

Rogers Corporation RT/duroid® 6002 High Frequency Laminate

Category : Polymer

Material Notes:

Features:Low loss for excellent high frequency performanceTight dielectric constant and thickness controlExcellent electrical and mechanical propertiesExtremely low thermal coefficient of dielectric constantIn-plane expansion coefficient matched to copperLow Z-axis expansionLow outgassing; ideal for space applicationsCopper cladding - EDC or rolled foilLead-free process compatibleTypical

Applications:Phase Array AntennasGround Based and Airborne Radar SystemsGlobal Positioning System AntennasPower BackplanesHigh Reliability Complex Multilayer CircuitsCommercial Airline Collision Avoidance SystemsBeam Forming NetworksInformation provided by Rogers Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Rogers-Corporation-RTduroid-6002-High-Frequency-Laminate.php

Physical Properties	Metric	English	Comments
Density	2.10 g/cc	0.0759 lb/in ³	ASTM D792
Moisture Absorption at Equilibrium	0.020 %	0.020 %	D48/50; IPC-TM-650 2.6.2.1; ASTM D570
Thickness	127 - 3050 microns	5.00 - 120 mil	Range of Standard Thicknesses

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	6.90 MPa	1000 psi	X, Y direction; ASTM D638
Elongation at Break	7.3 %	7.3 %	X, Y direction; ASTM D638
Tensile Modulus	0.827 GPa	120 ksi	X, Y direction; ASTM D638
Compressive Modulus	2.482 GPa	360.0 ksi	Z direction; ASTM D638
Peel Strength	1.56 kN/m	8.90 pli	Copper; IPC-TM-650 2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	16.0 µm/m-°C	8.89 µin/in-°F	X-Direction; TMA; 10°C/min; ASTM D3386; IPC-TM-650 2.4.41
	16.0 µm/m-°C	8.89 µin/in-°F	Y-Direction; TMA; 10°C/min; ASTM D3386; IPC-TM-650 2.4.41
	24.0 µm/m-°C	13.3 µin/in-°F	Z-Direction; TMA; 10°C/min; ASTM D3386; IPC-TM-650 2.4.41
Specific Heat Capacity	0.930 J/g-°C	0.222 BTU/lb-°F	calculated
Thermal Conductivity	0.600 W/m-K	4.16 BTU-in/hr-ft ² -°F	ASTM C518
	@Temperature 80.0 °C	@Temperature 176 °F	

Decomposition Temperature Thermal Properties	500 °C Metric	932 °F English	TGA- ASTM D3850 Comments
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+12 ohm-cm	1.00e+12 ohm-cm	Condition A; ASTM D257
Surface Resistance	1.00e+13 ohm	1.00e+13 ohm	Condition A; ASTM D257
Dielectric Constant	2.9 - 2.98	2.9 - 2.98	Z direction; Process; IPC-TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
	2.94	2.94	Design; Differential Phase Length Method
	@Frequency 8.00e+9 - 4.00e+10 Hz	@Frequency 8.00e+9 - 4.00e+10 Hz	
Dissipation Factor	0.0012	0.0012	Z direction; IPC-TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	

Descriptive Properties	Value	Comments
Thermal Coefficient of Dielectric Constant	12 ppm/°C	IPC-TM-650 2.5.5.5; 10 GHz; 0°C to 100°C; Z-Direction

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