Rogers Corporation Ultralam® 3850 Liquid Crystalline Polymer Circuit Material

Category : Polymer

Material Notes:

ULTRALAM® 3850 laminate circuit materials utilize highly temperature resistant liquid crystalline polymer (LCP) as the dielectric film.Features & Benefits:Excellent high frequency propertiesStable electrical properties for tightly controlled impedence matchingExcellent thickness uniformity for maximum signal integrityAllows use of thinner dielectric layer with minimal signal distortionGood dimensional stability and low modulusBends easily for flex and conformal applicationsOffers design flexibility and maximizes circuit density requirementsExtremely low moisture absorptionReduced bake timesMaintains stable electrical, mechanical and dimensional properties in humid environmentsFlame Resistant, Halogen free, meets WEEETypical Applications:High speed switches and routersChip packagingMEM'sMilitary satellites and radar sensorsHybrid substratesHandheld and RF devicesBase station antennasInformation provided by Rogers Corporation.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Rogers-Corporation-Ultralam-3850-Liquid-Crystalline-Polymer-Circuit-Material.php

Physical Properties	Metric	English	Comments
Density	1.40 g/cc	0.0506 lb/in³	
Water Absorption	0.040 % @Time 86400 sec	0.040 % @Time 24.0 hour	IPC 2.6.2
Thickness	25.4 - 102 microns	1.00 - 4.00 mil	Range of Standard Thicknesses

Mechanical Properties	Metric	English	Comments
Tensile Strength	200 MPa	29000 psi	IPC 2.4.16
Tensile Modulus	2.25 GPa	327 ksi	IPC 2.4.19
Tear Strength Test	>= 1.4	>= 1.4	kg; IPC 2.4.16
Peel Strength	1.49 kN/m	8.52 pli	1/2 oz. ED foil; IPC 2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	17.0 µm/m-°C @Temperature 30.0 - 150 °C	9.44 µin/in-°F @Temperature 86.0 - 302 °F	X-, Y-Direction; IPC 2.4.41.3
	150 µm/m-°C @Temperature 30.0 - 150 °C	83.3 µin/in-°F @Temperature 86.0 - 302 °F	Z-Direction; IPC 2.4.41.3
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft²-°F	ASTM C518
Melting Point	315 °C	599 °F	DSC

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	260 °C	500 °F	UL RTI
UL RTI, Mechanical without Impact	190 °C	374 °F	
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+18 ohm-cm	1.00e+18 ohm-cm	IPC 2.5.17.1
Surface Resistance	1.00e+16 ohm	1.00e+16 ohm	IPC 2.5.17.1
Dielectric Constant	2.9 @Frequency 1.00e+10 Hz	2.9 @Frequency 1.00e+10 Hz	IPC-TM-650 2.5.5.5.1
Dielectric Strength	138 kV/mm	3500 kV/in	ASTM D149
Dissipation Factor	0.0025 @Frequency 1.00e+10 Hz	0.0025 @Frequency 1.00e+10 Hz	IPC-TM-650 2.5.5.5.1

Descriptive Properties	Value	Comments
Chemical Resistance	98.7 percent	IPC 2.3.4.2
Coefficient of Hygroscopic Expansion	4 ppm/%RH	60°C
Dimensional Stability	-0.03%	TD; IPC 2.2.4 method B
	-0.06 %	MD; IPC 2.2.4 method B
Solder Float	pass	IPC 2.4.13, Method B; 288°C
Thermal Coefficient of Dielectric Constant	24 ppm/°C	IPC 2.5.5.5; 8GHz; -50°C to 150°C

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