Technical Data

SPL15 Dielectric

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
- ***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 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)

Copper Foil	Weight oz (thickness µm)
ED Copper:	1oz (35), 2oz (70), 3oz (105), 4oz (140), 6oz (210)
RA Copper:	8oz (280), 10oz (350), higher

* 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.

Item	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	100µm (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	100µm (4mil)	pF	41	IPC-TM-650 2.5.5.3
Volume Resistivity		Ω-cm	10^{13}	IPC-TM-650 2.5.17.1
Surface Resistivity		Ω/sq	10^{13}	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		µm/m°C	11.7	IPC-TM-650 2.4.24.5
CTE in X,Y/Z Axis >Tg		µm/m°C	24.3	IPC-TM-650 2.4.24.5
Youngs Modulus		GPa	30	ASTM D638
Solder Heat Resistance (min)		°C	>60	IPC-TM-650 2.4.24.1
Decomposition Temperature (2% loss)		°C	390	IPC TM-650 2.4.24.6
Decomposition Temperature (5% loss)		°C	460	IPC TM-650 2.4.24.6
Chemical Properties				
Water Vapor Retention		%	< 0.5	ASTM E595
Out-Gassing Total Mass Loss		%	< 0.1	ASTM E595
Collect Volatile Condensable Material		%	< 0.1	ASTM E595
Agency Ratings & Durability- (UL:121882)				
UL Maximum Operating Temperature (MOT)		°C	155	UL 746
UL Flammability		-	V-0	UL 94
UL Comparative Tracking Index		(CTI)	600	UL 746E

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