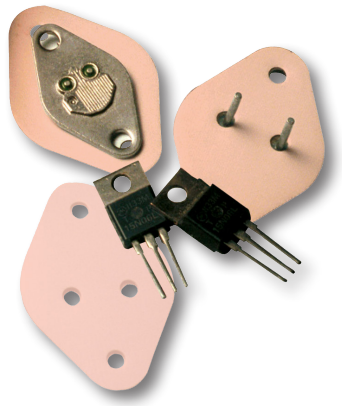
Laird
Smart Technology. Delivered.™

# 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**

Laird
Smart Technology. Delivered.™

# Tgard™ K52

## Thermally Conductive Insulators

| 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 | $4 \times 10^{14}$ | $4 \times 10^{14}$ | $4 \times 10^{14}$ |
| 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.



Any information furnished by Laird and its agents is believed to be accurate and reliable. All specifications are subject to change without notice. Responsibility for the use and application of Laird materials rests with the end user, since Laird and its agents cannot be aware of all potential uses. Laird makes no warranties as to the fitness, merchantability or suitability of any Laird materials or products for any specific or general uses. Laird, Laird Technologies, Inc or any of its affiliates or agents shall not be liable for incidental or consequential damages of any kind. All Laird products are sold pursuant to the Laird Technologies' Terms and Conditions of sale in effect from time to time, a copy of which will be furnished upon request. © Copyright 2014 Laird Technologies, Inc. All Rights Reserved. Laird, Laird Technologies, the Laird Logo, and other marks are trademarks or registered trademarks of Laird Technologies, Inc. or an affiliate company thereof. Other product or service names may be the property of third parties. Nothing herein provides a license under any Laird or any third party intellectual property rights.
A14644-00 REV F