

PTFE/Woven Fiberglass/Micro-Dispersed Ceramic Filled Laminate for RF & Microwave Printed Circuit Boards

Features:

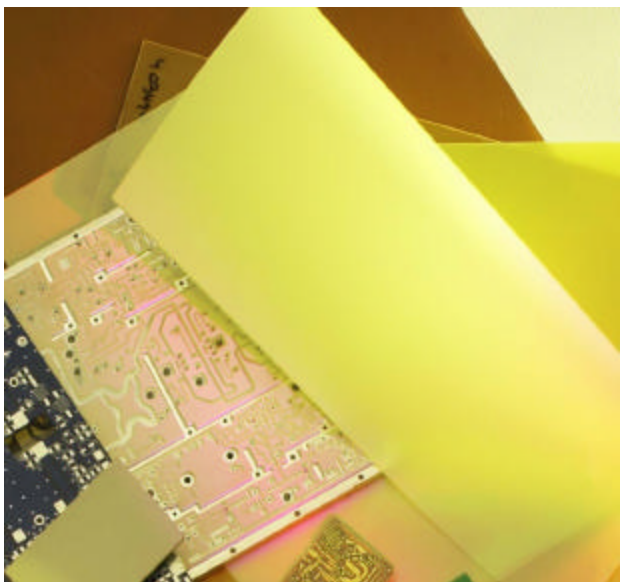
- Low Loss PTFE and Ceramic Filled Composite
- Dielectric Constant (2.60)
- Low Dielectric Loss (Loss Tangent)
- Low Profile Copper (lower conductive losses)
- Low Z-Direction CTE
- Large Panel Sizes Available
- Low Thermal Coefficient of Expansion

Benefits:

- Low Insertion Loss
- Higher Antenna Efficiencies
- Multiple boards per panel (reduced edge trim waste)
- Large antenna formats

Typical Applications:

- Digital Audio Broadcasting (DAB) Antennas (Satellite Radio)
- Base Station Antenna Applications
- GPS and RFID Reader Antennas
- Electronic Surveillance, SIGINT and other RF Applications



Arlon's AD260A is a woven fiberglass reinforced PTFE composite material designed as a low cost laminate with excellent low loss characteristics. Features of AD260A include lower loss through the use of optimizing the trade-off between thicker and thinner glass styles as well as a tighter DK tolerance.

This material combines the excellent low loss electrical properties of PTFE resin with the thermal properties of ceramic and the enhanced value of cost effective fiberglass styles to provide low cost laminate materials suitable for high volume commercial wireless communication applications.

The electrical properties of AD260A are highly desired in applications where higher frequency and expectations for increased fidelity with broadband signals are beyond the performance capabilities offered by high temperature or low temperature ceramics and thermosets.

The dielectric constant has been designed with a 2.60 dielectric constant. To maintain high yields with our end customer, Arlon will be using the IPC TM-650 2.5.5.6 (FSR) Test Method on every panel to insure dielectric constant consistency. Stability of PTFE over a wide frequency range and its low loss properties, makes AD260A ideal for a variety of microwave and R/F applications in telecom infrastructure. The inclusion of micro-dispersed ceramic provides thermal stability to the laminate in the form of lower CTE values and greater Phase Stability across temperature.

AD260A is compatible with the processing used for standard PTFE based printed circuit board substrates. Its low Z-axis thermal expansion improves plated through hole reliability compared to typical PTFE based laminates. Low X-Y expansion improves BGA solder-joint reliability.

Typical Properties: AD260A

Property	Test Method	Condition	Result
Dielectric Constant @ 10GHz Dielectric Constant @ ~ 200 MHz Dielectric Constant @ 1MHz	IPC TM-650 2.5.5.5 IPC TM-650 2.5.5.6 IPC TM-650 2.5.5.3	C23/50	2.60 2.60 2.60
Loss Tangent @ 10 GHz Loss Tangent @ 1 MHz	IPC TM-650 2.5.5.6 PC TM-650 2.5.5.3	C23/50	0.00170 0.00135
Thermal Coefficient of ϵ_r	IPC TM-650 2.5.5.5	-10°C to +140°C	- 80
Copper peel Strength (1oz) lbs (lbs. per linear inch)	IPC TM-650 2.4.8	A, TS	17
Volume Resistivity (M Ω -cm)	IPC TM-650 2.5.17.1	C96/35/90	1.1×10^9
Surface Resistivity (M Ω)	IPC TM-650 2.5.17.1	C96/35/90	4.5×10^7
Arc Resistance (seconds)	ASTM D-495	D48/50	>180
Tensile Modulus (kpsi)	ASTM D-638	A, 23°C	> 700
Tensile Strength (kpsi)	IPC TM-650 2.4.18	A, 23°C	> 20
Compressive Modulus (kpsi)	ASTM D-695	A, 23°C	> 350
Flexural Modulus (kpsi)	ASTM D-790	A, 23°C	> 540
Dielectric Breakdown (kV)	ASTM D-149	D48/50	> 45
Specific Gravity (g/cm ³)	ASTM D-792 Method A	A, 23°C	2.30
Water Absorption (%)	IPC TM-650 2.6.2.2	E1/105 + D24/23	0.04
Coefficient of Thermal Expansion (ppm/°C) X Axis Y Axis Z Axis	IPC TM-650 2.4.24 TMA	0°C to 100°C	16 16 80
Thermal Conductivity (W/mK)	ASTM E-1225	100°C	0.32
Flammability	UL 94 Vertical Burn	C48/23/50, E24/125	UL94-V0

Material Availability:

Current Standard Production is based on 0.030" and 0.060" thickness designs. Other thicknesses, may be available upon request. Please contact Arlon Customer Service to discuss your application. AD260A is supplied with 1/2, 1 or 2 ounce electrodeposited copper on both sides. Other copper weights and rolled copper foil are available.

When ordering AD260A, specify dielectric thickness, cladding, panel size and any other special considerations. Typical Panels are cut from a Master Sheet. The master sheet is limited to 36" x 48" and 36" x 72". Typical panel sizes cut from a master sheet include: 12" x 18", 18" X 24", 16" X 18". Custom sizes are available.

Results listed above are typical properties; they are not to be used as specification limits. The above information creates no expressed or implied warranties. The properties of Arlon laminates may vary depending on the design and application.



TECHNOLOGY ENABLING INNOVATION

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