

# RF-35TC-A

## Thermally Conductive Low Loss Laminate



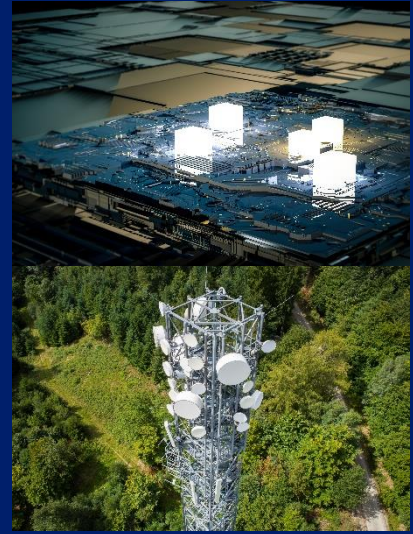
Your Dreams, Our Challenge

### Benefits

- "Best in Class" Loss Tangent
- Exceptional Thermal Management
- Dk Stability Across a Broad Temperature Range
- Enhanced Antenna Gains/Efficiencies
- Excellent Adhesion to Very Low Profile copper

### Applications

- High-End Power Amplifiers
- High Power Broadcast Systems
- Power Dividers, Filters and Couplers
- Antennas
- Aerospace Components



RF-35TC-A laminates are constructed with a woven matrix of fiberglass fabric coated with ceramic filled PTFE.

RF35TC-A's special ceramic composition enables a low dissipation factor with the added benefit of high thermal conductivity. It will not oxidize, yellow or show upward drift in dielectric constant and dissipation factor like its synthetic rubber (hydrocarbon) competitors.

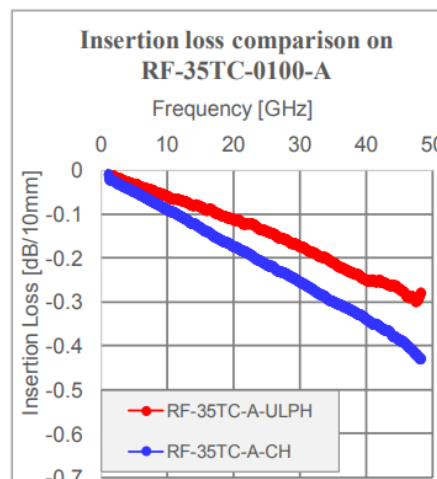
RF-35TC-A is suited for high power applications. Its low DF can deliver signals with lower heat generation at high power and high frequency applications and its high thermal conductivity can diffuse heat away from both transmission lines and chip components such as transistors or capacitors. RF35TC-A's excellent thermal management and power handling capability can provide improved reliability with a reduced warranty cost.

RF-35TC-A will increase the lifetime of active components such as power amplifiers.

RF-35TC-A bonds very well to low profile copper foils. This results in even lower insertion and conductor loss at high frequencies where skin effect losses can be affected.

The low Z-axis CTE values of RF-35TC-A provide plated through hole reliability in multilayer applications.

This product family was designed to provide excellent electrical, thermal and mechanical stability at reduced cost.



Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 10 GHz	3.50 ± 0.05		IPC-650 2.5.5.5.1 (Modified)
Dissipation Factor	@ 10 GHz	0.002		IPC-650 2.5.5.5.1 (Modified)
Surface Resistivity		5.0 x 10 <sup>8</sup>	Mohms	IPC-650 2.5.17.1
Volume Resistivity		5.0 x 10 <sup>8</sup>	Mohms/cm	IPC-650 2.5.17.1
Thermal Properties				
Thermal Conductivity	Unclad	0.83	W/M*K	IPC-650 2.4.50
CTE (50 to 150 °C)	X	9	ppm/°C	IPC-650 2.4.41
	Y	13		
	Z	20		
T <sub>c</sub> (D)K (-55 to 150 °C)		-10	ppm/°C	IPC-650 2.5.5.6 (Modified)
T <sub>d</sub>	2% Wt. Loss	520 (968)	°C (°F)	IPC-650 2.4.24.6/TGA
	5% Wt. Loss	540 (1,004)	°C (°F)	IPC-650 2.4.24.6/TGA
Mechanical Properties				
Flexural Strength	MD	117.21 (17,000)	N/mm <sup>2</sup> (psi)	IPC-650 2.4.4
	CD	82.74 (12,000)	N/mm <sup>2</sup> (psi)	
Dimensional Stability	MD	0.004	% (20 mil)	IPC-650-2.4.39 (Bake)
		0.018	% (60 mil)	
	CD	0.071	% (20 mil)	
		0.078	% (60 mil)	
Dimensional Stability	MD	-0.003	% (20 mil)	IPC-650-2.4.39 (Stress)
		0.012	% (60 mil)	
	CD	0.068	% (20 mil)	
		0.076	% (60 mil)	
Chemical / Physical Properties				
Flammability			V-0	UL-94
Specific Heat		1.02	j/(g °C)	IPC-650 2.4.50
Density		2.35	g/cm <sup>3</sup>	IPC-650 2,3,5
Water Absorption		0.05	%	IPC-650 2.6.2.1

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.

Typical Thicknesses			
Inches	mm	Inches	mm
0.0100	0.25	0.0300	0.76
0.0200	0.51	0.0600	1.52
Typical Panel Sizes			
Inches	mm	Inches	mm
12 x 18	305 x 457	18 x 24	457 x 610
16 x 18	406 x 457	36 x 48	914 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.

\* RF-35TC-A can be manufactured in increments of 0.0100" (0.25mm).

\* 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.

