

Rogers Corporation XT/duroid™ 8100 0.002" Woven Glass Reinforced Thermoplastic Circuit Material

Category : Polymer , Thermoplastic

Material Notes:

XT/duroid™ 8100 woven glass reinforced thermoplastic circuit materials provide an excellent solution for printed circuit board applications used in demanding environmental conditions. XT/duroid 8100 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 8100 is thermally stable, with a melt temperature higher than PTFE materials and an estimated relative thermal index (RTI) greater than 210°C. The XT/duroid products possess impressive chemical and radiation resistance. Features and Benefits: Stable dielectric constant and dissipation factor over a wide frequency range - High reliability and uniform electrical properties over frequency - High maximum operating temperature - suitable for applications where high temperature stability is required - Excellent chemical resistance - Ease of processing, Resistant to solvents and reagents used to process circuit boards, and Operates in harsh chemical environments - Environmentally friendly - Halogen free/inherently flame retardant, Lead-free solder capable, low smoke/toxicity 1/2 oz. very low profile electrodeposited copper foil cladding Typical Applications: Flex-to-install applications, Lightweight feed manifolds, Semiconductor burn-in, Conformal circuitry, Oil and gas exploration. Information provided by Rogers Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Rogers-Corporation-XTduroid-8100-0002-Woven-Glass-Reinforced-Thermoplastic-Circuit-Material.php

Physical Properties	Metric	English	Comments
Moisture Absorption at Equilibrium	0.050 %	0.050 %	D24/23; IPC-TM-650 2.6.2.1
	0.15 %	0.15 %	D48/50; ASTM D570
Thickness	50.8 microns	2.00 mil	

Mechanical Properties	Metric	English	Comments
Tensile Strength	216 MPa	31300 psi	RT; ASTM D638
Tensile Modulus	11.5 GPa	1670 ksi	RT; ASTM D638
Peel Strength	1.09 kN/m	6.20 pli	Copper; IPC-TM-650 2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	16.5 µm/m-°C	9.17 µin/in-°F	X-Direction; IPC-TM-650 2.1.41
	@Temperature 0.000 - 150 °C	@Temperature 32.0 - 302 °F	
	18.0 µm/m-°C	10.0 µin/in-°F	Y-Direction; IPC-TM-650 2.1.41
	@Temperature 0.000 - 150 °C	@Temperature 32.0 - 302 °F	

Thermal Properties	57.0 $\mu\text{m}/\text{m}^{\circ}\text{C}$ Metric	31.7 $\mu\text{in}/\text{in}^{\circ}\text{F}$ English	Comments Z-Direction; IPC-TM-650 2.1.41
	@Temperature 0.000 - 150 $^{\circ}\text{C}$	@Temperature 32.0 - 302 $^{\circ}\text{F}$	
Thermal Conductivity	0.300 W/m-K	2.08 BTU-in/hr-ft ² - $^{\circ}\text{F}$	ASTM C518
Maximum Service Temperature, Air	≥ 210 $^{\circ}\text{C}$	≥ 410 $^{\circ}\text{F}$	pending UL RTI
Glass Transition Temp, Tg	172 $^{\circ}\text{C}$	342 $^{\circ}\text{F}$	TMA; ASTM D3850
Flammability, UL94	V-0 @Thickness 0.0508 mm	V-0 @Thickness 0.00200 in	pending

Electrical Properties	Metric	English	Comments
Dielectric Constant	3.49 - 3.59 @Frequency 1.00e+10 Hz	3.49 - 3.59 @Frequency 1.00e+10 Hz	Z direction; IPC-TM-650 2.5.5.5.1
	3.54 @Frequency 8.00e+9 - 4.00e+10 Hz	3.54 @Frequency 8.00e+9 - 4.00e+10 Hz	Z direction; Differential Phase Length Method
Dielectric Strength	102 kV/mm	2580 kV/in	Z Direction; IPC-TM-650 2.5.6.2
Dissipation Factor	0.0049 @Frequency 1.00e+10 Hz	0.0049 @Frequency 1.00e+10 Hz	Z direction; IPC-TM-650 2.5.5.5.1

Descriptive Properties	Value	Comments
Dimensional Stability	0.03 mm/m	X-MD; IPC-TM-650, 2.4.39A; 150 $^{\circ}\text{C}$ bake
	0.037 mm/m	Y-CMD; IPC-TM-650, 2.4.39A; 150 $^{\circ}\text{C}$ bake
T260	pass	
Thermal Coefficient of Dielectric Constant	9 ppm/ $^{\circ}\text{C}$	IPC-TM-650 2.5.5.5.1; -100 $^{\circ}\text{C}$ to 250 $^{\circ}\text{C}$
Time to Delamination (T-288)	pass	

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