SPL-15 Dielectric

IPC-TM-650

2.4.24.5

IPC-TM-650

2.4.24.1

ASTM D638



Features & Benefits

- Very low thermal resistance 100μm, 0.015 °C-in²/W
- Product Thermal conductivity of 15 W/m-K Based on (2oz Cu x 100µm SPL-15 HT x 1.5 Al)
- Dielectric Thermal Conductivity 10 W/m-K
- High operating temperature, ~ 200°C
- Lead-free solder compatible •
- RoHS compliant and environmentally green ٠
- Available as a laminated panel, RCC or prepreg
- Available on aluminum and copper base substrates
- Other substrates materials may be available.
- TCLAD Metal Core PCB's (MCPCB's) minimize thermal impedance and conducts heat more efficiently than standard printed wiring boards (PWB's).
- The differentiating technology of Thermal Clad resides in the dielectric. This ٠ datasheet highlights the performance characteristics of TCLAD SPL-15.

Applications

- · High power density applications which required low thermal resistance
- Power conversion, Inverter, DC/DC, AC/DC
- Industrial motor drives
- High temperature SiC IGBT modules

Configurations

Base Metal

Thickness mm (mil)

- 5052 Aluminum 0.8 (32), 1.0 (40)*, 1.5 (59)*, 2.0 (80) •
- 6061 Aluminum 0.8 (32), 1.0 (40)*, 1.5 (59)*, 2.0 (80)
- 1050 Aluminum 0.8 (32), 1.0 (40)*, 1.5 (59)*, 2.0 (80)
- 4045 Aluminum 1.5 (59), 2.0 (80)
- Copper C1100 1.0 (40)*, 1.5 (59)*, 2.0 (80) ٠

Copper Foil

- Weight oz (thickness µm) 1oz (35), 2oz (70), 3oz (105), 4oz (140), 6oz (210)
- ED Copper: 8oz (280), 10oz (350), higher RA Copper:
- * Most common thicknesses
- Other thicknesses and alloys may be available.

Please contact TCLAD sales department for more information. We provide custom solutions for your applications. For Further inquiries, please contact your local sales agent or directly to TCLAD sales in your region.

ltem	Thickness	Unit	Value (Typ.)	Method
Thermal Properties				
Product Thermal Conductivity		W/m-K	15	TO-220 Method
Dielectric Thermal Conductivity		W/m-K	10	ASTM D5470
Thermal Resistance	l 00µm (4mil)	°C-cm²/W (°C-in²/W)	0.096 (0.015)	ASTM D5470
Electrical Properties				
Dielectric Constant		-	4.5	IPC-TM-650 2.5.5.3
Dissipation Factor	100µm (4mil)	1MHz	0.007	IPC-TM-650 2.5.5.3
Capacitance	I 00μm (4mil)	PF	41.05	IPC-TM-650 2.5.5.3
Volume Resistivity		Ω-cm	1013	IPC-TM-650 2.5.17.1
Surface Resistivity		Ω/sq	1013	IPC-TM-650 2.5.17.1
Breakdown Voltage	80µm (3.2mil) 100µm (4mil) 150µm (6mil)	KVAC	3 4 6	ASTM D149
Mechanical Properties				
Color		-	Light brown	Visual
Peel Strength @ 25°C		Kg/cm (lbf/in)	1.0 (5.6)	IPC-TM-650 2.4.8
Glass Transition (Tg)		°C	270	IPC-TM-650 2.4.25
CTE in X,Y/Z Axis <tg< td=""><td>µm/m°C</td><td>11.7</td><td>IPC-TM-650 2.4.24.5</td></tg<>		µm/m°C	11.7	IPC-TM-650 2.4.24.5

Chemical Properties ASTM E595 % < 0.5 Water Vapor Retention % < 0.1 **Out-Gassing Total Mass Loss** ASTM E595 Collect Volatile Condensable % < 0.1 ASTM E595 Material Agency Ratings & Durability- (UL: In Progress) UL Maximum Operating °C TBD expect 155C UL 746 Temperature (MOT) **UL** Flammability TBD expect V-0 UL 94 **UL** Comparative Tracking Index (CTI) TBD expect 600 UL 746E

µm/m°C

GPa

°C

24.3

30

>60





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CTE in X,Y/Z Axis >Tg

Solder Heat Resistance (min)

Youngs Modulus

