

### Typical Engineering Values

Property / Condition	Value (U.S. Units)		Value (Metric Units)		Test Method
<b>Mechanical</b>					
Peel Strength - 1 oz. (35 micron) Cu					
After Solder Float	7.5	lb/inch	1.31	N/mm	IPC-TM-650.2.4.8
At Elevated Temperature	8.1	lb/inch	1.42	N/mm	IPC-TM-650.2.4.8.2a
After Exposure to Process Solutions	9.0	lb/inch	1.58	N/mm	IPC-TM-650.2.4.8
X/Y CTE [-40°C to +125°C]	9 - 13	ppm/°C	9 - 13	ppm/°C	IPC-TM-650.2.4.41
Z Axis Expansion [50°C to 260°C]	3.5	%	3.5	%	IPC-TM-650.2.4.41
Young's Modulus (X/Y)	TBD	psi x 10 <sup>6</sup>	TBD	GN/M <sup>2</sup>	ASTM D3039
Poisson's Ratios (X/Y)	TBD		TBD		ASTM D3039
Thermal Conductivity	0.294	W/mK	0.294	W/mK	ASTM E1461
Specific Heat	1.30	J/gK	1.30	J/gK	ASTM E1461
<b>Electrical</b>					
Dielectric Constant (50% resin content)					
@ 1 GHz (RF Impedance)	3.5		3.5		IPC-TM-650.2.5.5.9
@ 10 GHz (Stripline)	3.2		3.2		IPC-TM-650.2.5.5.5
@ 10 GHz (Split Post)	3.3		3.3		
Dissipation Factor (50% resin content)					
@ 10 GHz (Stripline)	0.009		0.009		IPC-TM-650.2.5.5.5
@ 10 GHz (Split Post)	0.006		0.006		IPC-TM-650.2.5.5.5
Volume Resistivity					
C - 96/35/90	10 <sup>8</sup>	MΩ - cm	10 <sup>8</sup>	MΩ - cm	IPC-TM-650.2.5.17.1
E - 24/125	10 <sup>8</sup>	MΩ - cm	10 <sup>8</sup>	MΩ - cm	IPC-TM-650.2.5.17.1
Surface Resistivity					
C - 96/35/90	10 <sup>7</sup>	MΩ	10 <sup>7</sup>	MΩ	IPC-TM-650.2.5.17.1
E - 24/125	10 <sup>7</sup>	MΩ	10 <sup>7</sup>	MΩ	IPC-TM-650.2.5.17.1
Electric Strength	1000	V/mil	3.9x10 <sup>4</sup>	V/mm	IPC-TM-650.2.5.6.2
Dielectric Breakdown	>50	kV	>50	kV	IPC-TM-650.2.5.6
Arc Resistance	123	seconds	123	seconds	IPC-TM-650.2.5.1
<b>Thermal</b>					
Glass Transition Temperature (T <sub>g</sub> )					
DSC (°C)	210	°C	210	°C	IPC-TM-650.2.4.25c
TMA (°C)	200	°C	200	°C	IPC-TM-650.2.4.24c
DMA (°C) (Tan δ Peak)	240	°C	240	°C	IPC-TM-650.2.4.24.3
Degradation Temp (TGA) (5% wt. loss)	350	°C	350	°C	IPC-TM-650.2.3.40
Pressure Cooker - 2 hour					IPC-TM-650.2.6.16
(10 second solder dip @ 288°C)	Pass		Pass		(modified)
T <sub>260</sub>	30+	minutes	30+	minutes	IPC-TM-650.2.4.24.1
<b>Chemical / Physical</b>					
Moisture Absorption	0.1	wt. %	0.1	wt. %	IPC-TM-650.2.6.2c
Methylene Chloride Resistance	0.7	% wt. chg.	0.7	% wt. chg.	IPC-TM-650.2.3.4.3
Density [50% resin content]	1.64	g/cm <sup>3</sup>	1.64	g/cm <sup>3</sup>	Internal Method

Note: All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a Park/Nelco representative directly. Park/Nelco reserves the right to change these typical values as a natural process of refining our testing equipment and techniques.