

DiaPHASE 60A

Adhesive Backed Diaphase 60 Material • Pre-Applied Functionality

Dielectric Phase Change Thermal Material

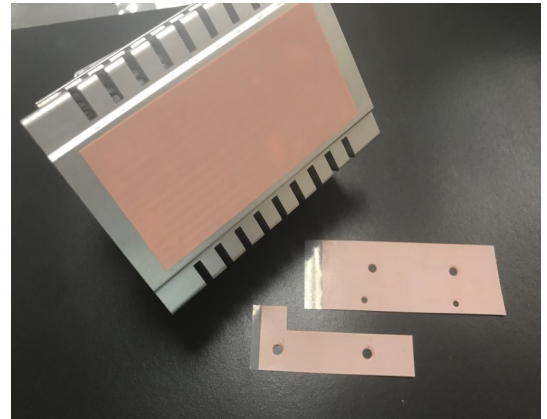
60°C/140°F Phase-Change Temperature

Building upon the thermal performance and dielectric strength of our standard Diaphase product line, Diaphase 60A is built with a 0.5 mil (0.013mm) repositionable pressure sensitive adhesive backing to allow for a pre-applied pad function for installation.

Diaphase 60A still utilizes on one side the benefits of the 60C phase change thermal compound coating as well as the handling and dielectric strength capability of the Kapton® MT polyimide substrate.

The capability of providing the Diaphase 60A in multiple material thicknesses within master rolls, sheets or die cut formats (die cut individuals, multiples per master sheet or die cut continuous reels) allows us to meet a wide range of electronic cooling applications where a pre-applied pad function on a horizontal or vertical surface is required. Diaphase 60A is delivered with an easy to remove clear release liner (adhesive side) and can be further processed through die cutting with a liner tab extension for the die cut part (or multiple per master sheet).

- Adhesive Backed / Pre-Applied Functionality
- Excellent Mechanical & Dielectric Properties
- Solutions for many types of surfaces
- Excellent replacement for thermal greases
- Thixotropic / Prevents Compound Run-Out
- Multiple Standard Material Constructions
- Cost Effective "Drop in Place" Solution / Reworkable
- Rolls, Sheets or Die Cuts



Typical Device Applications	• Non-isolated packages	• Diodes/Relays	• Power Semiconductor	• Chassis Assembly	• Heat Sink/Case Sink
	• Transistors	• Power Supply / UPS	• RF Components	• Non-isolated modules	• Large Surface Area

Diaphase 60A Thermal Compound Properties

Phase Change Temp.....60°C / 140°F
 Volumetric Expansion.....15%

Diaphase 60A Thickness Options

K1A-L05.....0.002" (0.051mm)
 K1.5A-L05.....0.0025" (0.064mm)
 K2A-L05.....0.003" (0.076mm)
 K3A-L05.....0.004" (0.102mm)

Contact us for custom Diaphase 60A coating thickness options

Diaphase 60A Dielectric Strength (ASTM D149)

K1A-L05.....5500 V/mil
 K1.5A-L05.....5100 V/mil
 K2A-L05.....4600 V/mil
 K3A-L05.....4100 V/mil

Standard Diaphase 60A Kapton type is version MT
 Dielectric Strength is DuPont reported per ASTM test listed for MT

Diaphase 60A Thermal Performance (ASTM D5470)

K1A-L05 (0.002"/0.051mm)		K1.5A-L05 (0.0025"/0.064mm)	
10 PSI	0.250 °C in ² / W	10 PSI	0.310 °C in ² / W
20 PSI	0.235 °C in ² / W	20 PSI	0.289 °C in ² / W
40 PSI	0.197 °C in ² / W	40 PSI	0.247 °C in ² / W
80 PSI	0.186 °C in ² / W	80 PSI	0.231 °C in ² / W
100 PSI	0.184 °C in ² / W	100 PSI	0.229 °C in ² / W
K2A-L05 (0.003"/0.076mm)		K3A-L05 (0.004"/0.102mm)	
10 PSI	0.380 °C in ² / W	10 PSI	0.440 °C in ² / W
20 PSI	0.343 °C in ² / W	20 PSI	0.405 °C in ² / W
40 PSI	0.303 °C in ² / W	40 PSI	0.369 °C in ² / W
80 PSI	0.275 °C in ² / W	80 PSI	0.345 °C in ² / W
100 PSI	0.272 °C in ² / W	100 PSI	0.341 °C in ² / W

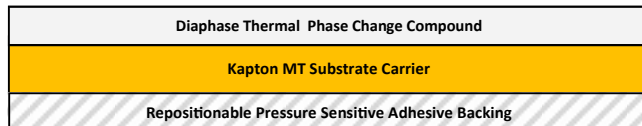
Diaphase 60A Delivery Formats

Master Rolls Custom Slit Rolls
 Die Cut Individuals (prototype or production)
 Multiple per Master Sheets Die Cut Continuous Reels

What is Diaphase 60A (Adhesive Backed)?

Diaphase 60A is a solvent free high performance dielectric thermal interface material that is designed with a repositionable PSA 1 side still allowing for precision phase-change and a uniform bond line thickness across a device/component mounting interface. The ability to manufacture Diaphase 60A in a variety of material thicknesses as well as within rolls, sheets and pre-form die-cuts allows us to meet a wide range of requirements within multiple industries. Diaphase 60A's inherent flexibility from manufacturing to installation makes it an ideal solution for applications ranging from low volume (even prototypes) and/or high volume environments.

Standard Diaphase 60A Pad Construction



Superior Alternative to Thermal Grease

Diaphase 60A is designed as a pre-formed thermally conductive pre-applied pad that offers excellent thermal transfer characteristics not only through design of the compound formulation itself, however, through its uniform pad thickness in X, Y, Z dimensions as well. From an installation perspective, thermal greases are difficult to dispense as well as provide inadequate coverage and a uniform thickness across the interface most often leaving trapped air leading to poor thermal transfer. Not to mention the thermal grease clean up required in unwanted areas afterwards.



Due to its thixotropic formulation design, compound is held within the interface with no worries of run-out into unwanted areas during normal device/component operation. Upon initial phase-change of the Diaphase 60A compound, Diaphase 60A's begins its wetting out process allowing it to fill in any microscopic surface imperfections or uneven surface conditions across the interface as well as drive out any trapped air leading to increased thermal transfer performance keeping the device/component cool and reliable.

DiaPHASE 60A

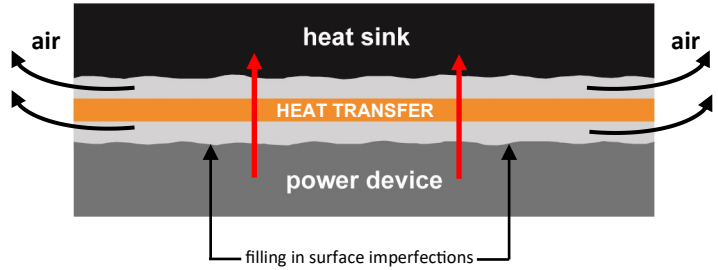
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Thinner vs. Thicker

Diaphase 60A is manufactured in a range of overall thicknesses to meet various surface flatness conditions, overall interface size and/or nominal gap filling and dielectric strength requirements. It is typically recommended that for larger surface area conditions with surface finishes exceeding 64 microns and/or flatness conditions exceeding 0.002" or more, thicker compound coating thicknesses should be considered to allow the Diaphase 60A compound to adjust for these features during initial phase change. Filling a nominal gap requirement with smooth interface surfaces can typically be accomplished with thicker substrate options.



Driving Out the Air

A primary advantage of utilizing the Diaphase 60A phase-change system is the ability to drive out air from within the interface during initial device cycling causing phase change and surface wetting of the thermal compound coating.

Standard Diaphase 60A Material Constructions

Diaphase 60A is manufactured standard within a range of overall material thicknesses allowing us to target standard and custom device / mounting application requirements. Below is a table of standard Diaphase 60A material constructions to choose from.

Standard Diaphase 60A Material Constructions	0.001" / 0.025mm Kapton MT Film	0.0015" / 0.038mm Kapton MT Film	0.002" / 0.051mm Kapton MT Film	0.003" / 0.076mm Kapton MT Film
L05 (0.0005" / 0.013mm) compound one side Adhesive (0.0005" / 0.013mm) PSA one side	K1A-L05 0.002" / 0.051mm	K1.5A-L05 0.0025" / 0.064mm	K2A-L05 0.003" / 0.076mm	K3A-L05 0.004" / 0.100mm

Characteristic	Diaphase 60A
Base Formulation (Compound)	Proprietary
Phase Change Temperature	60°C / 140°F
Viscosity @ Phase Change	Thixotropic
Overall Thickness Tolerance	Target Thickness +/- 10% (typical)
Diaphase 60A Color	Orange
Separator Liner / Color	Clear release liner
Available Formats	Master Rolls / Slit Rolls / Die Cuts (piece or reels)
Maximum Master Roll Width	11.500" (29.2cm)
Standard Master Roll Lengths	100ft or 250ft
Custom Roll Lengths and Widths Available	Yes (customer defined)
Standard Sheet Sizes	11.5" x 24" (29.2cm x 61cm)
Custom Sheet Lengths and Widths Available	Yes (customer defined)
TIMTEL Die Cutting Capabilities	Steel Rule Die / Flexible Die / Rotary Die / Laser Cutting
Typical TIMTEL Die Cut Delivery Formats	Individuals, Multiples on a card, or Continuous Reel
Typical TIMTEL Die Cut Dimensional Tolerance	0.005" (0.13mm) to 0.010" (0.25mm) (determined at review)

Diaphase 60A Storage & Shelf Life	Result
Storage Condition and Temperature	Cool Dry Location at or below 95°F / 35°C
Shelf Life	2 years from date of manufacture
Transit Methods / Conditions	Due to temperature sensitive design of our thermal materials, it is recommended to ship air freight during warmer months to prevent phase-change of thermal compound during long ground transit conditions within elevated temperature environments (May through September)