

Arlon 85NT Polyimide Nonwoven Aramid Laminate and Prepreg

Category : Polymer , Thermoset , Polyimide, TS

Material Notes:

85NT is a pure polyimide laminate and prepreg system ($T_g = 250^\circ\text{C}$), reinforced with a non-woven aramid substrate. This system combines the high-reliability features of polyimide (improved PTH reliability and temperature stability) with the low in-plane () expansion and outstanding dimensional stability of a non-woven aramid reinforcement. Low in-plane expansion of 6-9 ppm/ $^\circ\text{C}$ allows attachment of SMT devices with minimal risk of solder failure joint failure due to CTE mismatch. Nonwoven aramid reinforcement provides outstanding dimensional stability and enhanced registration for improved multilayer yields. High Decomposition temperature offering outstanding high-temperature lifetime performance. Polymeric reinforcement results in PCBs typically 25% lighter in weight than conventional glass-reinforced laminates. Laser and plasma ablatable for high speed formations of microvias and other features as small as 25 microns. Electrical and mechanical properties meeting the requirements of IPC-4101/53. Compatible with lead-free soldering. RoHS/WEEE compliant. Typical Applications: Military and commercial avionics, missiles and missile defense, satellites, and other high-reliability SMT applications requiring both low in-plane () CTE values. PCBs that are subjected to high temperatures during processing, such as lead-free soldering. Applications with significant lifetimes at elevated temperatures, such as aircraft engine instrumentations, on-engine applications, or industrial sensors. This 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-85NT-Polyimide-Nonwoven-Aramid-Laminate-and-Prepreg.php

Physical Properties	Metric	English	Comments
Density	1.37 g/cc	0.0495 lb/in ³	ASTM D792 Method A
Water Absorption	0.60 %	0.60 %	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	15.9 GPa	2300 ksi	IPC TM-650 2.4.18.3
Flexural Strength	234 MPa	34000 psi	IPC TM-650 2.4.4
Peel Strength	0.684 kN/m	3.90 pli	To Copper (1 oz./35 micron); After Process Solutions; IPC TM-650 2.4.8
	0.754 kN/m	4.30 pli	To Copper (1 oz./35 micron); After Thermal Stress; IPC TM-650 2.4.8
	0.754 kN/m	4.30 pli	To Copper (1 oz./35 micron); At Elevated Temperatures; IPC TM-650 2.4.8.2

Thermal Properties	Metric	English	Comments
CTE, linear	6.00 - 9.00 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	3.33 - 5.00 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	IPC TM-650 2.4.41

CTE, linear, Transverse to Flow Thermal Properties	93.0 µm/m-°C Metric	51.7 µin/in-°F English	z, below Tg; IPC TM-650 2.4.24 Comments
	279 µm/m-°C	155 µin/in-°F	z, above Tg; IPC TM-650 2.4.24
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft²-°F	ASTM E1461
Glass Transition Temp, Tg	250 °C	482 °F	TMA; IPC TM-650 2.4.24
Decomposition Temperature	393 °C	739 °F	Initial; IPC TM-650 2.3.41
	426 °C	799 °F	5 percent; IPC TM-650 2.3.41

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.40e+14 ohm-cm	1.40e+14 ohm-cm	E24/125; IPC TM-650 2.5.17.1
	2.00e+14 ohm-cm	2.00e+14 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
Surface Resistance	9.00e+13 ohm	9.00e+13 ohm	E24/125; IPC TM-650 2.5.17.1
	6.00e+14 ohm	6.00e+14 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	3.6 @Frequency 1.00e+6 Hz	3.6 @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	0.014 @Frequency 1.00e+6 Hz	0.014 @Frequency 1.00e+6 Hz	IPC TM-650 2.5.5.3
Arc Resistance	160 sec	160 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)	>60	IPC TM-650 2.4.24.1
IPC Delamination - T300 (minutes)	>60	IPC TM-650 2.4.24.1
Z-Axis Expansion (%)	2.3	IPC TM-650 2.4.24 (50-260°C)

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