RF-60TC

Base Material for High Power RF Applications

Your Dreams, Our Challenge

Benefits

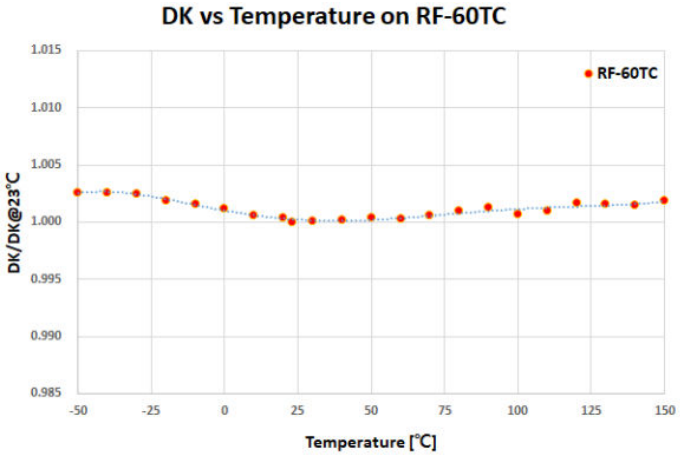
- Improved loss tangent
- High thermal conductivity
- Enhanced dimensional stability
- Low Z-axis CTE
- Excellent adhesion to metal
- Stable DK over frequency
- Stable DK over temperature
- Low moisture absorption

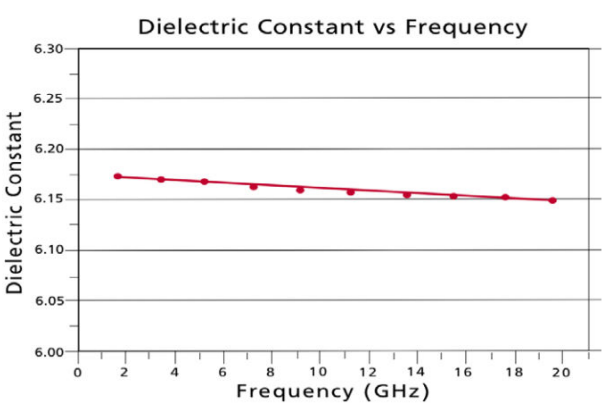
Applications

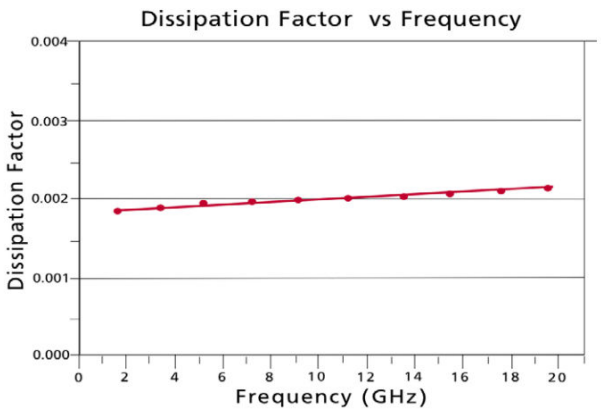
- High Power Amplifiers
- Miniaturized Antennas
- GPS, Patch, RFID reader
- Filters, Couplers & Dividers
- Satellites

RF-60TC is a PTFE based, ceramic filled fiberglass substrate for use as a base material for high power RF and microwave applications. This material is designed to provide lower operating temperatures in high power applications and better gains and efficiencies in miniaturized antenna applications for the 6.15 DK market through improved dielectric heat dissipation and exceptionally low dielectric losses.

RF-60TC's enhanced heat transfer allows for additional design margin, extends the active components' lifetime and improves long term reliability. RF-60TC has excellent adhesion to very low profile and reverse treated copper for reduced insertion loss. Heavy metal backed laminates are also available. The low CTE and improved dimensional stability of RF-60TC make it possible to build high layer count multilayer PWBs with improved plated through hole reliability.







Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 10 GHz	6.15 ± 0.15		IPC-650 2.5.5.5.1 (Modified)
Dissipation Factor	@ 10 GHz	0.0020		IPC-650 2.5.5.5.1 (Modified)
Surface Resistivity		1.0×10^8	Mohms	IPC-650 2.5.17.1 (After Humidity)
Volume Resistivity		1.0×10^8	Mohms/cm	IPC-650 2.5.17.1 (After Humidity)
Thermal Properties				
Thermal Conductivity	Unclad	0.90	W/M*K	IPC-650 2.4.50
	CH/CH	1.00	W/M*K	
	C1/C1	1.05	W/M*K	
CTE (RT- 150 °C)	X	9.9	ppm/°C	IPC-650 2.4.41
	Y	9.9		
	Z	40		
T_CK		-3.581	ppm/°C	
T_d	2% Wt. Loss	500 (930)	°C (°F)	IPC-650 2.4.24.6 / TGA
	5% Wt. Loss	515 (960)	°C (°F)	IPC-650 2.4.24.6 / TGA
Mechanical Properties				
Flexural Strength	MD	69 (10,000)	N/mm^2 (psi)	IPC-650 2.4.4
	CD	62 (9,000)	N/mm^2 (psi)	
Tensile Strength	MD	62 (9,000)	N/mm^2 (psi)	IPC-650 2.4.19
	CD	48 (7,000)	N/mm^2 (psi)	
Dimensional Stability	MD	0.01	mm/M (mils/in)	IPC-650 2.4.39 Sec. 5.4 (After Bake)
	CD	0.69	mm/M (mils/in)	
Dimensional Stability	MD	0.06	mm/M (mils/in)	IPC-650 2.4.39 Sec. 5.5 (Thermal Stress)
	CD	0.80	mm/M (mils/in)	
Chemical / Physical Properties				
Moisture Absorption		0.03	%	IPC-650 2.6.2.1
Arc Resistance		> 180	Seconds	IPC-650 2.5.1
Density	Specific Gravity	2.84	g/cm^3	IPC-650 2.3.5
Specific Heat		0.94	J/gK	IPC-650 2.4.50
Flammability Rating		V-0		UL 94

Typical Thicknesses[1]			
Inches	**mm**	**Inches**	**mm**
0.0050	0.13	0.0250	0.64
0.0100	0.25	0.0300	0.76
0.0200	0.51	0.0600	1.52
Available Sheet Sizes[2]			
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		

* 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-60TC can be manufactured in increments of 0.005”(0.125mm).
* 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.

agc-ml.info-maltimaterial@agc.com