

AD-250, AD-270, AD-300, AD-320, and AD-350 PTFE/Woven Fiberglass Laminates

Arlon's AD Series® is a group of woven fiberglass reinforced PTFE composite materials designed for use as printed circuit board substrates. These materials combine the excellent low loss electrical properties of PTFE resin with the enhanced value of cost effective heavier fiberglass styles to provide low cost laminate materials suitable for high volume commercial wireless communication applications.

AD Series are currently available in a limited combination of dielectric thickness (.015" - .062") and dielectric constant (2.5 - 3.5). Thicker dielectrics can be developed to meet customer requirements. The higher weight ratio of fiberglass to PTFE resin yields laminates with greater dimensional stability than is normally expected of PTFE-based substrates.

Stability of PTFE over a wide frequency range and low loss makes AD Series materials ideal for a variety of microwave and R/F applications in telecom infrastructure.

AD Series laminate materials may be processed with standard PTFE materials. Because there is a relatively higher percentage of fiberglass, thermal expansion is reduced in all directions, improving plated through hole reliability.

Features

- Cost-effective Construction
- Reduced PTFE/Glass Ratio
- Volume Manufacturing

Benefits

- PTFE Performance Stable Over Frequency Low Loss
- Improved Registration
- Commercial Cost Structure – Quick Delivery

Typical Properties: AD Series® PTFE/Woven Fiberglass Laminates

Properties	Test Method	Condition	Typical Values
Dielectric Constant/ Dissipation Factor (10 GHz)	IPC TM-650 2.5.5.5	C23/50	AD 250 2.50 / 0.0018 AD 270 2.70 / 0.0023 AD 300 3.00 / 0.003 AD 320 3.20 / 0.003 AD 350 3.50 / 0.003
Thermal Coefficient of dielectric constant	IPC TM-650 2.5.5.5 Adapted	-10°C to +140°C	-110 ppm/C
Peel Strength (lbs per inch)	IPC TM-650 2.4.8	After Thermal Stress	AD 250 - 14 AD 270 - 14 AD 300 - 14 AD 320 - 14 AD 350 - 14
Volume Resistivity	IPC TM-650 2.5.17.1	C96/35/90	1.2 x 10 ⁹ megohm-cm
Surface Resistivity	IPC TM-650 2.5.17.1	C96/35/90	4.5 x 10 ⁷ megohm
Arc Resistance	ASTM D-495	D48/50	> 180 seconds
Tensile Modulus (x,y)	ASTM D-638	A, 23°C	706, 517 kpsi
Tensile Strength (x,y)	ASTM D-882	A, 23°C	20.9, 17.3 kpsi
Compressive Modulus	ASTM D-695	A, 23°C	365 kpsi
Flexural Modulus	ASTM D-790	A, 23°C	540 kpsi
Dielectric Strength	ASTM D-149	D48/50	> 45 kv
Specific Gravity	ASTM D-792 A	A, 23°C	2.40 g/cm ³
Water Absorption	IPC TM-650 2.6.2.2	E1/105 + D24/23	0.07%
Coefficient of Thermal Expansion X Y Z		0°C to 100°C	12 ppm/C 15 ppm/C 95 ppm/C
Thermal Conductivity	ASTM E-1225	100°C	0.235 (W/mK)
Flammability	UL 94	C48/23/50, E24/125	Meets 94V-0

Data based on 0.062" dielectric thickness, exclusive of metal cladding except where indicated by test method. 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 AD Series laminates may vary depending on the application.

The information and data contained herein are believed reliable, but all recommendations or suggestions are made without guarantee. You should thoroughly and independently test materials for any planned applications and determine satisfactory performance before commercialization. Furthermore, no suggestion for use, or material supplied shall be construed as a recommendation or inducement to violate any law or infringe any patent.

AD-250, AD-270, AD-300, AD-320 and AD-350 are tradenames of ARLON MATERIALS FOR ELECTRONICS DIV., BEAR, DE.

Availability:

AD Series materials are supplied with 1/2 ounce, 1 ounce or 2 ounce electrodeposited copper foil on both sides. These materials are also available to a heavy metal ground plane. Aluminum, brass and copper plate may be specified, providing an integral heat sink and mechanical support to the substrate.

When ordering AD Series products, please specify dielectric constant, dielectric thickness, choice of cladding, panel size, and any other special considerations. Panels are available up to 36" x 72".

ARLON

MATERIALS FOR ELECTRONICS

9433 Hyssop Drive, Rancho Cucamonga, CA 91730 • Telephone: (909) 987-9533 • Fax: (909) 987-8541
 1100 Governor Lea Road, Bear, DE 19701 • Telephone: (302) 834-2100, (800) 635-9333 • Fax: (302) 834-2574
 37 Rue Collange, 92300 LeVallois, Perret, France • Telephone: (33) 1-427-02642 • Fax: (33) 1-427-02798
 44 Wilby Avenue, Little Lever, Bolton, Lancashire, BL31QE, UK • Telephone: (44) 120-457-6068 • Fax: (44) 120-457-9615
 No. 8 Hong Gu Road, Shanghai, China 200363 • Telephone/Fax: (86) 216-2090-202
 Website: www.arlon-med.com

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