



BT/Epoxy Laminate and Prepreg

Isola Group's G200 is a fully proven laminate and prepreg system designed to meet today's high reliability printed circuit board requirements.

Blending bismaleimide/triazine and epoxy resin provides G200 with enhanced thermal, mechanical and electrical performance over most epoxy materials.

G200 possesses performance characteristics that make it an excellent selection for large panel size, high layer count printed wiring boards.

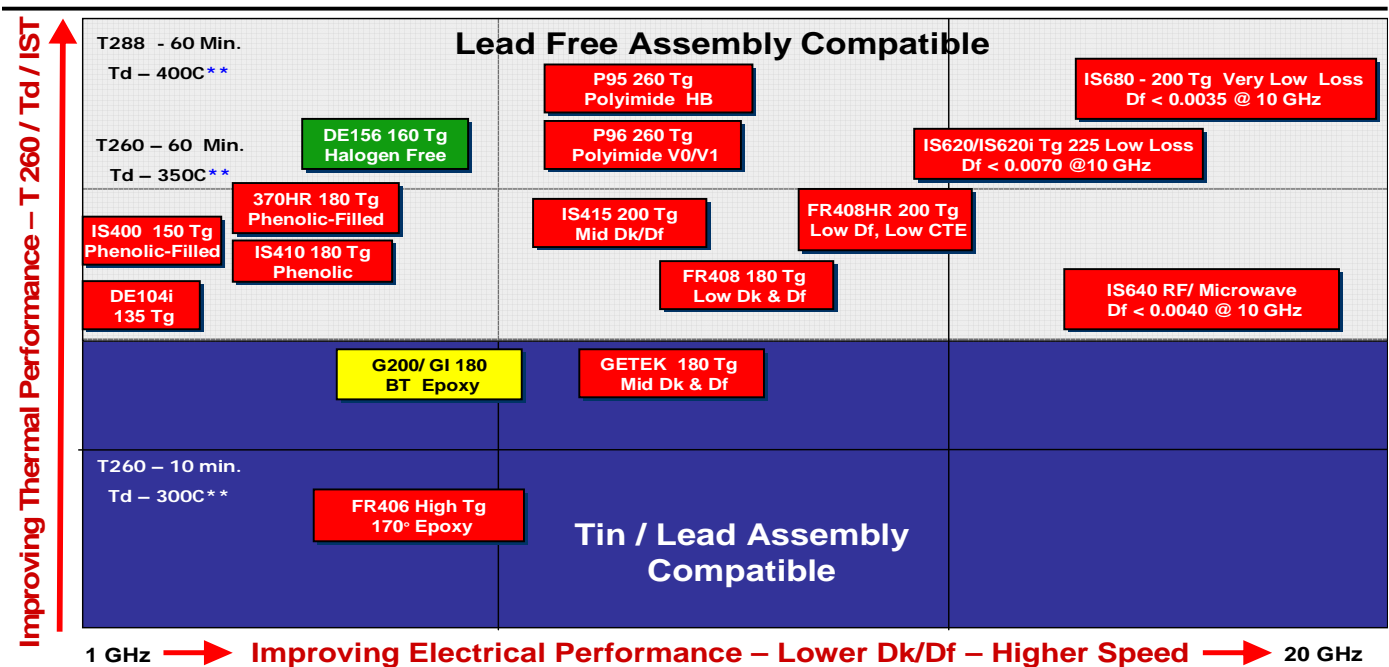
Industry Approvals

- IPC-4101A /30
- UL Recognized – FR-4, File Number E41625

- High Tg - 180 °C (DSC)**
Superior performance through multiple thermal excursions
Superior chemical and thermal resistance
- Low CTE from Ambient to 288 °C**
- Excellent Electrical Insulation in High Humidity and High Temperatures (CAF Resistance)**
- Very Consistent Dimensional Stability**
Excellent layer-to-layer registration
- Standard Availability**
Thickness: 0.002" [.05 mm] to 0.125" [3.2 mm]
Available in sheet or panel form
- Copper Foil Cladding:** Grade 3 (HTE), 1/8 to 3 oz.
- Foil Options:** Double treat
- Prepregs:** Available in roll or panel form
- Glass Styles:** 106, 1080, 2313, 2116, 1652 and 7628



Isola - Product Position Thermal Performance vs Signal Integrity



Speed is a function of design such as line length etc.

** Laminate Data - IST performance is a function of Hole diameter, board thickness, plating parameters and laminate attributes.

G200 Typical Laminate Properties

| G 200 | | | | | |
|---|--|----------------------|-----------------------|--------------------------|--------------------|
| Property | Typical Values | | | | |
| | | | Units | Test Method | |
| | Typical Value | Specification | Metric (English) | IPC-TM-650 (or as noted) | |
| Glass Transition Temperature (Tg) by DSC, spec minimum | | 180 | 150-200 | °C | 2.4.25 |
| Decomposition Temperature (Td) @ 5% wt loss | | 325 | — | °C | ASTM D3850 |
| CTE, Z-axis | A. Pre-Tg | 55 | AABUS | ppm/°C | 2.4.24 |
| | B. Post-Tg | 275 | — | | |
| CTE, X-, Y-axes | A. Pre-Tg | 13/14 | AABUS | ppm/°C | 2.4.24 |
| | B. Post-Tg | 14/17 | — | | |
| % Z-Axis Expansion (50-260C) | | 3.3 | | % | 2.4.24 |
| Thermal Conductivity | | 0.35 | — | W/mK | ASTM D5930 |
| Thermal Stress 10 Sec | A. Unetched | pass | Pass Visual | Rating | 2.4.13.1 |
| @ 288°C (550.4°F), spec min | B. Etched | pass | Pass Visual | | |
| Permittivity, spec maximum (Laminate & prepreg as laminated) | A. @ 100 MHz HP4285A | 3.80 | 5.4 | — | 2.5.5.3 |
| | B. @ 1 GHz HP4291A | 3.70 | — | | 2.5.5.9 |
| | C. @ 2 GHz Bereskin Stripline | 3.70 | — | | 2.5.5.5 |
| | D. @ 5 GHz Bereskin Stripline | 3.65 | — | | 2.5.5.5 |
| | E. @ 10 GHz Bereskin Stripline | 3.65 | — | | 2.5.5.5 |
| Loss Tangent, spec maximum (Laminate & prepreg as laminated) | A. @ 100 MHz HP4285A | 0.0150 | 0.035 | — | 2.5.5.3 |
| | B. @ 1 GHz HP4291A | 0.0150 | — | | 2.5.5.9 |
| | C. @ 2 GHz Bereskin Stripline | 0.0130 | — | | 2.5.5.5 |
| | D. @ 5 GHz Bereskin Stripline | 0.0150 | — | | 2.5.5.5 |
| | E. @ 10 GHz Bereskin Stripline | 0.0150 | — | | 2.5.5.5 |
| Volume Resistivity, spec minimum | A. 96/35/90 | | 1.0 x 10 ⁶ | MΩ -cm | 2.5.17.1 |
| | B. After moisture resistance | 8.9x10 ⁸ | — | | |
| | C. At elevated temperature | 6.5x10 ⁸ | 1.0 x 10 ³ | | |
| Surface Resistivity, spec minimum | A. 96/35/90 | | 1.0 x 10 ⁴ | MΩ | 2.5.17.1 |
| | B. After moisture resistance | 2.21x10 ⁶ | — | | |
| | C. At elevated temperature | 4.4x10 ⁸ | 1.0 x 10 ³ | | |
| Dielectric Breakdown, spec minimum | | >60 | — | kV | 2.5.6 |
| Arc Resistance, spec minimum | | 130 | 60 | Seconds | 2.5.1 |
| Electric Strength, spec minimum (Laminate & prepreg as laminated) | | 45 | 30 | kV/mm | 2.5.6.2 |
| | | 1175 | 750 | (V/mil) | |
| Comparative Tracking Index (CTI) | | 3 (175-249) | | Class (Volts) | UL-746A ASTM D3638 |
| Peel Strength, Spec Minimum | A. Low profile copper foil and very low profile – all copper weights >17 microns | 6.5(1.14) | 4.0(0.70) | lb/inch(N/mm) | 2.4.8 |
| | B. Standard profile copper | | | | 2.4.8.2 |
| | 1. After thermal stress | 5.5(0.96) | 4.5(0.8) | lb/inch(N/mm) | 2.4.8.3 |
| | 2. At 125°C (257°F) | | 4.0(0.70) | | |
| 3. After process solutions | 5.1(0.09) | 3.0(0.55) | | | |
| Flexural Strength, minimum | A. Lengthwise direction | 53,000 | — | lb/inch ² | 2.4.4 |
| | B. Crosswise direction | 47,100 | — | | |
| Moisture Absorption, spec maximum | | 0.2 | — | % | 2.6.2.1 |
| Flammability (Laminate & prepreg as laminated), spec min | | V0 | | Rating | UL-94 |
| HWI | | 0 | | | |
| Max Operating Temperature | | 140(150) | UL Cert (tested) | Deg C | |
| DSR | | yes | | | |

The data, while believed to be accurate and based on analytical methods considered to be reliable, is for information purposes only. Any sales of these products will be governed by the terms and conditions of the agreement under which they are sold.

ORDERING INFORMATION:

Contact your local sales representative or the Customer Service Department in Chandler, AZ
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