

# DuPont™ Pyralux® TA & TAH

All-Polyimide Double-Sided Copper-Clad Laminate

Flexible Circuit Materials

## Product Description

DuPont™ Pyralux® TA and TAH are Double-sided Copper-clad Laminates featuring adhesive-less, all-polyimide dielectric layers. These materials exhibit excellent low loss performance, enabling remarkable signal integrity in high-speed digital and high-frequency circuit applications. Offered in a variety of both dielectric and conductor thickness, DuPont™ Pyralux® TA and TAH provide designers, fabricators, and assemblers a versatile option for a wide variety of flexible circuit constructions.

## Key Features and Benefits

- Low loss dielectric and ED Cu foil (TA) or RA Cu foil (TAH) conductor layers
- Excellent thermal resistance from all-polyimide dielectric
- Minimal variance in dielectric thickness for consistent performance
- High flex and bending reliability due to excellent adhesion between dielectric and copper foil
- UL 94V-0, UL File E161336
- RoHS Compliant

## Packaging

DuPont™ Pyralux® TA and TAH Double-side Clads are supplied as 100 linear meter (328 ft) rolls in widths of either 250 mm (9.8 in), 260 mm (10.2 in), or 500 mm (19.7 in).

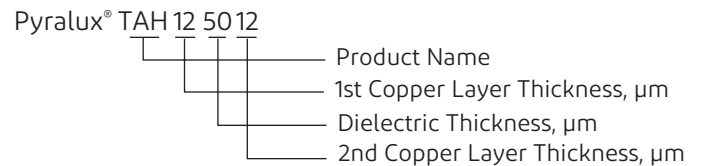
## Storage and Warranty

DuPont™ Pyralux® TA and TAH Double-side Clads should be stored in original packaging at temperatures of 4 - 29 °C (40 - 85 °F) and below 70% relative humidity. The product should not be frozen and should be kept dry, clean, and well-protected. Subject to compliance with the foregoing handling and storage recommendations, DuPont's warranties shall remain in effect for the period provided in the DuPont Standard Conditions of Sale.

**Table 1 - Standard Pyralux® TA & TAH Clad Offerings**

Product Code	Copper Thickness µm (oz/ft²) & Type	Dielectric Thickness µm (mil)
TA122512	12 (0.33) ED	25 (1.0)
TA123812	12 (0.33) ED	38 (1.5)
TA125012	12 (0.33) ED	50 (2.0)
TA182518	18 (0.5) ED	25 (1.0)
TA185018	18 (0.5) ED	50 (2.0)
TAH125012	12 (0.33) RA	50 (2.0)

## Product Code Key



## Processing

DuPont™ Pyralux® TA and TAH Double-side Clads are fully compatible with all conventional flexible circuit fabrication processes, including oxide treatment and wet chemical plated-through-hole de-smearing. Fabricated circuits can be cover coated and laminated together to form multilayers or bonded to heat sinks using polyimide, acrylic, or epoxy adhesives. Pyralux® TA & TAH processing guide available from your DuPont sales representative.

## Safe Handling

Prior to handling, DuPont recommends referencing the Pyralux® Safe Handling Guide available at [pyralux.dupont.com](http://pyralux.dupont.com).

## Quality and Traceability

DuPont™ Pyralux® TA and TAH Double-side Clads are manufactured under a certified ISO9001:2015 Quality Management System facility. Complete material and manufacturing records, which include archive samples of finished product, are maintained by DuPont. Each manufactured lot is identified for reference traceability. The packaging label serves as the primary tracking mechanism in the event of customer inquiry and includes the product name, batch number, size, and quantity.

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## Product Performance

Table 2 - DuPont™ Pyralux® TA & TAH Double-sided Copper-clad Laminate Properties

Property	TA125012 Typical Value	TAH125012B Typical Value	Test Method
Dielectric Constant (Dk), 10 GHz	3.2	3.2	ASTM D2520
Loss Tangent (Df), 10 GHz	0.003	0.003	ASTM D2520
Peel Strength (Adhesion to Copper) As Received, N/mm (lb/in) After Solder, N/mm (lb/in)	> 0.9 (> 5.1) > 0.9 (> 5.1)	> 0.8 (> 4.6) > 0.8 (> 4.6)	IPC-TM-650 2.4.9
Dimensional Stability (MD/TD) After Etching, % After Thermal (200 °C for 30 min), %	± 0.1 % ± 0.1 %	± 0.1 % ± 0.1 %	IPC-TM-650 2.2.4
Coefficient of Thermal Expansion XY-Axis, ppm/°C	25	25	IPC-TM-650 2.4.41
Solder Float, 288 °C for 10 s	Pass	Pass	IPC-TM-650 2.4.13
Moisture Absorption, %	0.5	0.5	IPC-TM-650 2.6.2
Volume Resistivity, Ω · cm	> 10 <sup>16</sup>	> 10 <sup>16</sup>	IPC-TM-650 2.5.17
Surface Resistance, Ω	> 10 <sup>15</sup>	> 10 <sup>15</sup>	IPC-TM-650 2.5.17
Tensile Modulus, GPa	> 7	> 7	IPC-TM-650 2.4.19
Tensile Strength, MPa	> 350	> 350	IPC-TM-650 2.4.19
Elongation, %	45	45	IPC-TM-650 2.4.19
Flexural Endurance, cycles	> 200	> 300	JIS C6471 (MIT)
Glass Transition Temperature (Tg), °C	220	200	DuPont Method, TMA
Chemical Resistance Tensile Strength Retention, % Elongation Retention, % Peel Strength Retention, %	> 80% > 80% > 90%	> 80% > 80% > 90%	DuPont Method, NaOH & HCl Dip for 10 min separately

Data within this table are typical values for the listed product. Performance can vary depending on construction and processing.



[pyralux.dupont.com](http://pyralux.dupont.com)

For more information on Pyralux® TA & TAH Double-side Clads or other DuPont products, please visit our website.

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102-5 and "DuPont Policy Regarding Medical Applications" H-50103-5.

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EI-10108 (4/20)