Arlon 51N Lead-Free Compatible Epoxy Low-Flow

Category : Polymer , Thermoset , Epoxy , Epoxy, Thermally Conductive

Material Notes:

51N is a non-DICY multifunctional epoxy low-flow prepreg system designed to provide high reliability through lead-free solder operations. The high decomposition temperature and high thermal stability of this material is ideal for use in complex rigid-flex fabrication and assembly operations where minimum resin flow is required.Decomposition Temperature > 350°C is ideally suited for lead-free solder processing and offers significant improvement over traditional FR-4 Epoxy systems.Multifunctional epoxy resin system with a Glass transition temperature of 170°C thermal cycling PTH reliabilityImproved bond adhesion over multiple thermal excursions results in better reliability through reflow and rework operations.Electrical and mechanical properties meet the flow requirements of IPC-4101B/124 prepreg, modified to be low-flow.Compatible with lead-free solder processingRoHS/WEEE compliantTypical Applications:Bonding multilayer rigid-flex boardsAttaching heat sinks to finished PCB assembliesDielectric insulatorsOther applications where minimal and uniform resin flow is requiredThis data represents typical values for the production material and should not be used as material specifications.Information provided by ARLON Silicone Technologies Division.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Arlon-51N-Lead-Free-Compatible-Epoxy-Low-Flow.php

Physical Properties	Metric	English	Comments
Density	1.35 g/cc	0.0488 lb/in³	ASTM D792 Method A
Water Absorption	0.15 %	0.15 %	IPC TM-650 2.6.2.1

Mechanical Properties	Metric	English	Comments
Tensile Strength	44.8 MPa	6500 psi	IPC TM-650 2.4.18.3
Modulus of Elasticity	17.9 GPa	2600 ksi	IPC TM-650 2.4.18.3
Flexural Strength	579 MPa	84000 psi	IPC TM-650 2.4.4
Peel Strength	1.12 kN/m	6.40 pli	To Copper (1 oz./35 micron); After Process Solutions; IPC TM-650 2.4.8
	1.17 kN/m	6.70 pli	To Copper (1 oz./35 micron); After Thermal Stress; IPC TM-650 2.4.8
	1.17 kN/m	6.70 pli	To Copper (1 oz./35 micron); At Elevated Temperatures; IPC TM-650 2.4.8.2

Thermal Properties	Metric	English	Comments
CTE, linear	14.0 µm/m-°C	7.78 µin/in-°F	IPC TM-650 2.4.41
CTE, linear, Transverse to Flow	44.0 µm/m-°C	24.4 µin/in-°F	z, below Tg; IPC TM-650 2.4.24
	245 µm/m-°C	136 µin/in-°F	z, above Tg; IPC TM-650 2.4.24

Thermal Properties	Metric	English	Comments
Thermal Conductivity	0.250 W/m-K	1.74 BTU-in/hr-ft²-°F	ASTM E1461
Glass Transition Temp, Tg	166 °C	331 °F	TMA; IPC TM-650 2.4.24
	170 °C	338 °F	DSC; IPC TM-650 2.4.25
Decomposition Temperature	354 °C	669 °F	Onset; IPC TM-650 2.4.24.6
	368 °C	694 °F	5 percent; IPC TM-650 2.4.24.6
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.60e+13 ohm-cm	2.60e+13 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
	3.30e+13 ohm-cm	3.30e+13 ohm-cm	E24/125; IPC TM-650 2.5.17.1
Surface Resistance	4.00e+12 ohm	4.00e+12 ohm	E24/125; IPC TM-650 2.5.17.1
	2.90e+13 ohm	2.90e+13 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	4.1 @Frequency 1.00e+9 Hz	4.1 @Frequency 1.00e+9 Hz	may vary with resin %; IPC TM-650 2.5.5.9
	4.2 @Frequency 1.00e+6 Hz	4.2 @Frequency 1.00e+6 Hz	may vary with resin %; IPC TM-650 2.5.5.3
Dielectric Strength	39.4 kV/mm	1000 kV/in	IPC TM-650 2.5.6.2
Dissipation Factor	0.020 @Frequency 1.00e+6 Hz	0.020 @Frequency 1.00e+6 Hz	IPC TM-650 2.5.5.3
	0.020 @Frequency 1.00e+9 Hz	0.020 @Frequency 1.00e+9 Hz	IPC TM-650 2.5.5.9
Arc Resistance	>= 120 sec	>= 120 sec	IPC TM-650 2.5.1

Descriptive Properties	Value	Comments
IPC Delamination - T260 (minutes)	> 60	IPC TM-650 2.4.24.1
IPC Delamination - T288 (minutes)	> 30	IPC TM-650 2.4.24.1
IPC Delamination - T300 (minutes)	15	IPC TM-650 2.4.24.1
Z-Axis Expansion (%)	2.6	IPC TM-650 2.4.24 (50-260°C)

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