin dielectric base material for couplers

Your Dreams, Our Challenge

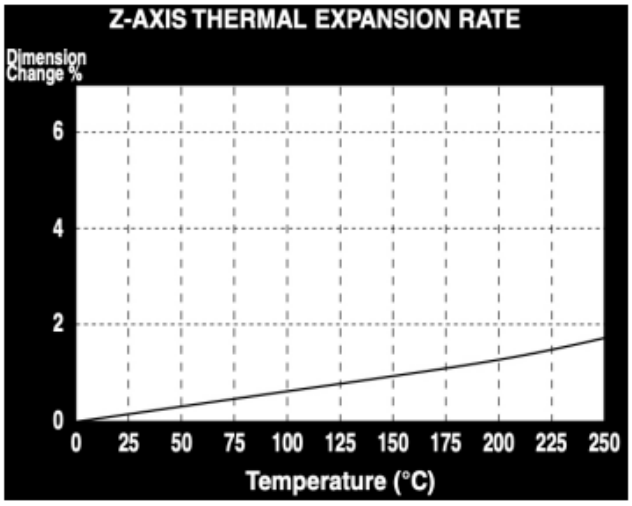
Benefits

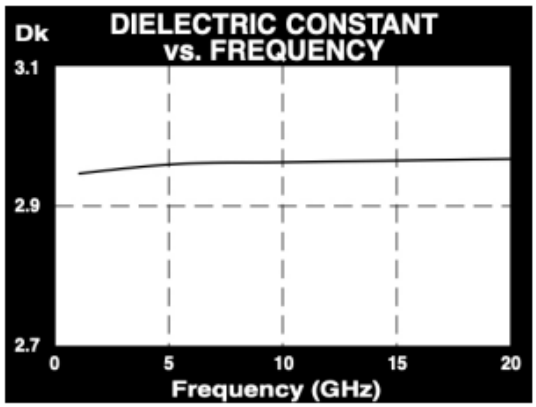
- Low CTE Value
- Controlled Dimensional Stability
- Low Dissipation Factor
- Low and Stable Dielectric Constant
- High Flexural Strength
- UL 94 V-0 Rating

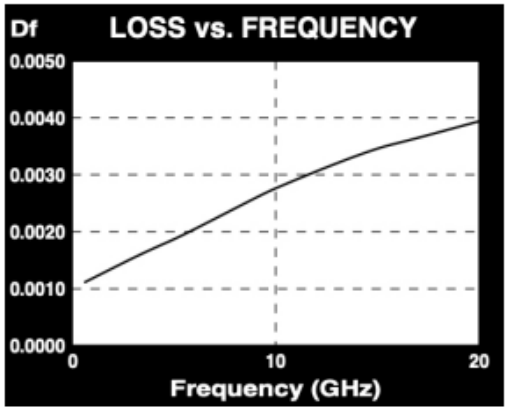
Applications

- Microwave Radios
- Satellite Antenna Systems
- Passive Components

TLE-95 laminates are engineered to provide electrical and mechanical properties to meet the requirements of complex microwave and high-speed digital applications. The low Z-axis CTE provides excellent plated through hole reliability while the low thermal expansion properties in the X and Y plane ensure high reliability in surface mount applications. The Dk exhibits minimal change over temperature. TLE-95 is typically offered with a 2.95 DK ± 0.05.
TLE-95 laminates are dimensionally stable, exhibit virtually no moisture absorption during processing and are generally ordered clad on one or both sides with .5, 1 and 2 oz. electrodeposited copper.
TLE-95 laminates exhibit flammability of V-0 and are tested in accordance with IPC-TM 650. A certificate of compliance containing test data accompanies each shipment.







Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 1MHz	2.95 ± 0.05		IPC-650 2.5.5.3
Dissipation Factor	@ 10 GHz	0.0026		IPC-650 2.5.5.5.1(Modified)
Volume Resistivity		10^7	Mohm-cm	IPC-650 2.5.17.1
Surface Resistivity		10^7	Mohm	IPC-650 2.5.17.1
Thermal Properties				
Thermal Conductivity	unclad	0.20	W/M*K	ASTM F 433
CTE (50-150°C)	X	9	ppm/°C	ASTM D 3386 (TMA)
	Y	12		ASTM D 3386 (TMA)
	Z	70		IPC-650 2.4.41 / ASTM D 3386
Mechanical Properties				
Dielectric Strength		16,800 (427)	V/mm (V/mil)	ASTM D 149
Peel Strength	1 oz. copper	2.1 (12)	N/mm (lb/in)	IPC-650 2.4.8
Flexural Strength	MD	241 (35,000)	N/mm^2 (lb/in)	IPC-650 2.4.4
	CD	207 (30,000)	N/mm^2 (lb/in)	
Chemical / Physical Properties				
Moisture Absorption		0.02	%	IPC-650 2.6.2.1
Dielectric Breakdown		60	kV	IPC-650 2.5.6
Arc Resistance		180	Seconds	IPC-650 2.5.1
Flammability		V-0		UL-94

Typical Thicknesses	
Inches	**mm**
0.0052	0.13
0.0200	0.51
0.0300	0.76
0.0620	1.57

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).
* Minimum available thickness is from 0.001” (0.025 mm).
* Please contact AGC for availability of additional thicknesses, other sizes & any other type of cladding.

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