THERMAL INTERFACE MATERIALS

Cool it Right

Grease and Epoxy

BLUE ICE (400 Series)

Non-Silicone Thermal Compounds

BLUE ICE formulations are unique Poly-Synthetic based thermal greases. This series has a "no oil" migration feature that ***prevents component contamination***. These proprietary formulas provide low bleed and evaporation properties with ***Superior Thermal Performance up to 3.7 w/m°k.***

WHITE ICE (500 Series)

Silicone Thermal Compounds

WHITE ICE series is formulated with special binding agents to reduce bleed and separation. White Ice compounds offer ***High Thermal Conductivity up to 3.7 w/m°k with excellent wetting properties***.

RED ICE (600 Series)

High Temperature Thermal Compounds

RED ICE series provides ***High Temperature Stability up to 360°C (680°F)***. These high temperature compounds have excellent wetting properties and outstanding heat transfer capabilities. Red Ice compounds will not harden, dry out or melt.

BLACK ICE (700 Series)

Electrically Conductive Compounds

BLACK ICE series maximizes particle to particle contact using specially selected size and shape fillers. This family of products provides ***Excellent Electrical Conductivity and High Thermal Conductivity up to 7 w/m°k.***

EPOXY (800 Series)

Thermally Conductive Expoxies and Potting Compounds

EPOXY 800 SERIES are one-part and two-part epoxy adhesives formulated to achieve ***fast curing and provide Superior Thermal Performance***. Also available in electrically conductive and non conductive formulations.

FOR MORE INFORMATION CONTACT

P: 631-345-6509 Fax: 631-775-4023
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TIMTRONICS THERMAL INTERFACE MATERIAL

Product Selection Guide

Heat Sink Compounds

Thermal Greases:		Non Silicone					Silicone				
Properties	**Units**	**410**	**412**	**4100**	**414**	**425**	**510**	**510FG Food Grade**	**512**	**5100**	**514**
Thermal Conductivity	W/m.°K	0.8	2.0	3.2	3.7	1.2	0.8	0.8	2.0	3.2	3.7
Thermal Resistance	°C-In^2 /W	0.05	0.03	0.014	0.014	0.012	0.05	0.05	0.03	0.014	0.014
Dielectric constant	@1KHz.	4.6	4.5	3.5	2.8	4.8	4.4	4.4	4.1	3.7	2.8
Volume Resisitivity	Ohm-cm	10^{14}	10^{14}	10^{12}	10^{10}	10^{15}	10^{14}	10^{14}	10^{14}	10^{12}	10^{10}
Max. Operating Temperature	°C	200	200	200	200	150	200	200	200	200	200

Applications: CPU to heat sink application, telecommunications hardware, transistor, diodes, rectifiers, motor control and semiconductor devices

Thermal Greases:		High Temperature			Electrically Conductive					
Properties	**Units**	**610**	**611**	**613**	**710**	**711**	**712**	**744**	**745NS**	**745SL**
Thermal Conductivity	W/m.°K	1.0	0.8	1.2	7.0	2.2	2.2	0.5	0.8	0.8
Thermal Resistance	°C-In^2 /W	0.05	0.06	0.04	0.01	0.02	0.02	0.1	0.03	0.03
Dielectric constant	@1KHz.	4.9	4.8	4.5	N/A	N/A	N/A	N/A	N/A	N/A
Volume Resisitivity	Ohm-cm	10^{14}	10^{14}	10^{14}	<0.01	<25	<25	N/A	N/A	N/A
Max. Operating Temperature Range	°C	300	360	250	200	200	200	150	150	200

Applications: (600 series) Heater cartridges, thermistors, RTD, thermocouple wells, portable heaters and tank heaters.
Applications: (700 series) High power electrical applications, power switches, circuit breakers, semiconductor components grounding and high power CPU to heat sink.

Epoxies and Pottng Compounds:		Thermally Conductive-Electrically Insulating					Thermally Conductive Potting	
Properties	**Units**	**813**	**813 HTC**	**816**	**816 HTC**	**818**	**8550TC**	**8850FT**
ThermalConductivity	W/m.°K	1.5	2.7	0.85	2.7	0.8	1.2	1.3
Type/Cure		One Part Heat Cure	One Part Heat Cure	Two Part RT cure	Two Part RT Cure	Two Part RT Cure	Two Part RT Cure	Two Part RT Cure
Pot life (100 grams)		½ hr @80°C	½ hr @80°C	½ hr @25°C	½ hr @25°C	5 minutes @25°C	½ hr @25°C	½ hr @25°C
Cure Schedule		½ hr @150°C	½ hr @150°C	24-48 hrs @25°C	24-48 hrs @25°C	24-48 hrs @25°C	24-48 hrs @25°C	24-48 hrs @25°C
Dielectric Constant	@1KHz	5.3	5.3	5.3	5.3	5.8	3.0	5.8
Max. Service Temperature	°C	270	270	150	150	150	140	140

Applications: (Epoxies): Between heat sink & power devices, substrates attach, lid seal, SMD attach, stacking component and die attach applications.
Applications: (Potting Compounds): Potting & encapsulating of power supplies, relays, amplifiers transformers, coils and circuit boards.

Epoxies: Electrically Conductive			
Properties	**Units**	**897M-2**	**830M-1**
Thermal Conductivity	W/m.°K	1.5	2.7
Type/Cure		One Part/Heat cure	Two Part/ RT cure
Pot life (100grams)		½hr @80°C	1hr @25°C
Cure Schedule		1hr @100°C	48hrs @25°C
Volume Resistivity	Ohm-cm	0.0004	0.002
Shelf Life		4 months@ 0°C	1 year @25°C

Applications: die-attach, chip bonding, cold soldering and other micro electronic bonding applications.

THERMAL INTERFACE MATERIALS

Cool it Right

Pad, Gap Filler & Specialty Compounds

Timtronics thermally conductive pads and gap fillers are future generation compliant cooling materials. They offer designers and engineers the most flexibility in dimensional tolerances. High thermal conductivity provides the thermal performance required for next generations designs and soft compliances products provides design flexibility.

TIM PAD

TIM-PADS are designed to meet industry's rapidly growing need for interface material with high thermal conductivity and Insulating properties. For a wide range of applications, TIM-PAD is a clean, production friendly and efficient alternative to mica, ceramics or grease and will provide superb protection against damage due to deformation as well as shock or vibration. **Thermal conductivity range from 1.1 - 3.0 W/mK. Available thicknesses from 0.15mm to 0.85mm.**

TIM-PUTTY

TIM-PUTTYS are 'Ultra Soft" and highly conformable paste- type gap filler. Its "ultra soft" consistency assures efficient heat transfer between delicate parts where minimum pressure can be tolerated. This Form-in-place gap filler is ideal for applying any thickness with little or no stress. It is designed to provide a thermal solution for the recent trends of integrating higher frequency electronics in to smaller devices. TIM-PUTTY easily forms and adheres to most surfaces, shapes and sizes of components with very low compression force

TIM-GAP FILLERS

TIM GAP FILLERS designed to meet industry's growing need for interface material with high conductivity and greater conformability for easier application. Gap fillers are used to fill air gaps between components or PC boards and heat sinks, metal enclosures and chasses. Ideal for application where large gap tolerances are present due to steps, rough surfaces, and high stack-up. Gap filler materials allow the designer to be less concerned with components proximity to heat sinks or heat spreaders. **Thermal conductivity range from 1.4 - 11 W/mK. Available thicknesses from 0.5mm to 5.0mm**

TIM-EJC COMPOUNDS

TIM-ELECTRICAL JOINT COMPOUNDS (EJC) are specially formulated with latest technology to prevent oxide film formation on metal surfaces and prevents corrosion. It offers superior weathering characteristics over wide temperature ranges, and provides highly conductive tight joints. Proprietary fluid and filler particles help in penetrating oxide films and act as electrical bridges between conductor strands, aid in gripping conductor, improve electrical conductivity and enhance integrity of the connection.

TIM-LIQUID GAP FILLERS

TIM-LIQUID GAP FILLERS are thermally conductive liquid gap filler materials formulated to provide a balance of cured material properties, high lighted by "gel-like" modules and good compression set or memory. The material is available in thermally conductive & electrically insulating or conductive, one part or two part, room or elevated temperature curing system. Form-in-place gap fillers are ideal for applying any thickness with little or no stress.

FOR MORE INFORMATION CONTACT

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TIMTRONICS
THERMAL INTERFACE MATERIAL

Product Selection Guide
Gap Fillers and Pads

(TIM-GAP) Thermally Conductive Gap filling Sheet materials

Properties	Units	1101	1102	1103	1106	HTC-11	SOFT	Ultra Soft	NS
Type		Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Non-Silicone
Thermal Conductivity	W/m.°K	1.4	2.4	2.8	6.0	11.0	1.3	1.5	1.6
Thermal Resistance	°C-In/W	2.1(0.1")	1.7(0.1")	1.1(0.08")	0.31(0.04")	0.22(0.06")	0.90(0.02")	0.99(0.08")	0.72(0.02")
Hardness	Shore 00	48	48	54	54	-	48	<5	53
Elongation	%	100	100	65	53	-	250	320	150
Volume Resisitivity	Ohm-cm	10^{14}	10^{14}	10^{12}	10^{12}	10^{11}	10^{10}	10^{13}	10^{15}
Max. Service Temperature	°C	200	200	200	200	200	200	200	110
Available Thickness	Inch	0.02-0.2	0.02-0.2	0.02-0.12	0.02-0.12	0.06,0.08,0.10	0.2-0.12	0.08-0.20	0.02,0.04,0.08

(TIM-LGF) Thermally Conductive Dispensable Liquid Gap Fillers

Properties	Units	2000	2001	2002	2004	418	418HTC	519
Type		Silicone	Silicone	Silicone Elec.Conductive	Silicone	Non-Silicone Putty	Non-Silicone Putty	Silicone Putty
Thermal Conductivity	W/m.°K	2.0	0.63	N/A	2.0	2.1	3.2	1.5
Volume Resisitivity	Ohm-cm	10^{12}	10^{15}	0.09	10^{12}	10^{12}	10^{12}	10^{12}
Mix ratio/Cure Type		One part Heat cure	One part RT cure	One part RT cure	Two parts RT Cure	One part No Cure	One Part No Cure	One Part No Cure
Cure Time	Hours	½ hr @120°C	72 hrs @25°C	72 hrs. @25°C	24 hrs. @25°C	No Cure	No Cure	No Cure
Hardness	Shore 00/A	70(00)	40(A)	40(A)	70(00)	N/A	N/A	N/A
Max.Service Temperature	°C	250	260	260	200	200	200	250

(TIM-PAD) Thermally Conductive Pads

Properties	Units	1001	1002	1003	Gel Pad
Type		Silicone	Silicone	Silicone	Silicone
Thermal Conductivity	W/m.°K	1.1	1.6	3.0	1.6
Thermal Resistance	°C-In2 /W	0.51(0.08")	0.55(0.08")	0.30(0.08")	0.35(0.01")
Hardness.	Shore 00	86	93	84	49
Elongation	%	<2	<2	<2	15
Volume Resisitivity	Ohm-cm	10^{15}	10^{15}	10^{15}	10^{15}
Max. Service Temperature	°C	200	200	200	150
Available Thickness	Inch	0.006,.0.008 0.012	0.006,.0.008 0.012	0.006,.0.008 0.018,0.034	0.010