

# EM-892K / EM-892BK

## High Tg / Extreme Low Loss / Halogen Free

- Applications include: high-speed Ethernet, network, HPC, AI, 5G and antenna.
- Designed for high thermal reliability with excellent CAF resistance.
- Outstanding multiple lamination capability.
- Fabrication friendly resin can be combined with mid-loss resins for "hybrid" designs.
- RoHS Compliant
- UL File: E150504
- Applicable IPC Slash Sheets: IPC-4101 /134; IPC-4103 /230, /530

### Basic Laminate Property

| Property         | Item                     |        | Typical Value     | Unit       | Test Condition  | IPC-TM-650       |
|------------------|--------------------------|--------|-------------------|------------|-----------------|------------------|
| Thermal          | Tg                       |        | N/A               | °C         | DSC             | 2.4.25           |
|                  |                          |        | 180               | °C         | TMA             | 2.4.24           |
|                  |                          |        | 215               | °C         | DMA             | 2.4.24.4         |
|                  | CTE, X/Y-axis            |        | 12/13             | ppm/°C     | < Tg, TMA       | 2.4.24.5         |
|                  | CTE, Z-axis              |        | 40~45             | ppm/°C     | < Tg, TMA       | 2.4.24           |
|                  |                          |        | 185~205           | ppm/°C     | > Tg, TMA       |                  |
|                  | Z-axis Expansion         |        | 1.8               | %          | 50~260 °C       | 2.4.24           |
|                  | Td                       |        | 420               | °C         | TGA (5% W.L)    | 2.4.24.6         |
|                  | T288                     |        | >60               | min.       | Clad            | 2.4.24.1         |
|                  |                          |        | >60               | min.       | Etched          |                  |
|                  | Thermal Conductivity     |        | 0.46              | W/m.K      | -               | ASTM D5470       |
| Electrical       | Dk<br>(R/C: 55/70%)      | 1 GHz  | 3.11/2.93         | -          | C-24/23/50      | 2.5.5.9          |
|                  |                          | 10 GHz | 3.00/2.84         | -          |                 | Cavity Resonator |
|                  |                          |        | 3.00/2.84         | -          |                 | SPC method       |
|                  | Df<br>(R/C: 55/70%)      | 1 GHz  | 0.0014/0.0012     | -          | C-24/23/50      | 2.5.5.9          |
|                  |                          | 10 GHz | 0.0019/0.0017     | -          |                 | Cavity Resonator |
|                  |                          |        | 0.0015/0.0013     | -          |                 | SPC method       |
|                  | Volume Resistivity       |        | >10 <sup>10</sup> | MΩ-cm      | C-96/35/90      | 2.5.17.1         |
|                  | Surface Resistivity      |        | >10 <sup>9</sup>  | MΩ         | C-96/35/90      | 2.5.17.1         |
| Physical         | Water Absorption         |        | 0.07              | %          | E-1/105+D-24/23 | 2.6.2.1          |
|                  | Peel Strength<br>(HVLP3) | H oz   | 3.5               | lb/in      | As Received     | 2.4.8            |
|                  | Flexural<br>Strength     | Warp   | 450~510           | MPa        | As Received     | 2.4.4            |
|                  |                          | Fill   | 400~450           | MPa        |                 |                  |
| Flame Resistance |                          | V-0    | -                 | C-48/23/50 | UL-94           |                  |

Above typical values are tested under specified constructions and not intended for specification.