

**DiaPhase 60 (Type: K3-L10) – 0.004” / 0.102mm**

High Dielectric Strength Phase Change Thermal Interface Material

**Product Description**

DiaPhase 60 (K3-L10) is a high dielectric strength phase change material that utilizes a thick 0.003”/0.076mm Kapton MT polyimide as the substrate carrier delivering a uniform thickness of 0.001”/0.025mm thick thermally conductive phase change compound on both sides. Through the development of our 60°C phase change compound, K3-L10 not only offers a high strength dielectric barrier but also a unique phase change compound designed to flow under normal device operating conditions. Through its phase change characteristic and heavier coating thickness from standard, the K3-L10 drives out the air from within the interface and is capable of adjusting for greater surface imperfections or flatness conditions that may exist across large interface surface areas.

DiaPhase 60 (K3-L10) is ideal for use in applications where high dielectric strength is a key requirement packaged along with efficient thermal transfer characteristics. DiaPhase 60 (K3-L10) is available in master rolls, custom slit rolls and multiple die cut formats.

**Product Features**

- High Dielectric Strength Barrier
- Thick Coating for Greater Surface Area Flatness Conditions
- Excellent Thermal Transfer for a Thick Film
- Thixotropic Compound Design – Prevents Run Out
- Ideal Replacement for Thermal Grease
- Rolls, Slit Rolls, Sheets of Die Cuts

**Typical Applications**

- Power Supply / UPS Systems
- ECU / Inverter Assemblies
- MOSFET / Diodes / Transistors Packages
- AC Converter
- Non-Insulated Power Modules
- Large Surface Area Package Designs

**K3-L10 General Information**

<b>Material Type:</b>	Dielectric Phase Change Material
<b>Target Thickness:</b>	5 Mil (0.127mm)
<b>Thickness Tolerance:</b>	4.5 Mil (0.114mm) – 5.5 Mil (0.139mm)
<b>Phase Change Temperature:</b>	60°C / 140°F
<b>Color:</b>	Light Pink
<b>Liner Type:</b>	White Paper Liner
<b>PCM Coating Thickness:</b>	1 Mil (0.025mm) per side (L10), Dry @ Room Temp
<b>Substrate:</b>	3 Mil (0.076mm) Kapton MT Polyimide Film
<b>Liner Type:</b>	White Paper Liner
<b>Delivery Formats:</b>	Master Rolls, Slit Rolls, Sheets, Die Cuts

**K3-L10 Material Construction**

L10 Coating (0.001” / 0.025mm)
Kapton 300MT Film (0.003” / 0.076mm)
L10 Coating (0.001” / 0.025mm)

**K3-L10 Performance / Technical Specifications**

<b>Thermal Impedance (K3-L10):</b>	0.280 °C in <sup>2</sup> /W @ 40 PSI (maximum)
<b>(ASTM D5470)</b>	0.270 °C in <sup>2</sup> /W @ 80 PSI (maximum)
	0.260 °C in <sup>2</sup> /W @ 100 PSI (maximum)
<b>Thermal Conductivity:</b>	0.46 W/m-K (Kapton 300MT)
<b>Dielectric Strength:</b>	4,100 V/mil (Kapton 300MT) minimum
<b>Phase Change Temperature:</b>	56°C to 64°C
<b>L10 Viscosity @ 80°C:</b>	200 to 800 CPS
<b>Operating Temperature:</b>	-40°C to 150°C

**Thermally Conductive Filler Specifications**

<b>Thermally Conductive Filler Type:</b>	Zinc Oxide (99.99%)
<b>Mean Particle Size:</b>	0.130 micron
<b>+325 Mesh:</b>	0.015% maximum
<b>TIMTEL 150PPM Particle Specification:</b>	150 or less *

\* 300PPM is standard supplier specification (amount of allowable larger particle sizes passed through +325 mesh). 150PPM specification is established by TIMTEL to its supplier to reduce the overall amount of metallic zinc present in the raw zinc oxide lot. Metallic zinc is typical in the refining of our raw zinc oxide. TIMTEL specification set at 150 PPM within the +325 mesh specification allows for further reduction in the metallic zinc present in the lot. The TIMTEL 150PPM zinc oxide filler specification is acceptable for TIMTEL PCM compounds which utilize the zinc oxide filler for processing onto Kapton MT, Kapton MT+ or Devinal TH films with a minimum polyimide film thickness of 0.001” (0.025mm).

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**Storage / Shelf Life / Other Information**

<b>Shelf Life:</b>	2 Years from date of manufacture
<b>Storage Conditions:</b>	Store material in a cool, dry location at or below 95F/35C
<b>Converting Note:</b>	Die cuts processed from master rolls should be packaged with paper separators to prevent sticking of K3-L10 die cuts in final pack when exposed to elevated temperature environments during transit.
<b>Shipping Note:</b>	Due to 60°C phase change temperature, it is recommended to ship final product via air freight during warmer months.

For additional DiaPhase 60 configurations or general customization options, please reference the DiaPhase 60 Technical Data Sheet (Rev 07-17)

**Samples or More Information:** For more information or to receive samples for testing, please contact us toll free at 1-888-989-3832 (US Only) +1-949-369-7676 (international) or e-mail [info@timtelthermal.com](mailto:info@timtelthermal.com)

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