

XT/duroid® 8000

High Performance Circuit Materials



XT/duroid® 8000 thermoplastic circuit materials provide an excellent solution for printed circuit board applications used in demanding environmental conditions.

XT/duroid 8000 circuit materials are excellent for high frequency/high speed applications. Both dielectric constant and dissipation factor are stable over a wide range of frequencies.

XT/duroid 8000 is thermally stable, with a melt temperature higher than PTFE materials. The XT/duroid products possess impressive chemical and radiation resistance. These lead-free solder capable laminates are green materials which are naturally flame retardant and halogen free.

Data Sheet

FEATURES AND BENEFITS:

Stable dielectric constant and dissipation factor over a wide frequency range

- High reliability
- Uniform electrical properties over frequency

High maximum operating temperature

- Can be used in applications where high temperature stability is necessary

Excellent chemical resistance

- Ease of processing
- Resistant to solvents and reagents used to process circuit boards
- Operates in harsh chemical environments

Environmentally friendly

- Halogen-free/ inherently flame retardant
- Lead-free solder capable
- Low smoke/toxicity

SOME TYPICAL APPLICATIONS:

- Flex-to-install applications
- Lightweight feed manifolds
- Semiconductor burn-in
- Conformal circuitry
- Oil and gas exploration
- Chip packaging substrates

PROPERTIES	TYPICAL VALUE XT/duroid 8000	DIRECTION	UNITS	CONDITIONS	TEST METHOD
Dielectric Constant, ϵ_r	3.23± 0.05	Z		10 GHz/23°C	IPC-TM-650, 2.5.5.5.1
Dissipation Factor, Tan δ	0.0035 max.	Z		10 GHz/23°C	IPC-TM-650, 2.5.5.5.1
Thermal Coefficient of ϵ_r	+7		ppm/°C	-50 to 150°C	IPC-TM-650, 2.5.5.5.1
Copper Peel Strength	5.0 (0.88)		pli		IPC-TM-650, 2.4.8
Low Outgassing	TML	0.09	%		ASTM E-595
	CVCM	0.01			
	WVR	0.09			
T260	Pass				
T288	Pass				
Flammability*	VTM-O				UL94
Dielectric Strength	4500		VPM		IPC-TM-650 2.5.6.2
Coefficient of Thermal Expansion	18	X	ppm/*C	0 - 150*C	IPC-TM-650 2.1.41
	23	Y			
	68	Z			
Dimensional Stability	-0.04 -0.1	MD CMD	%	After bake @ 120°C	IPC-TM-650 2.2.4
Tensile Strength	100		MPa		ASTM D-638
Elongation	4		%		ASTM D-638
Young's Modulus	1200 (8600)		kpsi (MPa)		ASTM D-638
Moisture Absorption	0.2		%	D24/23	IPC-TM-650, 2.6.2.1
Specific Gravity	1.55				ASTM D-792
Surface Resistivity	10 ⁸		Megohms	A and C96/35/90	IPC-TM-650, 2.5.17.1
Volume Resistivity	10 ¹⁰		Megohm-cm	A and C96/35/90	IPC-TM-650, 2.5.17.1
Thermal Conductivity	0.35		W/m/°K		ASTM C-518
Halogen Free	Yes				
Lead-Free Process Compatible	Yes				

*Reported UL values are preliminary and reflect anticipated results of full UL testing. Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corporation.

Standard Thicknesses	Panel Sizes	Copper Cladding
0.002" (0.0508 mm) ± 12.5%	12" X 18" (305 X 457 mm) 24" X 18" (610 X 457 mm) Other panel sizes and thicknesses available upon request. Also available in rolls.	½ oz. (18µm) very low profile electrodeposited copper foil Other copper cladding types available upon request.

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Revised 1304 060117 Publication #92-145

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