ROGERS CORPORATION

Data Sheet

RT/duroid® 6202

High Frequency Laminates

RT/duroid® 6202 high frequency circuit material is a low loss and low dielectric constant laminate offering superior electrical and mechanical properties essential in designing complex microwave structures which are mechanically reliable and electrically stable.

Excellent dimensional stability (0.05 to 0.07 mils/inch) is achieved by the addition of limited woven glass reinforcement. This often eliminates double etching to achieve tight positional tolerances.

½ oz. to 2 oz./ft.^{2} electrodeposited and rolled copper foil may be specified as cladding on dielectric thicknesses from 0.005" to 0.060" (0.127 to 1.524 mm).

Applications particularly suited to the unique properties of RT/duroid 6202 material include flat and non-planar structures such as antennas and complex multilayer circuits with interlayer connections.

Features and benefits:

- Low loss for excellent high frequency performance
- Tight ε_r and thickness control
- Excellent electrical and mechanical properties
- Extremely low thermal coefficient of dielectric constant
- In-plane expansion coefficient matched to copper
- Very low etch shrinkage

Some Typical Applications:

- Phased Array Antennas
- Ground Based and Airborne Radar Systems
- Global Positioning System Antennas
- Power Backplanes
- High Reliability Complex Multilayer Circuits
- Commercial Airline Collision Avoidance Systems
- Beam Forming Networks

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Property	Typical Value	Direction	Units	Conditions	Test Method
Dielectric Constant ε_r	2.90 ± 0.04 [3]	Z	-	10GHz/23ºC	IPC-TM-650, 2.5.5.5
Dissipation Factor, TAN δ	0.0015	Z	-	10 GHz/23ºC	IPC-TM-650, 2.5.5.5
Thermal Coefficient of ε_r	+5	Z	ppm/ºC	10 GHz -50 to +150ºC	IPC-TM-650, 2.5.5.5
Volume Resistivity	10^6	Z	Mohm cm	A	ASTM D257
Surface Resistivity	10^9	Z	Mohm	A	ASTM D257
Tensile Modulus	1007 (146)	X, Y	MPa (kpsi)	23ºC	ASTM D638
Ultimate Stress	30 (4.3)	X, Y	MPs (kpsi)		
Ultimate Strain	4.9	X, Y	%		
Compressive Modulus	1035 (150)	Z	MPa (kpsi)		ASTM D638
Moisture Absorption	0.04	-	%	D23/24 D48/50	IPC-TM-650, 2.6.2.1 ASTM D570
Thermal Conductivity	0.68	-	W/m/K	80ºC	ASTM C518
Coefficient of Thermal Expansion	15 15 30	X Y Z	ppm/ºC	(10K/min) TMA	ASTM D3386 IPC-TM-650 2.4.41
Dimensional Stability	0.07	X, Y	mm/m (mil/inch)	after etch +E/150	IPC-TM-650, 2.4.3.9
Td	500		ºC TGA		ASTM D3850
Density	2.1		gm/cm3		ASTM D792
Specific Heat	0.93 (0.22)	-	J/g/K (BTU/lb/ºF)	-	Calculated
Copper Peel	9.1 (1.6)		lbs/in (N/mm)		IPC-TM-650 2.4.8
Flammability	V-O				UL 94
Lead-Free Process Compatible	YES				

Typical value are a representation of an average value of the population of the property. For specification values contact Rogers Corporation.
[1] S1 units given first, with other frequently used units in parentheses
[2] References: internal TRs 3824, 5016, 5017, 5035. Tests were at 23ºC unless otherwise noted.
[3] Due to construction limitations, the dielectric constant of .0005 thick laminates is 3.06 ± 0.04; 0.010" and 0.015" thick laminates is 3.02 ± 0.04.

Standard Thickness	Standard Panel Size	Standard Copper Cladding	Non-Standard Copper Cladding
0.005" (0.127mm) 0.010" (0.254mm) 0.015" (0.381mm) 0.020" (0.508mm) 0.030" (0.762mm) 0.060" (1.524mm)	12" X 18" (305mm X 457) 24" X 18" (610mm X 457) Non-standard sizes are available up to 24" X 54" (610mm X 1.37m)	½ oz. (18µm) and 1oz. (35µm) electrodeposited and rolled copper foils	¼ oz. (9µm) electrodeposited copper foil 2 oz. (70µm) electrodeposited and rolled copper foils ½ oz. (18µm), 1oz. (35µm), and 2 oz. (70µm) reverse treated EDC copper foil
		RT/duroid 6202 laminates are not available with thick metal cladding. Contact customer service for more information on available non-standard and custom claddings and panel sizes	

Revised 1293 060117 Publication# 92-116

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