

IPC-4101 /40 /41 UL - File Number E41625

Isola offers a product line of polyimide-based prepreg (P25) and core material (P95) for high temperature printed circuit applications.

PRODUCT FEATURES

Industry Recognition

- UL File Number: E41625
- RoHS Compliant

Performance Attributes

- Lead-free assembly compatible
- 6x 260°C reflow capable

Processing Advantages

- Via filling capability
- Multiple reflow capable
- Multiple lamination cycles

PRODUCT AVAILABILITY

Standard Material Offering: Laminate

- 2 to 125 mil (0.05 to 3.2 mm)

Copper Foil Type

- HTE Grade 3

Copper Weight

- ½ to 3 oz (18 to 105 µm) available
- Thinner copper foil available

Standard Material Offering: Prepreg

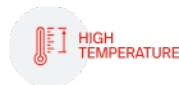
- Tooling of prepreg panels
- Moisture barrier packaging

Glass Fabric Availability

- E-glass

These products consist of an HB flammability rated polyimide resin system suitable for military, commercial or industrial electronic applications requiring superior performance and the utmost in thermal properties. These products utilize a polyimide and thermoplastic blend resin, fully cured without the use of MDA (Methylenedianiline). This results in a polymer with a high Tg without the characteristic difficulties of brittleness and low initial bond strength associated with traditional thermoset polyimides.

PRODUCT ATTRIBUTES



TYPICAL MARKET APPLICATIONS



ORDERING INFORMATION:

Contact your local sales representative or contact info@isola-group.com for further information.

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Typical Values Table

| Property | | Typical Value | Units | | Test Method |
|--|--|-------------------|------------------|--------------------------|-----------------------|
| | | | Metric (English) | IPC-TM-650 (or as noted) | |
| Glass Transition Temperature (Tg) by DSC | | 260 | | °C | 2.4.25C |
| Decomposition Temperature (Td) by TGA @ 5% weight loss | | 416 | | °C | 2.4.24.6 |
| Time to Delaminate by TMA (Copper removed) | A. T260 B. T288 | 60 | | Minutes | 2.4.24.1 |
| Z-Axis CTE | A. Pre-Tg B. 50 to 260°C, (Total Expansion) | 55 1.5 | | ppm/°C % | 2.4.24C |
| X/Y-Axis CTE | Pre-Tg | 13/14 | | ppm/°C | 2.4.24C |
| Thermal Conductivity | | 0.4 | | W/m·K | ASTM E1952 |
| Thermal Stress 10 sec @ 288°C (550.4°F) | A. Unetched B. Etched | Pass | | Pass Visual | 2.4.13.1 |
| Dk, Permittivity | A. @ 100 MHz | 3.83 | | — | 2.5.5.9 |
| | B. @ 500 MHz | 3.80 | | | 2.5.5.9 |
| | C. @ 1 GHz | 3.78 | | | 2.5.5.9 |
| | D. @ 2 GHz | 3.76 | | | Bereskin Stripline |
| | E. @ 5 GHz | 3.73 | | | Bereskin Stripline |
| | F. @ 10 GHz | 3.73 | | | Bereskin Stripline |
| Df, Loss Tangent | A. @ 100 MHz | 0.0135 | | — | 2.5.5.9 |
| | B. @ 500 MHz | 0.0151 | | | 2.5.5.9 |
| | C. @ 1 GHz | 0.0172 | | | 2.5.5.9 |
| | D. @ 2 GHz | 0.0179 | | | Bereskin Stripline |
| | E. @ 5 GHz | 0.0188 | | | Bereskin Stripline |
| | F. @ 10 GHz | 0.021 | | | Bereskin Stripline |
| Volume Resistivity | A. After moisture resistance | 3.0×10^8 | | MΩ-cm | 2.5.17.1 |
| | B. At elevated temperature | 7.0×10^8 | | | |
| Surface Resistivity | A. After moisture resistance | 3.0×10^6 | | MΩ | 2.5.17.1 |
| | B. At elevated temperature | 2.0×10^8 | | | |
| Dielectric Breakdown | | >55 | | kV | 2.5.6B |
| Arc Resistance | | 130 | | Seconds | 2.5.1B |
| Electric Strength (Laminate & laminated prepreg) | | 44 (1100) | | kV/mm (V/mil) | 2.5.6.2A |
| Comparative Tracking Index (CTI) | | 2 (250-399) | | Class (Volts) | UL 746A ASTM D3638 |
| Peel Strength | A. Low profile copper foil and very low profile copper foil all copper foil >17 μm [0.669 mil] | 1.14 (6.5) | | N/mm (lb/inch) | 2.4.8C |
| | B. Standard profile copper | 1.25 (7.0) | | | 2.4.8.2A |
| | 1. After thermal stress | 1.25 (7.0) | | | 2.4.8.3 |
| | 2. At 125°C (257°F) | 1.14 (6.5) | | | 2.4.8.3 |
| Flexural Strength | A. Length direction | 456 (66.2) | | MPa (kpsi) | 2.4.4B |
| | B. Cross direction | 405 (58.7) | | | |
| Tensile Strength | A. Length direction | 376 (54.5) | | MPa (kpsi) | ASTM D3039 |
| | B. Cross direction | 249 (36.1) | | | |
| Young's Modulus | A. Length direction | 3892 | | ksi | ASTM D790-15e2 |
| | B. Cross direction | 3490 | | | |
| Poisson's Ratio | A. Length direction | 0.187 | | — | ASTM D3039 |
| | B. Cross direction | 0.164 | | | |
| Moisture Absorption | | 0.5 | | % | 2.6.2.1A |
| Flammability (Laminate & laminated prepreg) | | HB | | Rating | UL 94 |
| Relative Thermal Index (RTI) | | 140 | | °C | UL 796 |

NOTES

Visit our site <http://www.isola-group.com> for more details.

Revisions:

A: Initial release - 4/17

B: Corrected units for Flexural and Tensile Strength - 8/18

C: Corrected MOT value to match UL file - 11/18

D: Change MOT to RTI 5/19

E: Corrected Flex Strength. Values reversed 2/23

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