Technical Data

SJR Dielectric

FEATURES & BENEFITS

- Thermal resistance,0.03°C-in²/W (0.18°C-cm²/W)
  - (4mil thickness)
- Product thermal conductivity of 3.7 W/m-K
  - 2oz Cu x 4 SJR x 1.6mm Al)
- High temperature applications
- High voltage applications
- Lead-free solder compatible
- Low Tg, low modulus - improved solder joint reliability
- RoHS compliant and environmentally green
- Available with aluminum or copper base
- Other base materials may be available

Thermal Clad Metal Core PCB's (MCPCB's) minimize thermal impedance and conduct 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 Thermal Clad SJR dielectric. This unique 4mil (102µm) thick dielectric has properties designed to absorb internal stresses related to CTE mismatch, such as a low Tg,66°C, low modulus 0.6 @ 150°C along with excellent thermal performance of 0.58°C/W.

Applications

- High watt-density applications where achieving low thermal resistance is required
- Automotive forward lighting
- Industrial lighting
- LED applications

Base Metals **Thicknesses mils (mm)**

- 5052 Aluminum 32(0.8), 40(1.0)*, 63(1.6)*, 80(2.0), 125(3.2)
- 6061 Aluminum 32(0.8), 40(1.0)*, 63(1.6)*, 80(2.0), 125(3.2)
- 4045 Aluminum 59(1.5)

Copper Foil

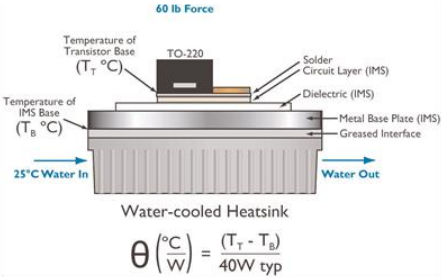
- ED copper 1oz, 2oz, 3oz, 4oz, 6oz
- RA 8oz, 10oz

General Model**

SJR 05804 (4mil)

	THICKNESS	UNIT	VALUE	TEST METHOD
THERMAL PROPERTIES				
Product Thermal Conductivity		W/m-K	3.7	MET 5.4-01-40000
Dielectric Thermal Conductivity		W/m-K	2.7	ASTM D5470
Thermal Resistance	4mil (102µm)	°C-in²/W (°C-cm²/W)	0. 03 (0.18)	ASTM D5470
Thermal Impedance	4mil (102µm)	°C/W	0.58	MET-5.4-01-40000
ELECTRICAL PROPERTIES				
Dielectric Constant		-	6.3	ASTM D150
Dissipation Factor		1kHz	0.006	ASTM D150
Capacitance	4mil (102µm)	pF/in²(pF/cm²)	350 (55)	ASTM D150
Volume Resistivity		Ω-m	10^{13}	ASTM D257
Surface Resistivity		Ω/sq	10^{16}	ASTM D257
DBV Breakdown Voltage	4mil (102µm)	kVAC	9.2	ASTM D149
MECHANICAL PROPERTIES				
Color		-	Off-White	Visual
Peel Strength@25°C		lb/in (N/mm)	5.7 (1.0)	ASTM D2861
Glass Transition (Tg)		°C	66	ASTM E1356
CTE in XY/Z Axis <Tg		µm /m°C	55	ASTM D3386
CTE in XY/Z Axis >Tg		µm /m°C	54	ASTM D3386
Storage Modulus (@25°C/150°C)		GPa	17.6 / 0.6	ASTM 4065
CHEMICAL PROPERTIES				
Water Vapor Retention		% Wt.	0.02	ASTM E595
Out-Gassing Total Mass Loss		% Wt.	0.01	ASTM E595
Collect Volatile Condensable Material		% Wt.	<0.01	ASTM E595
AGENCY RATINGS & DURABILITY				
UL Maximum Operating Temperature (MOT)		140°C	TBD	UL 746
UL Flammability		-	V-0	UL 94
UL Comparative Tracking Index		(CTI)	0	ASTM D3638
Solder Limit Rating		°C/ sec	325/60	UL 746

Test Thermal Performance of Insulated Metal Substrates (IMS) TO-220 Set-up



* Most common thicknesses
** If there is any specific inquiry other than standard specification, please contact us.

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