



BRADY THERMAL MANAGEMENT SOLUTIONS

Silicone Thermal Pads
Gap Fillers

BRADY THERMAL MANAGEMENT SOLUTIONS



Content

What is Thermal
Interface Material
Pg 01 - 02

Brady's Silicone
Thermal Pads
Pg 03 - 07

Brady's Gap
Fillers
Pg 08 - 13

Contact Us
Pg 16

Materials developed in-house and up-to-date

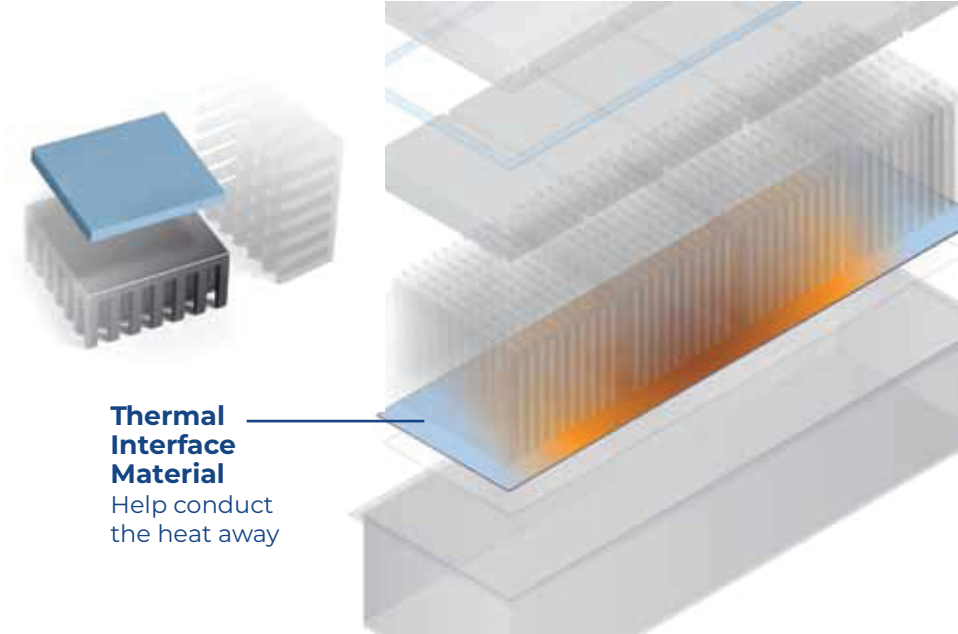
At Brady, we work to provide our customers with products of the latest technology. At Brady global laboratories, our R&D teams rigorously test our products in-house to ensure high performance, industry compliance, durability, and reliability.

Materials designed to suit your needs and engineered to perform

The materials developed by Brady scientists are designed for a wide spectrum of applications and environments. Brady's in-depth knowledge of the conditions that products face requires extensive testing in harsh environments. Our products are not only designed to withstand the harshest environments, but also designed with the user in mind.

THERMAL INTERFACE MATERIAL

In order to meet the thermal requirements of today's electronic devices, effective heat management is a growing concern for today's electronic device manufacturers. As electronic devices become smaller and thinner, there is an increasing need to efficiently dissipate harmful heat to prevent premature failure. Brady has a portfolio of high-performance thermal interface materials to help to maintain reliability and extending the lifespan of electronic devices.



Thermal Interface Material
Help conduct the heat away

Key Properties of Thermal Interface Materials

Thermal Impedance

Measure the total resistance to the flow of the heat from the hot surface through an interface material into cold surface.

Thermal Conductivity

An intrinsic property of the material that defines the heat conduction capability of the material.

Dielectric Properties

Dielectric breakdown voltage is a measure of the voltage that a product will withstand without allowing passage of current.

SILICONE THERMAL PADS

Silicone Thermal Pads provide an economical solution in electronic devices to rising operating temperature. Brady's Silicone Thermal Pads are available from high to low thermal resistance values in various thicknesses. The pads can also be coated with pressure sensitive adhesive on one or both sides for specific application

Features

- High cut through resistance
- Supported with fiberglass or aluminum
- UL 94 V-0 flammability rating (UL File E316839)
- Consists of non-toxic components in the material

Application

- **Power conversion**
- **Consumer Electronics**
 - Graphic processors
 - CPU
 - Hard disk drives
 - Computer heatsinks
- **Automotive electronics**
 - Audio systems
 - LEDs lighting

Configurations Available

- Roll form

T3

Brady T3 is a thermally conductive, non-electrically insulating fiberglass-reinforced elastomer, which lends itself to precision stamping of parts. It offers a unique balance of economy along with high thermal conductivity and low thermal resistance where electrical insulation is not required.

Application

T3 materials are thermally conductive insulators typically mounted between a transistor and a heat sink offering low thermal resistance. T3 materials do not require thermal grease. Using T3 materials can lead to dramatic production cost reductions and improved product uniformity eliminating messy grease mica application, contamination, mica cracking, silicone migration and drying out.

Physical Properties	Test Results	Test Method
Color	Black	-
Thickness	5 mil (0.13 mm)	ASTM D374
Hardness (Shore A)	84	ASTM D2240
Thermal Conductivity (W/m·K)	1.9	ASTM D5470
Thermal Impedance (°C·in ² /W)	0.11	ASTM D5470
Tensile Strength (MPa)	42	ASTM D828
Binder	Silicone	-
Support Layer	Fiberglass	-

T400 Series

Brady T400 series are fiberglass reinforced, aluminum oxide filled silicone elastomer designed to provide exceptional cost effective thermal management and high performance electrical properties.

Application

T400 series materials are thermally conductive insulators typically mounted between a transistor and a heat sink offering low thermal resistance as well as electrical insulation. T400 materials do not require thermal grease. Using T400 series materials can lead to dramatic production cost reductions and improved product uniformity eliminating messy grease mica application, contamination, mica cracking, silicone migration and drying out.

Physical Properties	Test Results	Test Method
Color	Grey	-
Thickness	7 mil (0.18 mm) / 9 mil (0.23 mm)	ASTM D374
Hardness (Shore A)	85	ASTM D2240
Thermal Conductivity (W/m·K)	0.9	ASTM D5470
Thermal Impedance (°C·in ² /W)	0.45 / 0.5	ASTM D5470
Tensile Strength (MPa)	97 / 76	ASTM D828
Volume Resistivity (Ω·cm)	2.0 x 10 ¹⁵	ASTM D257
Binder	Silicone	-
Support Layer	Fiberglass	-

T600-9

Brady T600-9 is a fiberglass reinforced, aluminum oxide and boron nitride filled silicone elastomer designed to provide intermediate thermal performance between Brady T400 and Brady T1000.

Application

T600-9 materials are thermally conductive insulators typically mounted between a transistor and a heat sink offering low thermal resistance as well as electrical insulation. T600-9 materials do not require thermal grease. Using T600-9 materials can lead to dramatic production cost reductions and improved product uniformity eliminating messy grease mica application, contamination, mica cracking, silicone migration and drying out.

Physical Properties	Test Results	Test Method
Color	Dark Green	-
Thickness	9 mil (0.23 mm)	ASTM D374
Hardness (Shore A)	85	ASTM D2240
Thermal Conductivity (W/m·K)	1	ASTM D5470
Thermal Impedance (°C·in ² /W)	0.35	ASTM D5470
Tensile Strength (MPa)	76	ASTM D828
Volume Resistivity (Ω·cm)	4.0 x 10 ¹⁵	ASTM D257
Binder / Liner	Silicone	-
Support Layer	Fiberglass	-

T1000-9

Brady T1000-9 is a fiberglass reinforced, boron nitride filled silicone elastomer designed to provide a lower thermal resistance than an aluminum oxide system. This material can be supplied with adhesive (T1000-9 2011).

Application

T1000-9 materials are thermally conductive insulators typically mounted between a transistor and a heat sink offering low thermal resistance as well as electrical insulation. T1000-9 materials do not require thermal grease. Using T1000-9 materials can lead to dramatic production cost reductions and improved product uniformity eliminating messy grease mica application, contamination, mica cracking, silicone migration and drying out.

Physical Properties	Test Results	Test Method
Color	Pink	-
Thickness	9 mil (0.23 mm)	ASTM D374
Hardness (Shore A)	84	ASTM D2240
Thermal Conductivity (W/m·K)	1.2	ASTM D5470
Thermal Impedance (°C·in ² /W)	0.30	ASTM D5470
Tensile Strength (MPa)	76	ASTM D828
Volume Resistivity (Ω·cm)	6.0 x 10 ¹⁵	ASTM D257
Binder	Silicone	-
Support Layer	Fiberglass	-

Also available with Adhesive format

T1200 Series

Brady T1200 series are fiberglass reinforced, high performance, economical boron nitride filled silicone gasket designed for use where low thermal resistance is required.

Application

T1200 series materials are thermally conductive insulators typically mounted between a transistor and a heat sink offering low thermal resistance as well as electrical insulation. T1200 series materials do not require thermal grease. Using T1200 series materials can lead to dramatic production cost reductions and improved product uniformity eliminating messy grease mica application, contamination, mica cracking, silicone migration and drying out.

Physical Properties	Test Results	Test Method
Color	Green	-
Thickness	7 mil (0.18 mm) / 9 mil (0.23 mm)	ASTM D374
Hardness (Shore A)	80	ASTM D2240
Thermal Conductivity (W/m·K)	1.3	ASTM D5470
Thermal Impedance (°C·in ² /W)	0.28 / 0.35	ASTM D5470
Tensile Strength (MPa)	45	ASTM D828
Volume Resistivity (Ω·cm)	1.0 x 10 ¹⁵	ASTM D257
Binder	Silicone	-
Support Layer	Fiberglass	-

Also available with Adhesive format

T1500 Series

Brady T1500 series are fiberglass reinforced, boron nitride filled silicone elastomer designed for use where the lowest possible thermal resistance is required. T1500 series is technologically the most advanced of the silicone elastomer Brady products incorporating boron nitride technology.

Application

T1500 series materials are thermally conductive insulators typically mounted between a transistor and a heat sink offering low thermal resistance as well as electrical insulation. Using Brady thermal silicon materials can lead to dramatic production cost reductions and improved product uniformity eliminating messy grease mica application, contamination, mica cracking, silicone migration and drying out.

Physical Properties	Test Results	Test Method
Color	Salmon / Light Green	-
Thickness	6 mil (0.15 mm) / 10 mil (0.25 mm)	ASTM D374
Hardness (Shore A)	80	ASTM D2240
Thermal Conductivity (W/m·K)	1.6 / 2	ASTM D5470
Thermal Impedance (°C·in ² /W)	0.17 / 0.23	ASTM D5470
Tensile Strength (MPa)	76 / 45	ASTM D828
Volume Resistivity (Ω·cm)	1.0 x 10 ¹⁵	ASTM D257
Binder	Silicone	-
Support Layer	Fiberglass	-

Also available with Adhesive format

GAP FILLERS

Soft Gap Filler is a soft material designed to conduct heat away from uneven surfaces. The conformability allows for intimate contact over rough surfaces and eliminates air.

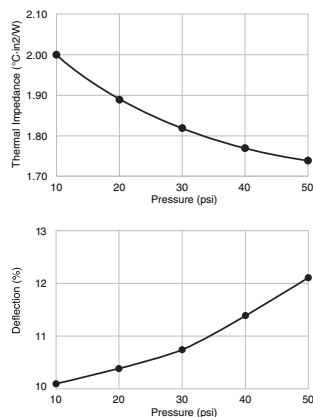
Application

Suitable to be used in a wide variety of electronics, automotive and power supply applications. Such as:

- **Audio System**
- **LED lighting**
- **IGBT module**
- **Between IC and heat sink**
- **CPU cooling**
- **DDR SRAM**
- **Graphic processing units (GPU)**
- **Power supply**

Tsoft

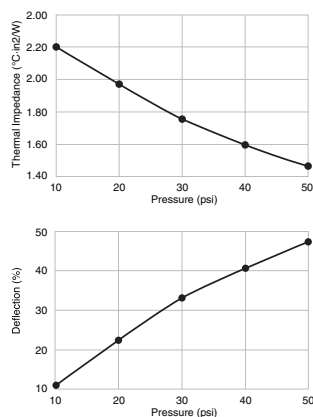
Tsoft is a soft material designed to conduct heat away from uneven surfaces. It is natural tacky on one side with an easy release clear polyester liner. The conformability allows for intimate contact over rough surfaces and eliminates air.



Physical Properties	Test Results	Test Method
Color	Ice Blue with Grey backing	Visual
Thickness	20 - 160 mil (0.5 - 4 mm)	ASTM D374
Hardness (Shore A)	15	ASTM D2240
Volume Resistivity ($\Omega\cdot\text{cm}$)	2.5×10^{13}	ASTM D257
Thermal Conductivity (W/m·K) @20psi	0.87	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 4 kV	ASTM D149 (Type 1)
Flame Rating	< 2.5 mm: V-1; \geq 2.5 mm: V-0	UL94
Binder	Silicone	-
Support Layer	Fiberglass	-

Tsoft3

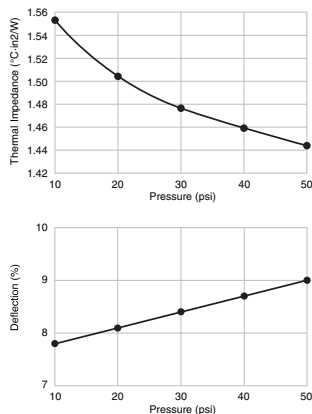
Tsoft3 is a soft material designed to conduct heat away from uneven surfaces. It is natural tacky on both sides with an easy release clear polyester liner. The conformability allows for intimate contact over rough surfaces and eliminates air.



Physical Properties	Test Results	Test Method
Color	Grey	Visual
Thickness	10 - 240 mil (0.25 - 6 mm)	ASTM D374
Hardness (Shore OO)	55	ASTM D2240
Volume Resistivity ($\Omega\cdot\text{cm}$)	$> 1.0 \times 10^{13}$	ASTM D257
Thermal Conductivity (W/m·K) @20psi	1.12	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 8 kV	ASTM D149 (Type 1)
Flame Rating	V-0	UL94
Binder	Silicone	-

Tsoft3S

Tsoft3S is a soft material designed to conduct heat away from uneven surfaces. It has natural tacky on one side with an easy release clear polyester liner. The conformability allows for intimate contact over rough surfaces and eliminates air.



Physical Properties

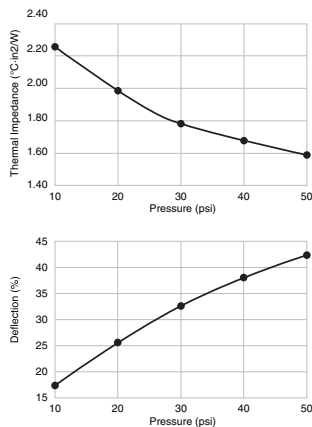
Test Results

Test Method

Color	Grey with a rose colored backing	Visual
Thickness	20 - 240 mil (0.5 - 6 mm)	ASTM D374
Hardness (Shore OO)	60	ASTM D2240
Volume Resistivity ($\Omega \cdot \text{cm}$)	$> 1.0 \times 10^{14}$	ASTM D257
Thermal Conductivity (W/m·K) @20psi	1.02	ASTM D5470
Dielectric Breakdown voltage (VAC)	$> 7 \text{ kV}$	ASTM D149 (Type 1)
Flame Rating	V-0	UL94
Binder	Silicone	-

Tsoft3ST

Tsoft3ST is a soft material designed to conduct heat away from uneven surfaces. The conformability allows for intimate contact over rough surfaces and eliminates air.



Physical Properties

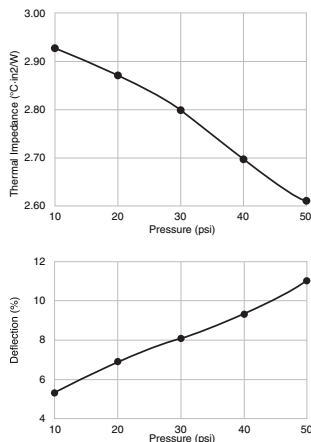
Test Results

Test Method

Color	Green	Visual
Thickness	10 - 200 mil (0.25 - 5 mm)	ASTM D374
Hardness (Shore OO)	57	ASTM D2240
Volume Resistivity ($\Omega \cdot \text{cm}$)	$> 9.1 \times 10^{11}$	ASTM D257
Thermal Conductivity (W/m·K) @20psi	1.3	ASTM D5470
Dielectric Breakdown voltage (VAC)	6 kV	ASTM D149 (Type 1)
Flame Rating	V-0	UL94
Binder	Silicone	-

Tsoft3STF

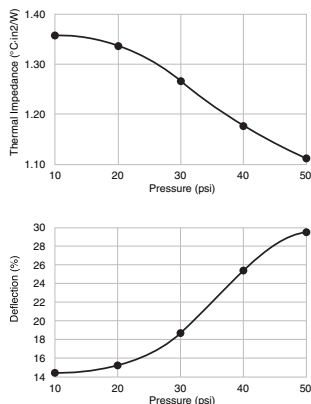
Tsoft3STF is a soft material designed to conduct heat away from uneven surfaces. It has natural tacky on both side with an easy release clear polyester liner. The conformability allows for intimate contact over rough surfaces and eliminates air.



Physical Properties	Test Results	Test Method
Color	Green	Visual
Thickness	10 - 100 mil (0.25 - 2.5 mm)	ASTM D374
Hardness (Shore OO)	60	ASTM D2240
Volume Resistivity ($\Omega \cdot \text{cm}$)	$> 4.0 \times 10^{12}$	ASTM D257
Thermal Conductivity (W/m·K) @20psi	1.13	ASTM D5470
Dielectric Breakdown voltage (VAC)	$> 4.5 \text{ kV}$	ASTM D149 (Type 1)
Flame Rating	V-0	UL94
Binder	Silicone	-

Tsoft3US

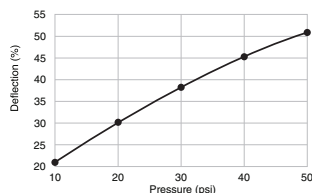
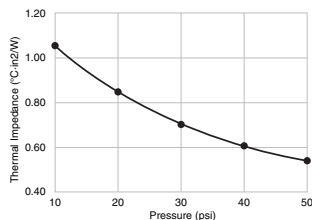
Tsoft3US is a soft material designed to conduct heat away from uneven surfaces. It has natural tacky on both side with an easy release clear polyester liner. The conformability allows for intimate contact over rough surfaces and eliminates air.



Physical Properties	Test Results	Test Method
Color	Grey	Visual
Thickness	10 - 200 mil (0.25 - 5 mm)	ASTM D374
Hardness (Shore OO)	30	ASTM D2240
Volume Resistivity ($\Omega \cdot \text{cm}$)	1.0×10^{14}	ASTM D257
Thermal Conductivity (W/m·K) @20psi	1.09	ASTM D5470
Dielectric Breakdown voltage (VAC)	6 kV	ASTM D149 (Type 1)
Flame Rating	V-0	UL94
Binder	Silicone	-

Tsoft3HP 3010

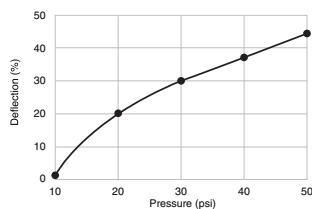
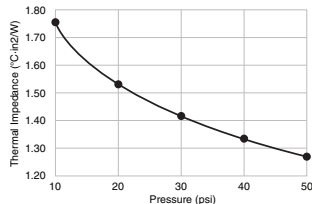
Tsoft3HP 3010 is a thermally conductive interface material typically mounted between a heat generating component and a heat sink, offering excellent heat transfer (3 W/m·K) as well as excellent conformability. It is nature tacky on both sides and very easy to assemble. It is supplied by sheet form with various thickness or by die-cut parts.



Physical Properties	Test Results	Test Method
Color	Blue	Visual
Thickness	20 – 120 mil (0.5 - 3.0 mm)	ASTM D374
Hardness (Shore OO)	50±10	ASTM D2240
Volume Resistivity (Ω·cm)	1.0×10^{12}	ASTM D257
Thermal Conductivity (W/m·K) @20psi	3.0	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 6 kV	ASTM D149
Flame Rating	V-0	UL94

Tsoft3HP L3010

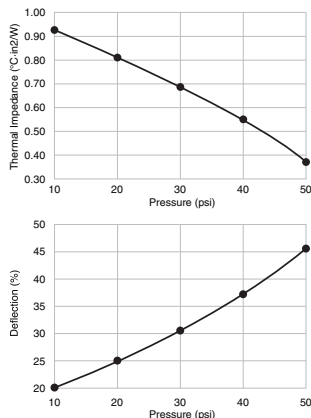
This is a thermally conductive interface material typically mounted between a heat generating component and a heat sink, offering excellent heat transfer (3 W/m·K) as well as excellent conformability. Its unique formulation with controlled cyclosiloxane content provides limited silicone oil migration. It is supplied by sheet form with various thickness or by die-cut parts.



Physical Properties	Test Results	Test Method
Color	White	Visual
Thickness	8 - 600 mil (0.2 - 15.0 mm)	ASTM D374
Hardness (Shore OO)	60	ASTM D2240
Volume Resistivity (Ω·cm)	2.2×10^{11}	ASTM D257
Thermal Conductivity (W/m·K) @20psi	3.0	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 6 kV	ASTM D149
Flame Rating	V-0	UL94

Tsoft3HP D3010

This is a thermally conductive interface material typically mounted between a heat generating component and a heat sink, offering excellent heat transfer (3W/m·K) as well as excellent conformability. Its unique formulation provides low dielectric constant and low dielectric loss for high frequency applications. It is supplied by sheet form with various thickness or by die-cut parts.

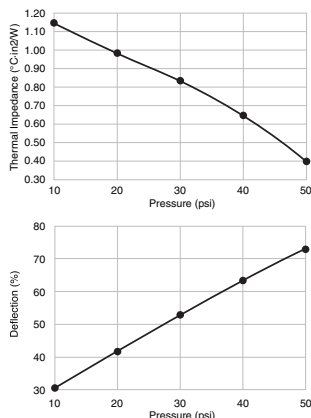


Physical Properties

Physical Properties	Test Results	Test Method
Color	White	Visual
Thickness	20 - 200 mil (0.5 - 5.0 mm)	ASTM D374
Hardness (Shore OO)	20 (without glass fiber)	ASTM D2240
Volume Resistivity ($\Omega\cdot\text{cm}$)	1.0×10^{13}	ASTM D257
Thermal Conductivity (W/m·K) @20psi	3.0	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 5 kV	ASTM D149
Flame Rating	V-0	UL94

Tsoft3HP U3020

This is a thermally conductive interface material typically mounted between a heat generating component and a heat sink, offering excellent heat transfer (3W/m·K) as well as excellent conformability. Its unique formulation provides both ultra-soft property and limited silicone oil migration. It is supplied by sheet form with various thickness or by die-cut parts.

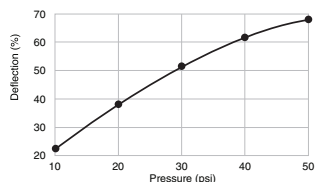
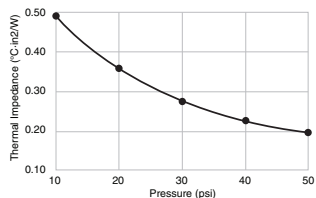


Physical Properties

Physical Properties	Test Results	Test Method
Color	White	Visual
Thickness	40 - 320 mil (1.0 - 8.0 mm)	ASTM D374
Hardness (Shore OO)	20	ASTM D2240
Volume Resistivity ($\Omega\cdot\text{cm}$)	1.0×10^{13}	ASTM D257
Thermal Conductivity (W/m·K) @20psi	3.0	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 8 kV	ASTM D149
Flame Rating	V-0	UL94

Tsoft3HP 6010

This is a thermal interface material typically mounted between a heat generating component and a heat sink, offering outstanding heat transfer (6 W/m·K) as well as excellent conformability. It is nature tacky on both sides and very easy to assemble. It is supplied by sheet form with various thickness or by die-cut parts.



Physical Properties

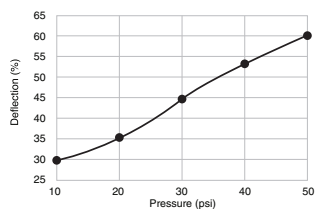
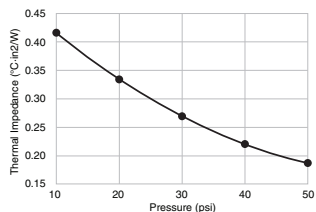
Test Results

Test Method

Color	Yellow	Visual
Thickness	20 - 120 mil (0.5 - 3.0 mm)	ASTM D374
Hardness (Shore OO)	55±10	ASTM D2240
Volume Resistivity (Ω·cm)	1.0 x 10 ¹³	ASTM D257
Thermal Conductivity (W/m·K) @20psi	6.0	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 6 kV	ASTM D149
Flame Rating	V-0	UL94

Tsoft3HP U6510

This is a thermal interface material typically mounted between a heat generating component and a heat sink, offering outstanding heat transfer (6.5 W/m·K) as well as excellent conformability. Its unique formulation provides ultra-soft property. It is supplied by sheet form with various thickness or by die-cut parts.



Physical Properties

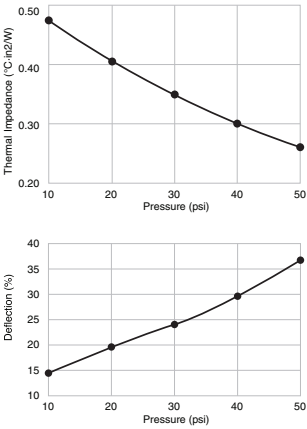
Test Results

Test Method

Color	Dark Grey	Visual
Thickness	20 - 80 mil (0.5 - 2.0 mm)	ASTM D374
Hardness (Shore OO)	45	ASTM D2240
Volume Resistivity (Ω·cm)	1.0 x 10 ¹³	ASTM D257
Thermal Conductivity (W/m·K) @20psi	6.5	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 9 kV	ASTM D149
Flame Rating	V-0	UL94

Tsoft3HP 8010

This is a thermal interface material typically mounted between a heat generating component and a heat sink, offering outstanding heat transfer (8 W/m·K) as well as excellent conformability. It is nature tacky on both sides and very easy to assemble. It is supplied by sheet form with various thickness or by die-cut parts.



Physical Properties	Test Results	Test Method
Color	Red	Visual
Thickness	20 - 120 mil (0.5 - 3.0 mm)	ASTM D374
Hardness (Shore OO)	70±10	ASTM D2240
Volume Resistivity (Ω·cm)	1.0 x 10 ¹³	ASTM D257
Thermal Conductivity (W/m·K) @20psi	8.0	ASTM D5470
Dielectric Breakdown voltage (VAC)	> 6 kV	ASTM D149
Flame Rating	V-0	UL94

We identify and protect premises, products and people.

For more information or to learn more about our innovative products, visit BradyID.com.sg or call +65 6477 7261.

AUSTRALIA (612) 8717 6300
CHINA (86) 21 6100 6588
HONG KONG (852) 2216 9283
INDIA (91) 80 6658 2900
INDONESIA (65) 6477 7261
JAPAN (81) 042 655 2535
MALAYSIA (60) 4 810 1688
PHILIPPINES (65) 6477 7261
SINGAPORE (65) 6477 7261
SOUTH KOREA (02) 2192 0700
TAIWAN (86) 2 2657 6108
THAILAND (66) 2173 4380
VIETNAM (65) 6477 7261