



LEAD FREE COMPATIBLE PRODUCT PROPERTIES

Property		UNITS	Specification	Typical Value		
				TLM-140(MT)	TLM-150(MT)	TLM-170(T)
Glass Transition Temperature (Tg) by DSC, spec minimum		°C	135 / 150 / 170 min	142	152	174
Decomposition Temperature (Td)		°C	325/325/340 min	350	350	360
TD-260(Etched)		Minutes	35 min	> 60	> 60	> 60
TD-288 (Etched)		Minutes	10 min	> 50	> 40	> 40
CTE X-Axis Y-Axis		ppm/°C	- -	13 15	13 15	13 15
CTE Z-Axis	Pre-Tg	ppm/°C	60 max.	~ 45	~ 40	~ 40
	Post-Tg		300 max.	~ 200	~ 200	~ 200
	50 - 260 °C		4.0%/3.5%/3.0% max.	150 (3.3 %)	150 (3.3%)	130 (2.7%)
Thermal Stress 10 Sec @ 288 °C (Etched)		Seconds	Pass visual	>200	>200	>300
Thermal Conductivity		W/mK	-	0.35	0.35	0.35
Peel Strength (spec minimum)	0.5 oz. (17 micron)	Lb/inch (N/mm)	-	-	-	-
	1.0 oz. (35 micron)		6.0 (1.05)	8-10(1.40-1.80)	8-10(1.40-1.80)	7-9(1.22-1.58)
Dielectric Constant (DK)	1 MHz	-	5.4 max.	4.85	4.75	4.90
	1 GHz	-	-	-	4.50	4.70
Loss Tangent (Df)	1 MHz	-	0.035 max.	0.020	0.020	0.017
	1 GHz	-	-	-	0.018	0.015
Volume Resistivity		Mohm-cm	10 ⁶	3 x 10 ⁹	1 x 10 ¹⁰	1 x 10 ¹⁰
Surface Resistivity		Mohm	10 ⁴	1 x 10 ⁸	1 x 10 ⁸	1 x 10 ⁸
Dielectric Breakdown, spec minimum		kV	40 min.	80	80	80
Arc resistance		Seconds	60 min.	125	125	120
Comparative Tracking Index (CTI)		Volts	-	175-250 (PLC=3)	175-250 (PLC=3)	175-250 (PLC=3)
Moisture Absorption		%	0.35 max.	0.15	0.15	0.10
Flexural Strength CW LW		psi	50,000 min. 60,000 min.	65,000 75,000	65,000 75,000	65,000 75,000
Flammability		rating	V-0 min.	V-0	V-0	V-0
Bow & Twist		%	0.75 max.	0.30	0.30	0.30

Material Thickness Tested 1.5 mm. thickness , Cu 1/1 Oz.

Information contained in this data sheet represents typical or average values and does not constitute any warranty or guarantee.