



# IT-158

*Middle Tg / Lead Free / High Reliability Laminate & Prepreg*

- Excellent CAF resistance
- Good through-hole reliability
- Low CTE and high thermal reliability
- For automotive, PC and notebook, game player, networking, and heavy copper applications

## Laminate properties

Items	IPC TM-650	Typical Value	Unit
Peel Strength, minimum			
A. Low profile copper foil	2.4.8	5	lb/inch
B. Standard profile copper foil		8	
Volume Resistivity	2.5.17.1	1x10 <sup>9</sup>	MΩ-cm
Surface Resistivity	2.5.17.1	1x10 <sup>8</sup>	MΩ
Moisture Absorption, maximum	2.6.2.1	0.10	%
Permittivity (Dk, 50% resin content)			
A. 1GHz		4.3	
B. 2GHz	2.5.5.13	4.2	--
C. 5GHz		4.1	
D. 10GHz		4.0	
Loss Tangent (Df, 50% resin content)			
A. 1GHz		0.016	
B. 2GHz	2.5.5.13	0.017	--
C. 5GHz		0.018	
D. 10GHz		0.018	
Flexural Strength, minimum			
A. Length direction	2.4.4	450-480	N/mm <sup>2</sup>
B. Cross direction		370-400	
<b>Thermal Stress 10 s at 288°C</b>			
A. Unetched	2.4.13.1	Pass	Rating
B. Etched		Pass	
Flammability	UL94	V-0	Rating
Glass Transition Temperature(DSC)	2.4.25	155	°C
Decomposition Temperature	2.4.24.6	345	°C
X/Y Axis CTE (40°C to 125°C)	2.4.24	11-13 / 13-15	ppm/°C
Z-Axis CTE			
A. Alpha 1		40	ppm/°C
B. Alpha 2	2.4.24	240	ppm/°C
C. 50 to 260 Degrees C		3.3	%
Thermal Resistance			
A. T260	2.4.24.1	>60	Minutes
B. T288		20	Minutes