Arlon CLTE-AT Commercial Ceramic PTFE

Category : Polymer , Thermoplastic , Fluoropolymer , PTFE

Material Notes:

Microwave material for improved thermal management, Excellent dimensional stability with high degree of phase stability vs. temperature.CLTE-AT is a micro-dispersed ceramic PTFE composite utilizing a woven fiberglass reinforcement to provide the highest degree of stability, critical in multi-layer designs.Ceramic/PTFE microwave compositeMechanically more robust and more dimensionally stable than alternativesHigh thermal conductivityLowest Insertion Loss in commercial classVery low Loss Tangent (0.0013)Tight Dielectric constant and Thickness toleranceElectrical phase stability vs. temperatureBenefits:Excellent thermal stability of Dk and DfPhase stability across temperature High degree of Dimensional stability required for complex, multi-layer boardsExcellent CTE in X, Y and ZTypical Applications:Automotive Radar & Adaptive Cruise Control ApplicationsMicrowave/RF ApplicationsPhase/Temperature Sensitive AntennasPhase Sensitive Electronic ApplicationsRF and Microwave FiltersThis 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-CLTE-AT-Commercial-Ceramic-PTFE.php

Physical Properties	Metric	English	Comments
Density	2.06 g/cc	0.0744 lb/in³	ASTM D792 Method A
Water Absorption	0.030 %	0.030 %	IPC TM-650 2.6.2.1
Outgassing - Total Mass Loss	0.00 % @Pressure <=1.33e-10 MPa, Temperature 125 °C	0.00 % @Pressure <=1.93e-8 psi, Temperature 257 °F	Collected Volatiles; NASA SP-R-0022A
	0.00 % @Pressure <=1.33e-10 MPa, Temperature 125 °C	0.00 % @Pressure <=1.93e-8 psi, Temperature 257 °F	Water Vapor Recovered; NASA SP-R-0022A
	0.040 % @Pressure <=1.33e-10 MPa, Temperature 125 °C	0.040 % @Pressure <=1.93e-8 psi, Temperature 257 °F	NASA SP-R-0022A

Mechanical Properties	Metric	English	Comments
Tensile Strength	30.3 MPa	4400 psi	Cross; IPC TM-650 2.4.18.3
	48.3 MPa	7000 psi	Machine; IPC TM-650 2.4.18.3
Modulus of Elasticity	1.79 GPa	260 ksi	IPC TM-650 2.4.18.3
Flexural Strength	53.8 MPa	7800 psi	Cross; IPC TM-650 2.4.4
	101 MPa	14600 psi	Machine; IPC TM-650 2.4.4

Mechanical Properties	Metric	English	Comments
Poissons Ratio	0.17	0.17	ASTM D3039
Shear Modulus	0.760 GPa	110 ksi	Calculated
Peel Strength	1.23 kN/m	7.00 pli	To Copper (1 oz./35 micron); After Process Solutions; IPC TM-650 2.4.8
	1.23 kN/m	7.00 pli	To Copper (1 oz./35 micron); After Thermal Stress; IPC TM-650 2.4.8
	1.58 kN/m	9.00 pli	To Copper (1 oz./35 micron); At Elevated Temperatures; IPC TM-650 2.4.8.2

Thermal Properties	Metric	English	Comments
CTE, linear	8.00 µm/m-°C @Temperature 50.0 - 150 °C	4.44 µin/in-°F @Temperature 122 - 302 °F	IPC TM-650 2.4.41
CTE, linear, Transverse to Flow	20.0 µm/m-°C @Temperature 50.0 - 150 °C	11.1 µin/in-°F @Temperature 122 - 302 °F	z direction; IPC TM-650 2.4.24
Thermal Conductivity	0.640 W/m-K	4.44 BTU-in/hr-ft²-°F	ASTM E1461
Decomposition Temperature	487 °C	909 °F	Onset; IPC TM-650 2.4.24.6
	529 °C	984 °F	5 percent; IPC TM-650 2.4.24.6
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	4.25e+14 ohm-cm	4.25e+14 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
Surface Resistance	2.02e+14 ohm	2.02e+14 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	3.0 @Frequency 1.00e+10 Hz	3.0 @Frequency 1.00e+10 Hz	IPC TM-650 2.5.5.3
Dielectric Breakdown	58000 V	58000 V	IPC TM-650 2.5.6
Dissipation Factor	0.00125 @Temperature -20.0 °C	0.00125 @Temperature -4.00 °F	
	0.014 @Temperature 120 °C	0.014 @Temperature 248 °F	

Electrical Properties	Metric	English	Comments
	0.0013 @Frequency 1.00e+6 Hz	0.0013 @Frequency 1.00e+6 Hz	IPC TM-650 2.5.5.3
	0.0013 @Frequency 1.00e+10 Hz	0.0013 @Frequency 1.00e+10 Hz	IPC TM-650 2.5.5.5
Arc Resistance	250 sec	250 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
Temperature Coefficient of Dielectric (ppm/°C)	-10	IPC TM-650 2.5.5.5; at 10 GHz (-40 - 150°C)

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