ROGERS CORPORATION

Advanced Circuit Materials

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Data Sheet

1.6202

RT/duroid®6202 High Frequency Laminates

Features:	
• Low loss for excellent high frequency performance.	• Extremely low thermal coefficient of dielectric constant.
• Tight ε_r and thickness control.	• In-plane expansion coefficient matched to copper.
• Excellent electrical and mechanical properties.	• Very low etch shrinkage
Some Typical Applications:	
• Phase Array Antennas	• High Reliability Complex Multilayer Circuits
• Ground Based and Airborne Radar Systems	• Commercial Airline Collision Avoidance Systems
• Global Positioning System Antennas	• Beam Forming Networks
• Power Backplanes	

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.

¼ oz. to 2 oz./ft.^{2} electrodeposited copper foil may be specified as cladding on dielectric thicknesses from 0.005″ to 0.060″ (0.13 to 1.52 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.

Typical Values

Property	Typical Value	Direction	Units [1]	Conditions	Test Method
Dielectric Constant ε_r	2.94 ± 0.04 [3]	Z	-	10GHz/23°C	IPC-TM-650, 2.5.5.5
Dissipation Factor, TAN δ	0.0015	Z	-	10 GHz/23°C	IPC-TM-650, 2.5.5.5
Thermal Coefficient of ε_r	+13**	Z	ppm/°C	10 GHz 0-100°C	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)	23°C	ASTM D638
Ultimate Stress	30 (4.3)	X,Y	MPa (kpsi)		
Ultimate Strain	4.9	X,Y	%		
Compressive Modulus	1035 (150)	Z	MPa (kpsi)		ASTM D638
Moisture Absorption	0.1	-	%	D23/24 D48/50	IPC-TM-650, 2.6.2.1 ASTM D570
Thermal Conductivity	0.68	-	W/m/K	80°C	ASTM C518
Coefficient of Thermal Expansion	15 15 30	X Y Z	ppm/°C	(10K/min) TMA	ASTM D3386 IPC-TM-650 2.4.4.1
Dimensional Stability	0.07	X,Y	mm/m (mil/inch)	after etch +E/150	IPC-TM-650, 2.4.3.9
Td	500		°C TGA		ASTM D3850
Density	2.1		gm/cm3		ASTM D792
Specific Heat	0.93 (0.22)	-	J/g/K (BTU/lb/°F)	-	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 23°C unless otherwise noted.
[3] Due to construction limitations, the dielectric constant of .0.005 thick laminates is 3.06 ± 0.04; 0.010" and 0.015" thick laminates is 3.02 ± 0.04.
** Preliminary data only.

STANDARD THICKNESS:	STANDARD PANEL SIZE:	STANDARD COPPER CLADDING:
0.005" (0.127mm) 0.010" (0.254mm) 0.020" (0.508mm) 0.030" (0.762mm) 0.060" (1.524mm)	18" X 12" (457 X 305mm) 18" X 24" (457 X 610mm)	¼ oz. (8 µm) electrodeposited copper foil. ½ oz. (17µm), 1 oz. (35µm), 2 oz. (70µm) electrodeposited and rolled copper foil. RT/duroid 6202 laminates are not available with thick metal cladding. Unclad material 0.020"or greater is available. Additional claddings and panels sizes are available. Contact customer service for more information.

The information in this data sheet is intended to assist you in designing with Rogers' circuit material laminates. It is not intended to and does not create any warranties express or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown on this data sheet will be achieved by a user for a particular purpose. The user should determine the suitability of Rogers' circuit material laminates for each application.

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