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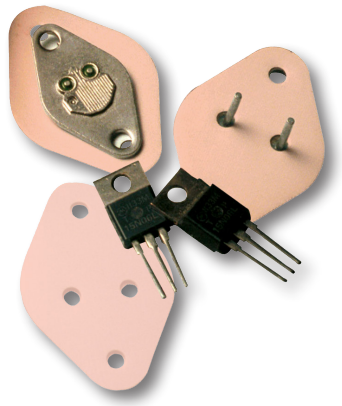
Tgard™ K52
Thermally Conductive Insulators



HIGH THERMAL AND DIELECTRIC PERFORMANCE INSULATOR PAD

Tgard™ K52 is a high thermal and dielectric performance insulator pad consisting of a ceramic filled phase change compound coated on MT Kapton film.

Tgard™ K52 phase change coating all but eliminates contact thermal resistance. The phase change coating melts at 52ºC and replaces all contact areas that contain air. Tgard™ K52-1 is ideal for applications requiring the best thermal performing insulator material.

Tgard™ K52-2 has the best balance of thermal, dielectric and cut through performance. Tgard™ K52-3 is a 3 mil MT Kapton film that provides the best crush and cut and tear resistance available with thermal properties that are still in the high performance category.

FEATURES AND BENEFITS

- High breakdown voltage of 4,000 – 9,000 range VAC
- Resistant to tears and cut through
- Total thermal resistance of 0.13 - 0.30 range ºC-in2/watt at 20 psi clip force

APPLICATIONS

- Audio amps
- Power modules
- Switching mode power supplies

Americas: +1.800.843.4556
Europe: +49.8031.2460.0
Asia: +86.755.2714.1166

CLV-customerservice@lairdtech.com
www.lairdtech.com/thermal

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PROPERTY	TEST METHOD	K52-1	K52-2	K52-3
ELECTRICAL PROPERTIES				
Dielectric Withstand Voltage 6.4mm probe for 30 sec.	ASTM D149	3,000 volts DC	6,000 volts DC	7,500 volts DC
Dielectric Breakdown Voltage 6.4mm probe	ASTM D149	4,200 volts AC	7,800 volts AC	9,000 volts AC
Volume Resistivity	ASTM D257	4×10^{14}	4×10^{14}	4×10^{14}
Dielectric Constant @ 1 MHz	ASTM D257	1.8	1.8	1.8
MECHANICAL PROPERTIES				
Composite Thickness	ASTM D374	2 mil (0.051mm)	3 mil (0.076mm)	4 mil (0.102mm)
MT Kapton® Thickness	ASTM D374	1 mil (0.025mm)	2 mil (0.051mm)	3 mil (0.076mm)
Tensile Strength	ASTM D412	13.5 kpsi (93 mPa)	18 kpsi (124 mPa)	20 kpsi (139 mPa)
Elongation MD	ASTM D412	80%	80%	80%
Operating Temperature Range		-60 - 150ºC	-60 - 150ºC	-60 - 150ºC
Color		Light amber	Light amber	Medium amber

PRESSURE, PSI (KPA)	10 (69)	20 (138)	50 (345)	100 (689)	200 (1379)	400 (2758)
TOTAL THERMAL RESISTANCE ˚C-in²/watt (˚C-cm²/watt)						
K52-1	0.14 (0.90)	0.14 (0.90)	0.13 (0.84)	0.13 (0.84)	0.13 (0.84)	0.13 (0.84)
K52-2	0.23 (1.48)	0.23 (1.48)	0.22 (1.42)	0.22 (1.42)	0.22 (1.42)	0.22 (1.42)
K52-3	0.33 (2.13)	0.32 (2.06)	0.31 (2.00)	0.30 (1.94)	0.30 (1.94)	0.30 (1.94)

STANDARD DIE CUT PARTS: Standard part sizes for TO-220, TO-247, TO-3P, TO-3PL, and TO-264

CUSTOM DIE CUT PARTS: Custom configurations available with standard tolerance of 0.5mm (0.020”)
Ability to handle drawings in multiple file formats. (.DXF and .DWG preferred)

PRESSURE SENSITIVE ADHESIVE: Single side adhesive available on request

Data for design engineer guidance only. Observed performance varies in application. Engineers are reminded to test the material in application.

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