

THERMFLOW™ - T454 and T506

Limited Distribution

Phase Change Thermal Interface Material

DESCRIPTION

THERMFLOW™ T454 and T506 thermal interface pads are phase change materials specially formulated for use in high performance devices requiring minimum thermal resistance for maximum heat sink performance and component reliability. These pads consist of an electrically non-conductive, dry film that softens at device operating temperatures resulting in “grease-like” performance. THERMFLOW T454 and T506 are unsupported free films that can yield very thin bond lines between a hot component and a heat sink or heat plate. T454 is 0.005 inches thick, while T506 is 0.010 inches thick which is beneficial for larger surface areas with greater flatness tolerances. These materials are designed to perform best under clip/fastener pressures of 5 - 60 PSI.

APPLICATION

THERMFLOW T454 and T506 pads are applied by preheating the surface of the heat sink to 55-65°C. Remove the THERMFLOW pad from the clear release liner and carefully position the pad on the warm heat sink. Once the heat sink has cooled, it can be packaged and shipped normally. Prior to assembly of the heat sink onto the heat-dissipating component, it is recommended that the blue protective liner be removed from the pad only at temperatures below 30°C. For best blue liner removal results, the pad should be in place on the heat sink for a minimum of 30 minutes at a temperature below 30°C before liner removal. Dents and minor scratches in the material will not affect performance since the material is designed to flow at typical microprocessor operating temperatures. THERMFLOW pads can be removed for rework using a single-edged razor and then cleaning the surface with isopropanol (IPA) solvent.

Note: T454 and T506 are designed to flow as viscous liquids at temperatures above their melting point (approximately 43°C), and as such, they may drip in certain applications. This effect is further influenced by the operating temperature of the product, and the amount of excess Thermflow™ material present (i.e. material not left between the component and heat sink after mechanical equilibrium is reached). These materials are formulated to be inert and electrically non-conductive, such that this phenomenon is generally not a concern in electronics applications. If the aesthetics of the end product are a concern, Chomerics recommends one of its higher viscosity Thermflow™ products, like T725 and T766.

	Typical Properties	T454	T506	Test Method
CONSTRUCTION	Carrier	None	None	---
	Color	White to slightly gray	White to slightly gray	Visual
	Thickness, inch (mm)	0.005 (0.13)	0.010 (0.25)	ASTM D374
THERMAL	Thermal Impedance, °C-in ² /W @ 50°C, 50 psi	0.025	0.025	ASTM D5470 modified
	Phase Change Temperature, °C	43	43	ASTM D3418
	Operating Temperature Range, °C	-60 to +125	-60 to +125	---
MECH	Specific Gravity	1.1	1.1	ASTM D792