



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	Test method	Test condition	Unit	Core thickness		
				≥ 0.031" (0.78mm)		
				*IPC Spec.	Typical Value	
Glass transition temp.	2.4.24	TMA	°C	min. 150	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	max. 60	50	
		Alpha 2, TMA	ppm/°C	max. 300	250	
Z-axis Expansion	2.4.24	50~260°C, TMA	%	max. 3.5	3.0	
Decomposition temp.	2.4.24.26	TGA	°C	min. 325	360	
Thermal stress 10sec 288°C	2.4.13.1	Clad	—	Pass Visual	Pass Visual	
		Etched	—	Pass Visual	Pass Visual	
Water absorption	2.6.2.1	E-1/105+D-24/23	%	max. 0.8	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	min. 6	8.5
			after thermal stress	lb/in	min. 6	8.5
Permittivity (RC 50%)	1 MHz	2.5.5.9	C-24/23/50	—	max. 5.4	4.8
	1 GHz			—	—	4.3
Loss tangent (RC 50%)	1 MHz	2.5.5.9	C-24/23/50	—	max. 0.035	0.007
	1 GHz			—	—	0.011
Volume resistivity	2.5.17.1	C-96/35/90	MΩ-cm	min. 1*10 ⁶	>10 ¹⁰	
Surface resistivity	2.5.17.1	C-96/35/90	MΩ	min. 1*10 ⁴	>10 ⁹	
Flexural strength	Warp	2.4.4	as received	MPa	min. 415	640~680
	Fill		as received	MPa	min. 345	460~500
Flame resistance	UL-94	A&E-24/125	—	min. V-0	V-0	