

Arlon CuClad 217 PTFE/Woven Fiberglass Laminate Microwave Printed Circuit Board Substrate

Category : Polymer , Thermoplastic , Fluoropolymer , PTFE

Material Notes:

CuClad 217 uses a low fiberglass/PTFE ratio to provide the lowest dielectric constant and dissipation factor available in fiberglass reinforced PTFE based laminates. Together, these properties offer faster signal propagation and higher signal/noise ratios. Cross Plie Woven Fiberglass, alternating plies are oriented 90° to each other. High PTFE to Glass Ratio. Better dielectric constant uniformity than comparable non-woven fiberglass reinforced laminates. Benefits: Electrical and Mechanical isotropy in the X-Y Plane. Extremely Low Loss. Well Suited for Er Sensitive Circuits. Typical Applications: Military Electronics (Radars, ECM, ESM) Microwave Components (Filters, Couplers, LNAs, etc.) Information provided by Arlon Materials for Electronics (MED).

Order this product through the following link:

http://www.lookpolymers.com/polymer_Arlon-CuClad-217-PTFEWoven-Fiberglass-Laminate-Microwave-Printed-Circuit-Board-Substrate.php

Physical Properties	Metric	English	Comments
Density	2.23 g/cc	0.0806 lb/in ³	ASTM D792 Method A
Water Absorption	0.020 %	0.020 %	IPC TM-650 2.6.2.2
Outgassing - Total Mass Loss	0.00 %	0.00 %	Water Vapor Recovered; NASA SP-R-0022A
	@Pressure <=1.33e-10 MPa, Temperature 125 °C	@Pressure <=1.93e-8 psi, Temperature 257 °F	
	0.010 %	0.010 %	Collected Volatiles; NASA SP-R-0022A
	@Pressure <=1.33e-10 MPa, Temperature 125 °C	@Pressure <=1.93e-8 psi, Temperature 257 °F	
	0.010 %	0.010 %	NASA SP-R-0022A
	@Pressure <=1.33e-10 MPa, Temperature 125 °C	@Pressure <=1.93e-8 psi, Temperature 257 °F	

Mechanical Properties	Metric	English	Comments
Tensile Strength	45.5 MPa	6600 psi	Cross; ASTM D882
	60.7 MPa	8800 psi	Machine; ASTM D882
Modulus of Elasticity	1.51 GPa	219 ksi	Cross; ASTM D638
	1.90 GPa	275 ksi	Machine; ASTM D638
Flexural Modulus	>= 2.46 GPa	>= 357 ksi	ASTM D790
Compressive Modulus	1.63 GPa	237 ksi	ASTM D695

Mechanical Properties	Metric	English	Comments
Tensile Strength	11.41 MPa/m	163.91 psi	Tensile Strength; IPC TM-650 2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	28.0 µm/m-°C	15.6 µin/in-°F	y direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	29.0 µm/m-°C	16.1 µin/in-°F	x direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
CTE, linear, Transverse to Flow	246 µm/m-°C	137 µin/in-°F	z direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
Thermal Conductivity	0.261 W/m-K	1.81 BTU-in/hr-ft²-°F	ASTM E1225
	@Temperature 100 °C	@Temperature 212 °F	
Flammability, UL94	V-0	V-0	Vertical Burn

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.30e+14 ohm-cm	2.30e+14 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
Surface Resistance	3.40e+12 ohm	3.40e+12 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	2.17 - 2.2	2.17 - 2.2	C23/50; IPC TM-650 2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	2.17 - 2.2	2.17 - 2.2	C23/50; IPC TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Dielectric Breakdown	>= 45000 V	>= 45000 V	D48/50; ASTM D149
Dissipation Factor	0.00090	0.00090	C23/50; IPC TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Arc Resistance	>= 180 sec	>= 180 sec	D48/50; ASTM D495

Descriptive Properties	Value	Comments
Temperature Coefficient of Dielectric (ppm/°C)	-151	IPC TM-650 2.5.5.5 (-10 - 140°C)

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