



## Low CTE / Low Loss / Halogen Free

### EM-A50 / EM-A5B

- Low CTE material and has excellent thermal reliability
- Lower Dk/Df value, excellent electrical performance
- Suitable for automotive and other higher performance requirements

#### Basic Laminate Property

Property	Item		IPC-TM-650	Test Condition	Unit	Typical Value
Thermal	Tg		2.4.25	DSC	°C	N/A
			2.4.24	TMA	°C	230
			2.4.24.4	DMA	°C	260
	CTE, X/Y-axis		2.4.24.5	< Tg, TMA	ppm/°C	9/10
	CTE, Z-axis		2.4.24	< Tg, TMA	ppm/°C	25~30
				> Tg, TMA	ppm/°C	120~140
	Z-axis Expansion		2.4.24	50~260°C	%	1.3
	Td		2.4.24.6	TGA (5% W.L)	°C	430
T288		2.4.24.1	Clad	Min	>60	
			Etched	Min	>60	
Electrical	Dk (R/C: 50/70%)	10GHz	Cavity Resonator	C-24/23/50	-	3.9/3.4
	Df (R/C: 50/70%)	10GHz	Cavity Resonator	C-24/23/50	-	0.007/0.008
	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>
Physical	Water Absorption		2.6.2.1	E-1/105+D-24/23	%	0.12
	Peel Strength (RTF)	0.5 oz	2.4.8	As Received	lb/in	5.5
	Peel Strength (RTF)	1.0 oz	2.4.8	As Received	lb/in	6.0
	Flexural Modulus	Warp	2.4.4	As Received	GPa	24-26
		Fill		As Received	GPa	23-25
Flame Resistance		-	UL-94	-	V-0	

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