

EM-S376 / EM-S376B

Low Loss / Low CTE / Halogen Free

- Applications include: W/B, CSP, BGA, FC PKG, SiP, module and coreless.
- High heat resistance and excellent CAF resistance.
- Low Df for better signal integrity and flexible circuit design.
- Low CTE for anti-warpage solution of IC substrate.
- RoHS Compliant
- UL File: E150504
- Applicable IPC Slash Sheets: IPC-4103 /240, /540

Basic Laminate Property

Property	Item		Typical Value	Unit	Test Condition	IPC-TM-650
Thermal	Tg		N/A	°C	DSC	2.4.25
			210	°C	TMA	2.4.24
			240	°C	DMA	2.4.24.4
	CTE, X/Y-axis		11/12	ppm/°C	< Tg, TMA	2.4.24.5
	CTE, Z-axis		30~35	ppm/°C	< Tg, TMA	2.4.24
			130~150	ppm/°C	> Tg, TMA	
	Td		430	°C	TGA (5% W.L)	2.4.24.6
	T288		>60	min.	Clad	2.4.24.1
			>60	min.	Etched	
	Thermal Conductivity		0.59	W/m.K		ASTM D5470
Electrical	Dk (R/C: 50/70%)	1 GHz	4.0/3.5	-	C-24/23/50	2.5.5.9
		10GHz	3.9/3.4	-		Cavity Resonator
	Df (R/C: 50/70%)	1 GHz	0.005/0.006	-	C-24/23/50	2.5.5.9
		10GHz	0.007/0.008	-		Cavity Resonator
	Volume Resistivity		>10 ¹⁰	MΩ-cm	C-96/35/90	2.5.17.1
	Surface Resistivity		>10 ⁹	MΩ	C-96/35/90	2.5.17.1
Physical	Water Absorption		0.12	%	E-1/105+D-24/23	2.6.2.1
	Peel Strength	VLP, 12 um	0.9	kg/cm	As Received	2.4.8
	Flexural Modulus	Warp	23~25	GPa	As Received	2.4.4
		Fill	22~24	GPa	As Received	
	Flame Resistance		V-0	-	C-48/23/50	UL-94

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