



Middle Tg / Low CTE / Lead Free

EM-825 / EM-825B

- Low Z-axis CTE < 3.5% (50~260°C)
- Excellent thermal stability for lead-free processing
- For general application
- Applicable IPC-4101 Slash Sheets: /98, /99, /101

Basic Laminate Property

Property	Item		IPC-TM-650	Test Condition	Unit	Typical Value
Thermal	Tg		2.4.25	DSC	°C	150
			2.4.24	TMA	°C	140
			2.4.24.4	DMA	°C	160
	CTE, X/Y-axis		2.4.24.5	< Tg, TMA	ppm/°C	12/15
	CTE, Z-axis		2.4.24	< Tg, TMA	ppm/°C	40~45
				> Tg, TMA	ppm/°C	240~250
	Z-axis Expansion		2.4.24	50~260°C	%	3.2
	Td		2.4.24.6	TGA (5% W.L)	°C	340
	T288		2.4.24.1	Clad	Min.	>20
Etched				Min.	>25	
Electrical	Dk (R/C: 50%)	1 MHz	2.5.5.9	C-24/23/50	-	4.9
		1 GHz			-	4.4
	Df (R/C: 50%)	1 MHz	2.5.5.9	C-24/23/50	-	0.015
		1 GHz			-	0.016
	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
Physical	Water Absorption		2.6.2.1	E-1/105+D-24/23	%	0.11
	Peel Strength (HTE)	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
	Flexural Strength	Warp	2.4.4	As Received	MPa	510~570
		Fill		As Received	MPa	450~500
	Flame Resistance		UL-94	A & E-24/125	-	V-0

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