

RT/duroid® 5880LZ

High Frequency Laminates

RT/duroid® 5880LZ filled PTFE composites are designed for exacting stripline and microstrip circuit applications.

The unique filler results in a low density, lightweight material for high performance weight sensitive applications.

The very low dielectric constant of RT/duroid 5880LZ laminates is uniform from panel to panel and is constant over a wide frequency range. Its low dissipation factor extends the usefulness of RT/duroid 5880LZ laminates to Ku-band and above.

RT/duroid 5880LZ laminates are easily cut, sheared and machined to shape. They are resistant to all solvents and reagents, hot or cold, normally used in etching printed circuits or in plating edges and holes.

When ordering RT/duroid 5880LZ laminates, it is important to specify dielectric thickness, tolerance, electrodeposited copper foil, and weight of copper foil required.



Data Sheet



Features:

- Lowest dielectric constant available
- Low Z-axis CTE
- Lightweight / low density
- Uniform electrical properties over a wide frequency range

Some Typical Applications:

- Airborne antenna system
- Lightweight feed networks
- Military radar systems
- Missile guidance systems
- Point-to-point digital radio antennas

Property	Typical Value [1] RT/duroid® 5880LZ	Direction	Units	Condition	Test Method
Dielectric Constant ϵ_r, Process	2.00 ± 0.04	Z		10 GHz/23°C	IPC-TM-650, 2.5.5.5
[2] Dielectric Constant ϵ_r, Design	2.00	Z		8 GHz - 40 GHz	Differential Phase Length Method
Dissipation Factor, tan	Typ: 0.0021 Max: 0.0027	Z		10GHz/23°C	IPC-TM-650, 2.5.5.5
Thermal Coefficient of Dielectric Constant, ϵ_r	+20	Z	ppm/°C	-50°C to 150°C 10GHz	IPC-TM-650, 2.5.5.5
Volume Resistivity	1.74 X 10 ⁷		Mohm·cm	C-96/35/90	IPC-TM-650, 2.5.17.1
Surface Resistivity	2.08 X 10 ⁶		Mohm	C-96/35/90	IPC-TM-650, 2.5.17.1
Electrical Strength	40		kV	D48/50	IPC-TM-650, 2.5.6
Dimensional Stability	-0.38	X,Y	%		IPC-TM-650, 2.4.39A
Moisture Absorption	0.31		%	24 hours/23°C	IPC-TM-650, 2.6.2.1
Thermal Conductivity	0.33	Z	W/m/°K	80°C	ASTM C518
Coefficient of Thermal Expansion	54.47 40	X,Y Z	ppm/°C	0 to 150°C	IPC-TM-650, 2.4.41
Outgassing					
TML	0.01				
CVCM	0.01				
WVR	0.01				
Density	1.4		gm/cm ³		ASTM D792
Copper Peel	>4.0		pli		IPC-TM-650, 2.4.8
Flammability	V-O				UL 94
Lead-Free Process Compatible	YES				

NOTES:

[1] Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corporation.
[2] The Design Dk is an average number from several different tested lots of material and on the most common thickness/s. If more detailed information is

Standard Thickness	Standard Panel Size	Standard Copper Cladding
0.010" (0.254mm) ± 001	12" X 18" (305mm X 457mm)	1/2 oz (18μm) and 1 oz (35μm)
0.020" (0.508mm) ± 001	24" X 18" (610mm X 457mm)	Electrodeposited copper foil on both sides
0.050" (1.270mm) ± 002	Non-standard panel sizes are available up to	
0.100" (2.540mm) ± 004	24" X 54" (610mm X 1.37m)	

Contact customer service for more information on non-standard and custom thicknesses, claddings and panel sizes.

The information in this data sheet is intended to assist you in designing with Rogers' circuit materials. 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 materials for each application.