Tgard™ K1000 Series

Die-Cut Electrically Insulating Thermal Interface Materials

PRODUCT DESCRIPTION

The Tgard™ K1000 series are die-cut parts of a high-performance electrically insulating material. This product consists of DuPont™ Kapton® polyimide film of a specified thickness with the option to have an adhesive laminated to one side, ensuring sufficient tackiness on mating surfaces between the heating components and the heatsink.

This product line is designed as a thermal interface material with superior electrical insulation characteristics of polyimide films, and is suitable for use in Battery Systems, Power Electronics, eMobility Infrastructure and other automotive applications.

FEATURES & BENEFITS

- High breakdown voltage range
- Resistant to tears and punctures
- Good electrical insulation

APPLICATION

- Automotive electronics
- Power conversion equipment
- Power module and electronics
- Battery charger and systems

PROPERTY	TEST METHOD	Tgard™ K1025	Tgard™ K1050	Tgard™ K1075
Typical Physical Properties				
Dielectric Breakdown Voltage 6.3mm probe 50Hz	ASTM D149	6000 volts AC	8000 volts AC	9000 volts AC
Volume resistivity (ohm-cm)	ASTM D257	$>10^{16}$	$>10^{16}$	$>10^{16}$
Dielectric constant @1Khz	ASTM D150	3.4	3.4	3.5
UL flammability rating (film)	UL 94	V0	V0	V0
Thermal Conductivity W/m·K	ASTM D5470	0.2	0.2	0.2
Thermal Resistance (@50PSI) A0; °C-in2/W*1 (uncoated)*1	ASTMD5470	1.6	2.3	2.8
Thermal Resistance (@50PSI) A0; °C-in2/W (coated)	ASTMD5470	0.237	0.492	0.95
Thermal Resistance (@50psi) A1 ;°C-in2/W	ASTM D5470	0.83	1.1	1.3
Operation temperature *2 With Adhesive	Laird	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C
Film Thickness mil (micron)		1(25)	2(50)	3(75)
Total Thickness (mm) with adhesive ± 15%		0.08	0.11	0.135
Tear strength, Initial(Graves), N	ASTM D-1004-90	7.2	16.3	26.3
Peel strength*3 180°(gf/25mm)	Laird modified	1100	1100	1100

*1 Rth test at uncoated surface of tester.
*2 Measured with adhesive laminated standard parts ; Contact local site for special adhesive
*3 Adhesion test : Adhesive laminated product ; Peel speed 300mm/ min

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www.laird.com

Configurations available:

Die-cut parts and roll form with adhesive laminated

Standard options:

Request no adhesive with "A0" suffix. Request adhesive on one side with "A1" suffix. Double-sided adhesive is not available.

Standard product is to use acrylic based adhesive to aid in the assembly process not a structural adhesive meant to bond two surfaces.

Please contact the regional manufacturing site for your special options.

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

Product Part Number System

Example 1: Tgard™ K1025 A0 = 25 micron film thick Tgard™ K1000 product

Example 2: Tgard™ K1050 A1= 50 micron thick Tgard™ K1000 product with one side adhesive

Storage condition

Store in dry and less humidity conditions (0º-35ºC ; <60% Relative Humidity is recommended) Use within one year from the date of shipment