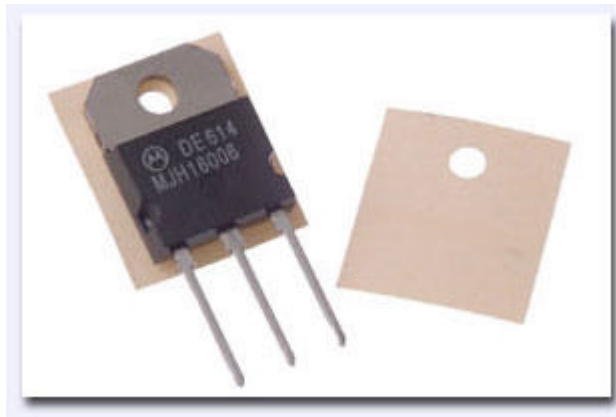


## "Tacky2" Thermaphase on Kapton® 71°C

(Thermally Conductive Electrical Insulators)



### Advantages:

- ?? Thermal Resistance 0.04 C/W/in<sup>2</sup> at 10psi (MT1)
- ?? Naturally tacky on both sides for easy application to heat sink
- ?? Manufacturing Friendly- easy to handle
- ?? Thixotropic and won't flow from gaps
- ?? Precision metered coating 0.5 to 6.0 mils thick
- ?? Available with different compound thickness on each side of Kapton
- ?? Thermoplastic reversible adhesive bond

### Description:

"Tacky2" on Kapton is the ultimate in thermally conductive electrical insulators. This product consists of a polyimide film (Dupont Kapton®) precoated on both sides with **ORCUS inc.** Thermaphase "Tacky2". The result is an easy to handle, manufacturing friendly thermal interface material that also provides electrical insulation.

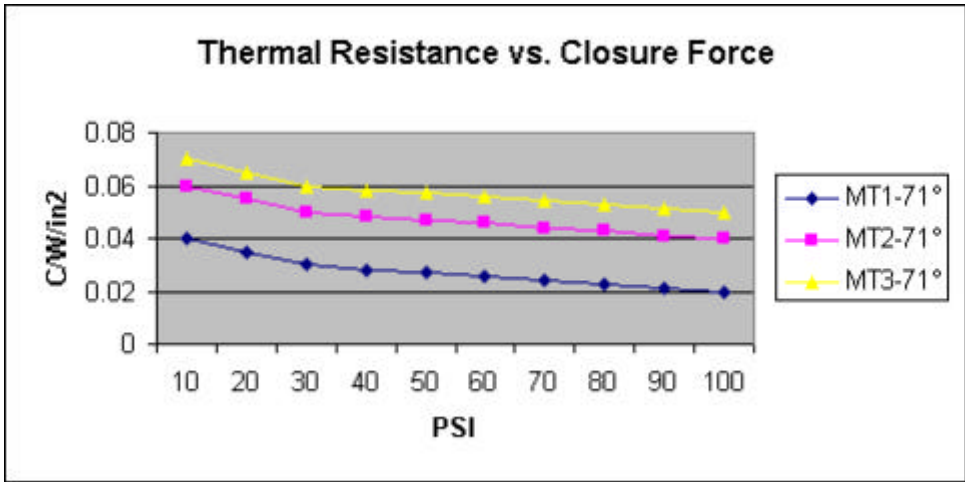
The "Tacky2" thermal compound is naturally tacky on both sides and will adhere to metallic/plastic surfaces by simple pressure. The adhesion is sufficient to temporarily adhere the thermal insulator to a component or heat sink. Heat from the electronic component or externally applied heat will, in the presence of a low closure force, cause the Thermaphase "Tacky2" to reflow and fill all of the pores and surface roughness of both component and heat sink. Since the Thermaphase is hundreds of times more thermally conductive than air, heat is rapidly transferred from the component to the heat sink.

This material is thermoplastic. After initial reflow, the component and heat sink will be adhered together. Adhesive strength is 25 psi. Simply elevating the temperature beyond the phase change temperature of the compound will reduce

the adhesion to almost zero for easy removal and clean up.

**Typical Characteristics:**

Thermal Characteristics	Units	1 mil Kapton	2 mil Kapton	3 mil Kapton
Overall Thermal Resistance at 10 psi. See graph of Thermal Resistance vs Closure Force (See Test Procedure)	°C/W/in <sup>2</sup>	0.04	0.06	0.07
Thermal Conductivity of Kapton Substrate	W/M <sup>2</sup> /K	0.45	0.45	0.45
Phase Change Temperature	°C	71	71	71
Use Temperature	°C	-60 to +200	-60 to +200	-60 to +200
Mechanical Characteristics	Units	1 mil Kapton	2 mil Kapton	3 mil Kapton
Substrate Material	---	MT Polyimide	MT Polyimide	MT Polyimide
Substrate Thickness	inches	0.001	0.002	0.003
Coating Thickness	mils	1 to 6 mils	1 to 6 mils	1 to 6 mils
Moisture Absorption (substrate)	%	5	5	5
Viscosity (Thermaphase compound) at 150°C	Poise	>100	>100	>100
Density of Thermaphase Compound	g/cc	2.1	2.1	2.1
Electrical Characteristics	Units	1 mil Kapton	2 mil Kapton	3 mil Kapton
Volume Resistivity (substrate + thermal coating)	? -cm	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>
Dielectric Strength	Volts AC	3900	7800	11000
Dissipation Factor	---	0.003	0.003	0.003
Dielectric Constant (1KHz/50% humidity)	%	5	5	5



**Thermal Resistance versus Closure Force**

## **OPTIONS:**

1) The thickness of the Kapton can be 1, 2, or 3 mils thick  
The thicker the Kapton, the higher the dielectric strength  
The thicker the Kapton, the higher the cost  
The thicker the Kapton, higher the thermal resistance  
The thicker the Kapton, the greater the mechanical resistance to "cut-through"

2) The thickness of the Thermaphase coating can be varied from 0.5 mils up to 6 mils per side. The coating thickness can be different on the two sides of the Kapton. This is useful if you have a very smooth, flat electronic component on one side and a rough, uneven heat sink on the other side.

## **How to Use:**

Place Thermaphase on Kapton material on heat sink. Install component using clips, screws, spring-loaded screws, or Belleville washers. Use at least 10.0 psi of closure force during initial reflow of Thermaphase compound. Heat component/heat sink by using component-operating temperature, or externally applied heat. You can use more or less than 10 psi closure force. The thermal resistance decreases with increasing closure force. (see graph above)

## **Product Availability**

Standard Sheets: 12" x 12"

Standard Rolls: 12" x 500 ft.

Standard Die-cut parts: Pads for all standard case sizes are available. Contact us for outline drawings of standard parts. We have cut thousands of special die-cut parts.

For detailed information on "Specials, we will be please to assist you in selecting the material having the best thermal, electrical, and mechanical characteristics.