



High Tg / Ultra Low Loss / Halogen Free

EM-890 / EM-89B

- Very low Df and excellent electrical performance
- Excellent CAF resistance
- Multiple lamination and high thermal reliability applications
- For high speed Ethernet, network , 5G , Antenna applications

Basic Laminate Property

SProperty	Item		IPC-TM-650	Test Condition	Unit	Typical Value
Thermal	Tg		2.4.25	DSC	°C	N/A
			2.4.24	TMA	°C	170
			2.4.24.4	DMA	°C	205
	CTE, X/Y-axis		2.4.24.5	< Tg, TMA	ppm/°C	12/13
	CTE, Z-axis		2.4.24	< Tg, TMA	ppm/°C	45~50
				> Tg, TMA	ppm/°C	185~205
	Z-axis Expansion		2.4.24	50~260°C	%	2.2
	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: 55/70%)	1 GHz	2.5.5.9	C-24/23/50	-	3.5/3.1
		10 GHz	SPDR			3.4/3.0
			Cavity Resonator			3.4/3.0
	Df (R/C: 55/70%)	1 GHz	2.5.5.9	C-24/23/50	-	0.0033/0.0027
		10 GHz	SPDR			0.0037/0.0031
			Cavity Resonator			0.0043/0.0036
Physical	Water Absorption		2.6.2.1	E-1/105+D-24/23	%	0.07
	Peel Strength (HVL P)	H oz	2.4.8	As Received	lb/in	4.5
		Warp Fill	2.4.4	As Received	MPa	430-470
	410-450					
Flame Resistance		UL-94	A & E-24/125	-	V-0	