



## 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 <sup>10</sup>
Surface resistivity		2.5.17.1	C-96/35/90	MΩ	>10 <sup>9</sup>
Flexural strength	Warp	2.4.4	as received	MPa	640~680
	Fill		as received	MPa	460~500
Flame resistance		UL-94	A&E-24/125	—	V-0