



Lead-free , Halogen-free Material

EM-285 / EM-285B

- Superior thermal resistance for lead-free process
- FR-4 process friendly and suitable for sequential lamination
- Lower Df
- Low moisture absorption and excellent CAF resistance
- Halogen, antimony and red phosphorus free
- For LCD, memory module and mobile device application

Basic Laminate Property

| Item | IPC-TM-650 | Test condition | Unit | Typical Value | |
|-------------------------------|--------------|-----------------|----------------------|-------------------|---------|
| Glass transition temp. | 2.4.24 | TMA | °C | 150 | |
| CTE, X-, Y-axis | 2.4.24 | Pre-Tg, TMA | ppm/°C | 16/ 16 | |
| 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 | % | 3.0 | |
| Decomposition temp. | 2.4.24.26 | TGA | °C | 360 | |
| Thermal stress 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 | % | 0.08 | |
| Peel strength | 0.5 oz | 2.4.8 | as received | lb/in | 6.5 |
| | | | after thermal stress | lb/in | 6.5 |
| | 1.0 oz | 2.4.8 | as received | lb/in | 8.5 |
| | | | after thermal stress | lb/in | 8.5 |
| Permittivity (RC 50%) | 1 MHz | 2.5.5.9 | C-24/23/50 | — | 4.8 |
| | 1 GHz | | | — | 4.3 |
| Loss tangent (RC 50%) | 1 MHz | 2.5.5.9 | C-24/23/50 | — | 0.007 |
| | 1 GHz | | | — | 0.011 |
| Volume resistivity | 2.5.17.1 | C-96/35/90 | MΩ-cm | >10 ¹⁰ | |
| Surface resistivity | 2.5.17.1 | C-96/35/90 | MΩ | >10 ⁹ | |
| Flexural strength | Warp Fill | 2.4.4 | as received | MPa | 640~680 |
| | | | as received | MPa | 460~500 |
| Flame resistance | UL-94 | A&E-24/125 | — | V-0 | |