



## High Speed, Low Loss & Green EM-828G / EM-828BG

- Low Dk and Df
- Low moisture absorption
- Excellent CAF resistance
- Halogen, antimony and red phosphorus free
- For high speed sever, network and telecom application

### Basic Laminate Property

| Item                          | IPC-TM-650   | Test Condition    | Unit                 | Typical Value     |         |
|-------------------------------|--------------|-------------------|----------------------|-------------------|---------|
| Glass Transition Temp         | 2.4.25       | DSC               | °C                   | 170               |         |
|                               | 2.4.24.3     | TMA               | °C                   | 160               |         |
|                               | 2.4.24.2     | DMA               | °C                   | 190               |         |
| CTE, X-, Y-axis               | 2.4.24       | Pre-Tg, TMA       | ppm/°C               | 12/15             |         |
| CTE, Z-axis                   | 2.4.24       | Alpha 1, TMA      | ppm/°C               | 50                |         |
|                               |              | Alpha 2, TMA      | ppm/°C               | 250               |         |
| Z-axis Expansion              | 2.4.24       | 50~260°C, TMA     | %                    | 2.6               |         |
| Decomposition Temp.           | 2.4.24.26    | TGA               | °C                   | 380               |         |
| Thermal Stress<br>10sec 288°C | 2.4.13.1     | Clad              | —                    | Pass Visual       |         |
|                               |              | Etched            | —                    | Pass Visual       |         |
| Water Absorption              | 2.6.2.1      | E-1/105 + D-24/23 | %                    | 0.07              |         |
| Peel Strength<br>(RTF)        | 0.5oz        | 2.4.8             | As Received          | lb/in             | 3.5     |
|                               |              |                   | After Thermal Stress | lb/in             | 3.5     |
|                               | 1.0oz        | 2.4.8             | As Received          | lb/in             | 4.0     |
|                               |              |                   | After Thermal Stress | lb/in             | 4.0     |
| Permittivity<br>(RC 50%)      | 1GHz         | 2.5.5.9           | C-24/23/50           | —                 | 3.9     |
|                               | 10GHz        | Cavity Resonator  |                      | —                 | 3.8     |
| Loss Tangent<br>(RC 50%)      | 1GHz         | 2.5.5.9           | C-24/23/50           | —                 | 0.008   |
|                               | 10GHz        | Cavity Resonator  |                      | —                 | 0.012   |
| Volume Resistivity            | 2.5.17.1     | C-96/35/90        | MΩ-cm                | >10 <sup>10</sup> |         |
| Surface Resistivity           | 2.5.17.1     | C-96/35/90        | MΩ                   | >10 <sup>9</sup>  |         |
| Flexural<br>Strength          | Warp<br>Fill | 2.4.4             | As Received          | MPa               | 420~450 |
|                               |              |                   | As Received          | MPa               | 360~390 |
| Flame Resistance              | UL-94        | A&E-24/125        | —                    | V-0               |         |