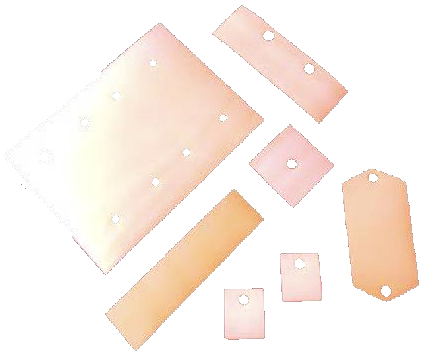
ulTIMiFlux Dielectric Phase Change Thermal Material

CD-02-05

wakefield-vette

60ºC/140ºF PHASE-CHANGE TEMPERATURE



FEATURES AND BENIFITS

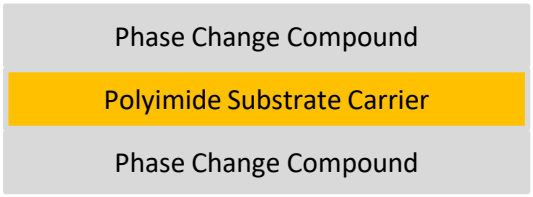
- Low Thermal Impedance
- Excellent Replacement for Thermal Greases
- Thixotropic / Prevents Compound Run-Out
- Excellent Mechanical & Dielectric Properties
- Cost Effective "Drop in Place" Solution
- RoHS and Halogen Free Compliant

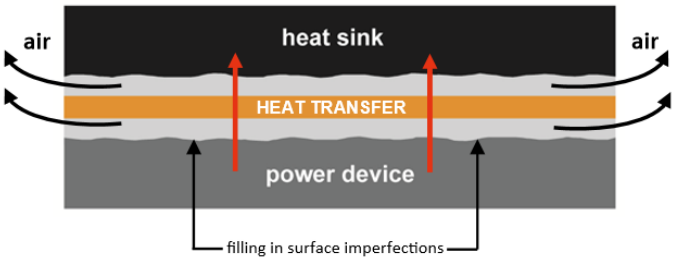
RoHS

Wakefield-Vette's ***ulTIMiFlux*** line of thermal interface materials offer high performance, low cost, configurability and custom sizes for your thermal system needs. Thermal Interface Materials (TIM) are a secondary material installed between the heat sink and the device which are designed to improve the thermal transfer to the heat sink. Regardless of how flat or smooth the device and heat sink are, there will always be small air voids between the two surfaces. Since air is a not a great conductor of heat, a TIM replaces the air and fills the voids. There are many types of TIMs and each has its best case usages. Wakefield-Vetts's line of dielectric phase change thermal materials are intended to fill voids between a device and the heat sink and utilizes a polyimide film to act as a thermally conductive carrier in order to deliver a uniform thickness coating of phase-change thermal compound on both sides.

Through the development of this unique formulation, Wakefield-Vette's phase change solution offers efficient thermal transfer by phase-changing during normal device operating temperatures while maintaining a uniform bond line thus driving out the air and adjusting for any surface imperfections or flatness conditions that may exist across the interface. This construction is useful in a wide range of electronic cooling applications from transistors, diodes or any type of heat generating non-isolated power device.

Standard Phase Change Pad Construction





Note: during initial phase-change, it is recommended to re-check your torque settings if device utilizes a screw mounting system. Applying additional torque during initial phase change will thin the material bond line slightly leading to improved thermal performance.

A primary advantage of utilizing a 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. The phase-change compound is available in specific die cut patterns for common TO packages and can be placed instantly and immediately ready for component mounting. Due to it's thixotropic formulation design, compound is held within the interface with no worries of run-out into unwanted areas during normal device/component operation.

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Wakefield-Vette's phase-change product is a solvent free high performance dielectric thermal interface material that is designed to provide efficient thermal transfer by providing precision phase-change and a uniform bond line thickness across a device/component mounting interface. The pads are designed as a pre-formed thermally conductive “drop in place” solution that offers excellent thermal transfer characteristics. 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.

Wakefield-Vette offers the following pad sizes and die-cut TO package sizes for ease of installation:

WV Part Number	Description	Size	For use with
CD-02-05-220	Phase Change TO-220 Pad with mounting hole	0.70” x 0.50”, single mounting hole	T0-220, with mounting holes
CD-02-05-247	Phase Change TO-247 Pad with mounting hole	0.95” x 0.75”, single mounting hole	TO-247, with mounting holes
CD-02-05-264	Phase Change TO-264 Pad with mounting hole	1.05” x 0.85”, single mounting hole	TO-264, with mounting holes
CD-02-05-025	Phase Change 1” x 1” Square Pad	1” x 1”, no holes	General Use
CD-02-05-127	Phase Change 5” x 5” Square Pad	5” x 5”, no holes	General Use
CD-02-05-190	Phase Change 7.75” x 10.00” Rectangular Pad	7.75” x 10.00”, no holes	General Use
CD-02-05-LED-1	Phase Change LED 1 Inch OD Circle Pad	1.00" Diameter Circle, No ID	LED
CD-02-05-LED-2	Phase Change LED 2 Inch OD Circle Pad	2.00" Diameter Circle, No ID	LED
CD-02-05-220-N	Phase Change TO-220 Pad, NO HOLE	0.70" x 0.50" NO HOLE	TO-220 with no mounting hole
CD-02-05-247-N	Phase Change TO-247 Pad, NO HOLE	0.95" x 0.75" NO HOLE	TO-247 with no mounting hole
CD-02-05-220-2	Phase Change Dual Mount TO-220 Pad, 2 holes	1.00" x 0.50" 2 holes	Dual Mount TO-220
CD-02-05-220-3	Phase Change Triple Mount TO-220 Pad, 3 holes	1.50" x 0.50", 3 holes	Triple Mount TO-220
CD-02-05-247-2	Phase Change Dual Mount TO-247 Pad, 2 holes	1.50" x 0.95", 2 holes	Dual Mount TO-247
CD-02-05-247-3	Phase Change Triple Mount TO-247 Pad, 3 holes	2.25" x 0.95", 3 holes	Triple Mount TO-247
CD-02-05-218	Phase Change TO-218 Pad with hole	0.80" x 0.60" with hole	TO-218 with mounting hole
CD-02-05-126	Phase Change TO-126 Pad with hole	0.50" x 0.35" with hole	TO-126 with mounting hole
CD-02-05-66	Phase Change TO-66 Pad, 2 pin	1.25" x 0.70", 2 pin	TO-66 (std 2 pin)
CD-02-05-3-2	Phase Change TO-3 Pad, 2 pin	1.55" x 1.05", 2 pin	TO-3 (2 pin configuration)
CD-02-05-3-4	Phase Change TO-3 Pad, 4 pin	1.55" x 1.05", 4 Pin	TO-3 (4 pin configuration)
CD-02-05-3-8	Phase Change TO-3 Pad, 8 pin	1.55" x 1.05", 8 Pin	TO-3 (8 pin configuration)
CD-02-05-DO4	Phase Change DO-4 Pad, 0.625" OD / 0.203" ID	0.625" OD / 0.203" ID	DO-4
CD-02-05-DO4-5	Phase Change DO4/5 Pad 0.800" OD / 0.260" ID	0.800" OD / 0.260" ID	DO-4 / DO-5
CD-02-05-DO5	Phase Change DO-5 Pad 1.00" OD / 0.250" ID	1.00" OD / 0.250" ID	DO-5
CD-02-05-REC-125	Phase Change Rectifier Pad 1.25" x 1.25" with hole	1.25" x 1.25" with hole	Rectifier
CD-02-05-REC-125-N	Phase Change Rectifier Pad 1.25" X 1.25", NO HOLE	1.25" X 1.25", NO HOLE	Rectifier
CD-02-05-REC-112	Phase Change Rectifier Pad 1.12" x 1.12" with hole	1.12" x 1.12" with hole	Rectifier
CD-02-05-BRI-225	Phase Change Bridge Rectifier Pad 2.25" x 1.75", 2 End Slots	2.25" x 1.75", 2 End Slots	Bridge Rectifier
CD-02-05-C-18	Phase Change Chipset Pad 0.689" x 0.689", No Hole	0.689" x 0.689", No Hole	17.5mm x 17.5mm, chipset
CD-02-05-C-20	Phase Change Chipset Pad 0.768" x 0.768", No Hole	0.768" x 0.768", No Hole	19.5mm x 19.5mm, chipset
CD-02-05-C-22	Phase Change Chipset Pad 0.846" x 0.846", No Hole	0.846" x 0.846", No Hole	21.5mm x 21.5mm, chipset
CD-02-05-C-26	Phase Change Chipset Pad 1.003" x 1.003", No Hole	1.003" x 1.003", No Hole	25.5mm x 25.5mm, chipset
CD-02-05-C-34	Phase Change Chipset Pad 1.319" x 1.319", No Hole	1.319" x 1.319", No Hole	33.5mm x 33.5mm, chipset
CD-02-05-C-39	Phase Change Chipset Pad 1.516" x 1.516", No Hole	1.516" x 1.516", No Hole	38.5mm X 38.5mm, chipset
CD-02-05-C-46	Phase Change Chipset Pad 1.811" x 1.811", No Hole	1.811" x 1.811", No Hole	46mm X 46mm, chipset
CD-02-05-C-49	Phase Change Chipset Pad 1.909" x 1.909", No Hole	1.909" x 1.909", No Hole	48.5mm X 48.5mm, chipset
CD-02-05-C-54	Phase Change Chipset Pad 2.106" x 2.106", No Hole	2.106" x 2.106", No Hole	53.5mm x 53.5mm, chipset

Specific tests should be performed by the end user to determine the product suitability for the particular application. Contact Wakefield-Vette sales and engineering support with any inquiries.

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Wakefield-Vette's phase-change product physical properties / characteristics:

Property/Characteristics	Value
Base Phase Change Formulation	Proprietary
Electrical Isolation	9200V
Phase Change Temperature	60oC / 140oF
Viscosity @ Phase Change	Thixotropic
Overall Thickness	0.003” +/- 10%
Color	Orange
Separator Liner / Color	White
Total Mass Loss, % TML	0.138
Collectible Volatile, Condensable Matter, % CVC	0.130
Water Vapor Gain, % WVR	0.021
Storage Condition and Temperature	Cool Dry Location at or below 35oC / 95oF
Shelf Life	Indefinite if stored per conditions above
Transit Methods / Conditions	Due to temperature sensitive design, it is recommended to ship air freight during warmer months to prevent phase-change of thermal compound during long ground transit (May-September)
Thermal Impedence	0.107 oC-in2 / Watt (@100 PSI)
UL Flammability Rating	UL94V-0

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