

# THERMFLOW® T777

## Low Thermal Resistance THERMFLOW® Phase Change Pad Polymer Solder Hybrid (PSH) Thermal Interface Material



### DESCRIPTION

Polymer Solder Hybrid T777 Thermal Interface Material is specially formulated for use in high performance devices requiring minimum thermal resistance for maximum thermal performance and component reliability. T777 provides the superior long term reliability performance of phase change materials with the added benefit of enhanced thermal stability over conventional phase change pads. T777 is a 0.0045 inch (0.115mm) thick, inherently adhesive film that softens at device operating temperatures resulting in “grease-like” performance. Unlike traditional phase change materials, PSH materials incorporate low-melt metallic fillers as well as polymer systems to maximize both thermal conductivity and thermo-oxidative stability.

T777 has demonstrated reliable thermal performance during thermal cycling, humidity, and long term accelerated aging tests (equivalent operating condition of 5 years at 70°C). It was developed for next generation Intel microprocessors.

### FEATURES/BENEFITS

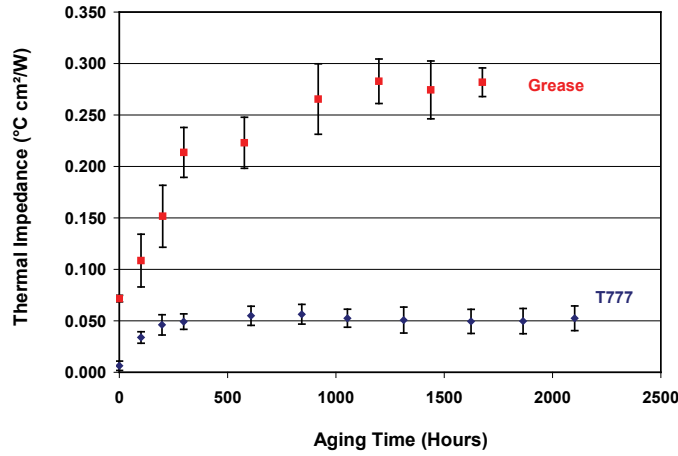
- Low thermal impedance
- Excellent long term EOLife (End of Life) performance
- Proven high temperature reliability
- Easy to handle and apply, peel-and-stick
- Available in free film with release liners for ease of use
- Can be die-cut and tabbed for ease of installation
- Inherently tacky - no adhesive required
- No pump-out associated with thermal grease
- Lower joint stress compared to metallic solder
- Reworkable

### TYPICAL APPLICATIONS

- Microprocessors
- Graphics Processors
- Chipsets
- Memory Modules
- Power Modules
- Power Semiconductors

Phase-Change

THERMFLOW™ T777 Phase-Change Material			
	Typical Properties	T777	Test Method
Physical	Color	Gray	Visual
	Carrier	None - Free film	--
	Standard Thicknesses, mm (in)	0.115 (0.0045)	ASTM D374
	Specific Gravity	1.95	ASTM D792
	Phase Transition Temperature, °C	45 / 64	ASTM D3418
	Weight Loss, 125°C for 48 Hours	<0.5%	--
Thermal	Thermal Impedance @ 70°C, °C-cm²/W (°C-in²/W)		
	@ 10 psi	0.13 (0.02)	ASTM D5470
	@ 20 psi	0.097 (0.015)	
	@ 50 psi	0.035 (0.0055)	
Operating Temperature Range, °C	-55 to 125	--	
Electrical	Volume Resistivity, ohm-cm	Nonconductive	ASTM D257
Regulatory	Flammability Rating	V-0	UL 94
	RoHS Compliant	Yes	Chomerics Self Certification
	Shelf Life, months from date of shipment	12	Chomerics



T777 exhibits a relatively small increase in thermal impedance with 120°C aging compared to a commonly used thermal grease.

## INSTALLATION GUIDELINES

After cutting the pad to the required size, remove the clear cover liner, and place the pad onto the integrated heat spreader, heat pipe or heat sink, using the inherent tackiness of the phase change layer to hold the pad in place. If pads are kiss cut and tabbed on a roll, gently peel back the edge of the pad from the clear carrier liner. Minor scratches will not affect pad performance. After attaching the pad to the heat plate, remove the top protective liner just prior to mounting the heat spreader onto the microprocessor device.

For optimum performance, T777 pads must be exposed to temperatures above 64°C during operation or by a burn-in cycle. If the operating temperature design is lower than 64°C, the material should be exposed to a one time burn-in cycle to achieve lowest thermal impedance. On reaching the required burn-in temperature, the T777 pad will fully change phase and attain MBLT (minimum bond-line thickness less than 0.001 inch or 0.0254mm) and maximum surface wetting. After this melt temperature is reached initially, the electronic component can now run at the lower design temperatures with resultant superior thermal performance.

## MATERIAL HANDLING

Commercial THERMFLOW® T777 pads are defined by Chomerics as “articles” according to the following generally recognized regulatory definition for articles. An article is a manufactured item “formed to a specific shape or design during manufacturing,” which has “end use functions” dependent upon its size and shape during end use and which has generally “no change of chemical composition during its end use. In addition, there is no known or anticipated exposure to hazardous materials/substances during routine and anticipated use of the article.

These material is not deemed by Chomerics to require an MSDS. For further questions, please contact Chomerics at 781-939-4850.

## Ordering Information

Part Number: **6**  -  -  -

WW	XX	YYYY	ZZZZ
64 = Roll stock	10 = 100 ft. 40 = 400 ft. XX = Custom length	YYYY = Roll stock width: Examples 1000 = 1” 0750 = 7.5” 2400 = 24”	ZZZZ = Material class (T710, T725, T766, T557, T558, T777)
66 = Roll stock with PSA		YYYY = 0808 (8” X 8” Sheet / 20.3 cm X 20.3 cm). Custom YYYY sizes available.	ZZZZ = T710 only product available with PSA. (no need for PSA) All others are inherently tacky
68 = Roll stock with PSA and release tabs			
69 = Custom die-cut part	11 = without PSA 12 = with PSA one side	Custom Part Number. Contact Chomerics	ZZZZ = Material class (T710, T725, T766, T557, T558, T777)

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TB 1027 EN 08/07 Rev A



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