

# MERCURYWAVE 9350

# MERCURYWAVE 9350B



## RF and Microwave Laminate & Prepreg

### Benefits

- Well-controlled Dk/Df electrical properties
- Stable dielectric performance over a wide frequency range
- RF Substrate Technology
- Available in a variety of constructions

### Applications

- Base Station Equipment
- Automotive
- Satellite Communication
- Guidance and Radar
- Broadband RF Antennas



Mercurywave 9350 and Mercurywave 9350B are non-PTFE, high frequency, low resin systems material tailored to the needs of the RF and Microwave market. With low loss electrical properties and high thermal reliability, it offers greater flexibility and freedom to design high performance RF and Microwave substrates.

### Excellent Electrical Properties

- Controlled Dk/Df electrical properties for both laminate and prepregs
- Stable Dk/Df versus frequency when tested over various environmental conditions
- Low insertion loss
- Low passive intermodulation "PIM"

### Thermal and Mechanical Properties

- Excellent thermal dissipation
- Low Z-axis expansion
- Withstands multiple 260°C assembly reflow cycles
- High Peel Strength
- High Tg material

### Processing

- 120 minutes press at 193°C and 275-350 psi.

### Specifications

- UL 94V-0, Rating of 50°C Maximum Operating Temperature (MOT)
- Meets and exceeds IPC-4101/29, IPC-4103/240 specifications
- UL file number: E36295

| Properties                            | Conditions                              | Typical Value  | Unit  | Test Method         |
|---------------------------------------|---|--|---|---------------------|
| <b>Electrical Properties</b>          |   |  |   |                     |
| Dielectric Constant                   | @ 2.5 GHz                               | 3.7  |   |                     |
|                                       | @ 10 GHz                                | 3.5  |   | IPC-TM-650.2.5.5.5  |
| Dissipation Factor                    | @ 2.5 GHz                               | 0.004  |   |                     |
|                                       | @ 10 GHz                                | 0.004  |   | IPC-TM-650.2.5.5.5  |
| Volume Resistivity                    | C - 96 / 35 / 90                        | 7.0 x 10 <sup>7</sup>                                | MΩ - cm                                       | IPC-TM-650.2.5.17.1 |
|                                       | E - 24 / 125                            | 7.4 X 10 <sup>6</sup>                                |   |                     |
| Surface Resistivity                   | C - 96 / 35 / 90                        | 6.6 X 10 <sup>5</sup>                                | MΩ  | IPC-TM-650.2.5.17.1 |
|                                       | E - 24 / 125                            | 4.7 x 10 <sup>6</sup>                                |   |                     |
| Electric Strength                     |   | 5.9x10 <sup>4</sup> (1500)                           | V/mm (V/mil)                                  | IPC-TM-650.2.5.6.2  |
| <b>Thermal Properties</b>             |   |  |   |                     |
| *Glass Transition Temperature (Tg)    | DMA(°C) (Tan d Peak)                    | >200   | °C  | IPC-TM-650.2.4.24.3 |
| Degradation Temperature (TGA)         | Degradation Temp (TGA)<br>(5% wt. loss) | 360  | °C  | IPC-TM-650.2.3.40   |
| T-260                                 | Time to delamination @<br>260°C         | 200  | minutes                                       | IPC-TM-650.2.4.24.1 |
| Thermal Conductivity                  |   | 0.50   | W/mK  | ASTM E1461          |
| <b>Mechanical Properties</b>          |   |  |   |                     |
| Peel Strength                         | 1 oz (35μ) Cu<br>After Solder Float     | 1.22 (7.0)   | N/mm (lbf/inch)                               | IPC-TM-650.2.4.8    |
| X / Y CTE                             | -40°C to + 125°C                        | 10 / 14  | ppm/°C  | IPC-TM-650.2.4.41   |
| Z Axis CTE Alpha 1 / Alpha 2 (55% RC) | 50°C to Tg / Tg to 260°C                | 48 / 245   | ppm/°C  | IPC-TM-650.2.4.24   |
| Z Axis Expansion (43% RC)             | 50°C to 260°C                           | 2.5  | %   | IPC-TM-650.2.4.24   |
| Young's Modulus (X / Y)               |   | 2.1 <sup>10</sup> / 2.5 <sup>10</sup><br>(3.0 / 3.7) | GN/m <sup>2</sup><br>(psi x 10 <sup>6</sup> ) | ASTM D3039          |
| Poisson's Ratios (X / Y)              |   | 0.14 / 0.17  |   |                     |
| <b>Chemical / Physical Properties</b> |   |  |   |                     |
| Moisture Absorption                   |   | 0.15   | wt. %   | IPC-TM-650.2.6.2.1  |

\* DMA is the preferred method for measuring Tg - other methods may be less accurate.

- All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a company representative directly
- Mercurywave 9350 and Mercurywave 9350B can be manufactured in laminate thickness from 2 mil (0.05 mm) and up.
- Mercurywave 9350 and Mercurywave 9350B are available in most common panel sizes.
- Please contact AGC for availability of any other constructions, copper weights glass styles including very low profile copper and RTFOIL®

