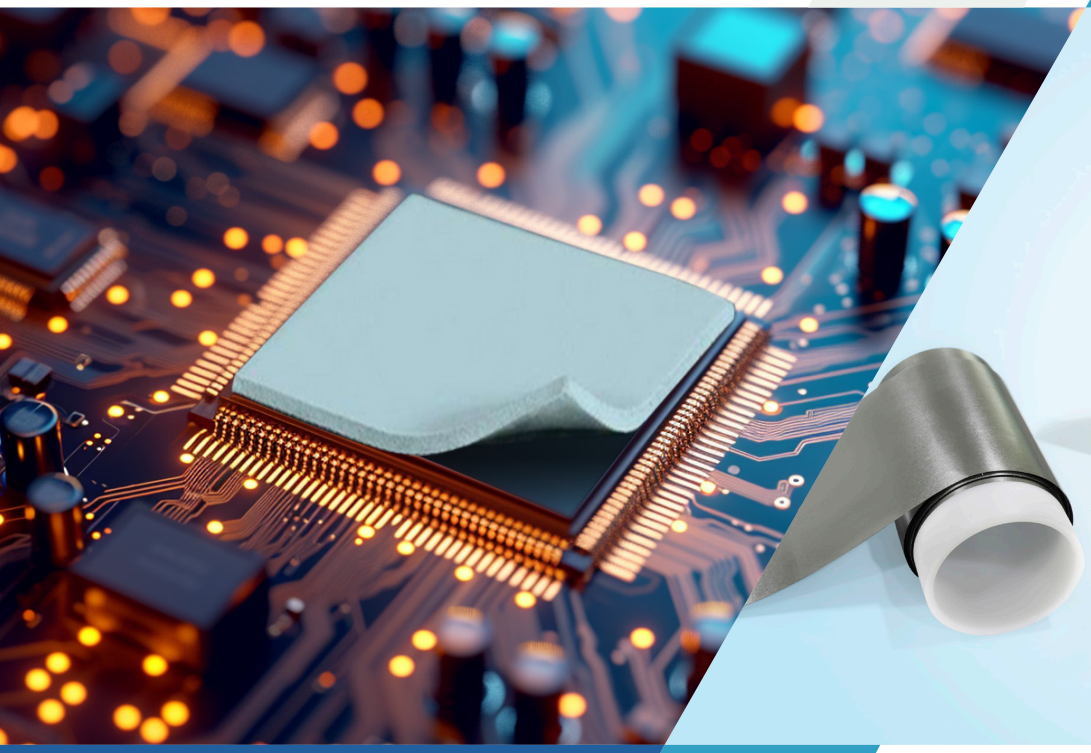
Stock Code:300602

THERMAL MATERIALS

Thermal Interface Material | Graphite Film



Thermal Total Solutions

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Company Overview

Established in Shenzhen, China, in 1993, FRD manufactures a wide range of products including EMI Shielding Materials, Thermal Interface Materials and other related electronic materials. FRD (Stock Code: 300602) is a registered National Hi-Tech Enterprise and certificate of ISO9001, ISO14001, IATF16949, QC080000 and ISO45001.

FRD has long-term business relationships with customers such as Huawei, ZTE, Cisco, Nokia, Ericsson, Microsoft, Samsung, Google, Meta, Xiaomi, Honor, Dell, Lenovo, Inspur, Seagate, TESLA, CATL, BYD, CRRC, FAW, SAIC Group, GAC Group, BAIC Group, Mindray, GREE, Panasonic, FUJIFILM, Foxconn, Pegatron, Quanta, etc.

As a leading manufacturer in its industry, FRD is growing tremendously. We are willing to provide quality products and services for more customers in various industries, including networks & telecommunication equipment, consumer electronics, new energy, power supplies, lighting, aerospace, etc.

In the future, FRD will continue to meet the challenge, grow the FRD brand, and strive to become a world-class technology leader in new materials for all of our manufacturing processes.

FRD Strategic layout

Headquarters
Shenzhen FRD New Materials Park

East China Base
FRD（Jiangsu）New Campus

East China Base
FRD（Kunshan）New Campus

Vietnam Base
Bac Ninh Zhoufeng Industrial Zone

Thermal Properties and Testing

Fourier Equation:

Heat conduction of uniform interface material, generally based on one dimensional approach, can be described with Fourier Equation in the process of heat transfer:

$$(1) \quad Q = \frac{K \cdot A \cdot \Delta T}{d}$$

Q: heat flow, W
K: thermal conductivity, W/m · K
A: contact area, m^2
△ T: temperature variation between the heat surfaces of inflows and outflows, °C
d: thickness of wall, m

Thermal conductivity: an inherent thermal property of the single material, having nothing to do with the size or shape of material.
For the interface material reinforced by fiberglass or polyimide, the thermal conductivity depends on the relative thickness and thermal direction performance, and thus the relative thermal conductivity is more appropriate.
Thermal resistance: the opposition to the flow of heat through a unit area of material across a unit thickness:

$$(2) \quad R_\theta = \frac{d}{K}$$

For the single material, the thermal resistance and thickness are in direct proportion; and for the non-single material, the thermal resistance increases with increasing thickness of the material totally, but not changes in linear relation.
Thermal impedance: the sum of thermal resistance and thermal contact resistance is described as thermal impedance. Thermal impedance is more appropriate to represent thermal performance in some certain situation.

$$(3) \quad Z_\theta = \frac{d}{K \cdot A} + R_i$$

Surface perpendicularity, surface roughness, fastening force, stock thickness and modulus of compression all affect the thermal contact resistance. Because of the effect of practical application conditions, thermal impedance also depends on the actual assembly condition actual assembly condition.
Influencing factor:

Contact area A: the more contract area increases, the less thermal contact resistance will be.
Thickness d: the more thickness of insulator increases, the more thermal contact resistance will be.
Pressure of assembly: in ideal circumstances, the more pressure of assembly increases, the less thermal resistance will be, and thermal resistance will decrease little by little when pressure increases into a certain value, which is the optimal pressure. Besides, thermal contact resistance is also related to test method.

Test method for thermal resistance:

Test method: ASTM D5470

Test principle and methods:

Cube area (Top tip of tester): 25.4mm x25.4mm
Material of heat block and balancing heater: copper
Soft material: pressure can be as low as 0.069 MPa (10psi)
Hard material: pressure can reach up to 3.4MPa (500psi)
Material easy to deformation, can becontrolled thickness over by the screw or liner brake.
Balanced judgement: temperature variationwithin 5 minutes is less than 0.1°C

Test diagram is as shown in the following figure:
Note: refer to ASTM D5470 test standard
Calculation method:
1. Calculate the heat flow from the applied electrical power

$$(4) \quad Q = V \cdot I$$

Q: heat flow, W
V: electrical potential applied to the heater, V
I: electrical current flow in the heater, A

2. Derive the temperature of the hot meter bar surface in contact with the sample

$$(5) \quad T_H = T_2 - \frac{d_B}{d_A} \cdot [T_1 - T_2]$$

T_H: temperature of the hot meter bar surface in contact with the sample, K
T_1: warmer temperature of the hot meter bar, K
T_2: cooler temperature of the hot meter bar, K
d_A: distance between T_1 and T_2, m
d_B: distance from T_2 to the surface of the hot meter bar in contact with the sample, m

3. Derive the temperature of the cold meter bar surface in contact with the sample

$$(6) \quad T_C = T_3 - \frac{d_D}{d_C} \cdot [T_3 - T_4]$$

T_C: temperature of the cold meter bar surface in contact with the sample, K
T_3: warmer temperature of the cold meter bar, K
T_4: cooler temperature of the cold meter bar, K
d_C: distance between T_3 and T_4, m
d_D: distance from T_3 to the surface of the cold meter bar in contact with the sample, m

4. Calculate the thermal impedance from Eq 7 and express it in units of $m^2 \cdot K/W$

$$(7) \quad Z_\theta = \frac{A}{Q} \cdot [T_H - T_C]$$

5. Thermal conductivity is calculated by the slope of thickness and its thermal resistance tested by single layer and multilayer.
The reciprocal of the straight slope with thickness of sample as X axis and thermal resistance as Y axis is thermal conductivity, and the intersection of zero thickness represents thermal resistance Ri, which depends on the sample, pressures on the sample and the surface situation.

TIM Selection Guide

Frequently asked questions

① Q:What is the thermal interface material ?
A:TIM is a material used between heat source and sink to accelerate the efficiency of heat dissipation. Generally good thermal conductivity and surface wettability are important for TIM.

② Q:Is TIM offered with a customized size?
A:Yes. Any size and shape in the certain range listed in the datasheet are available.

③ Q:Is TIM offered with an adhesive?
A:Currently, Therm-Pad series are offered with and without an adhesive shaped into any forms according to requirements of customers.
Therm-Gap series have the natural inherent tacky.

④ Q:Are there any differences between silicone-free and silicious thermally conductive pads?
A:Silicone-free thermally conductive pad, pad without silicone oil when use, which ensures no pollution.
Silicone thermally conductive pad remains the good properties (e.g. mechanical property, weatherability, etc.) and good adaptability in use temperature and mechanical when in use; Silicone-free thermally conductive pad has lower use temperature with the specific process.

⑤ Q:How to select TIM?
A:Type of TIM may be determined first for your application; then select appropriate TIM according to the parameters (e.g. thermal conductivity, size, thickness, density, hardness, dielectric breakdown voltage, use temperature, etc.)
The selection of thickness is related with the aim position and gap size, as well as the parameters of product (e.g. density, hardness, compression rate, etc.)
Sample tests before decision are suggested.
The selection of thermal conductivity is determined by the product heat power and cooling capacity of heat sink.
Each application has specific characteristics that determine which TIM will optimize thermal performance. Select a match of two TIM that best fit the application, then conduct testing to determine which material performs the best.

⑥ Q:What do the applications of TIM include?
A:Telecommunication, network equipment, data communication, LED, automotive electronic, consumer electronic, medical equipment military, aerospace, etc.

TIM building a part number

Therm-Pad 1000 A1
- Therm-Pad: Thermally conductive material
- 1000: Thermally conductive insulator series
- 1: Thermal conductivity
- A: Single sided sticky

Therm-Gap 2400S20 DC1
- Therm-Gap: Thermally conductive material
- 2400: Thermally conductive gap filling material
- S: Thermal conductivity
- 20: Hardness
- D: Single-Face hardening
- C: Thermally conductive material

Therm-Bond 1200 YG C
- Therm-Bond: Thermally conductive material
- 1200: Thermally conductive adhesive
- YG: Thermal conductivity
- C: Thermally conductive material

Therm-Filler 3500 LV
- Therm-Filler: Thermally conductive material
- 3500: Two-Part thermally conductive liquid gap filler
- L: Thermal conductivity
- V: Low siloxane content

Therm-Gel 6000S
- Therm-Gel: Thermally conductive material
- 6000: Single-Part thermally conductive liquid gap filler
- S: Thermal conductivity

Therm-Grease 2000C
- Therm-Grease: Thermally conductive material
- 2000: Thermally conductive grease compound
- C: Thermal conductivity

Therm-Form 1000
- Therm-Form: Thermally conductive material
- 1000: Thermally conductive potting gel
- Thermal conductivity

Therm-Flow 4200
- Therm-Flow: Thermally conductive material
- 4200: Thermally conductive phase change material
- Thermal conductivity

Thermally Conductive Insulator

Therm-Pad 1000

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown voltage
- Smooth, good surface compliance
- Low mounting pressure
- UL94-V0 Flame Rating
- RoHS, Halogen-Free
- Single-Face adhesive can be choose (total thickness with adhesive is 0.18mm)

Typical Applications

Power Supply | Automotive Electronics | LED
Consumer Electronics | Communication Equipment
Network Terminal | Storage Device | Security Equipment

Packaging Related

① Standard Roll Form
② Packaging Specification:(Width * Thickness) * Length (505mm*0.15mm) *60m

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Pad 1000 is a thermally conductive insulator made from thermally conductive silicone rubber with polyimide as the reinforcement carrier, which has good thermal conductivity and high dielectric strength. Therm-Pad 1000 is mainly used between a power semiconductor component and its heat sink, where requires high thermal conductivity and insulating property.

Therm-Pad 1000 is soft and smooth, also has quite good surface compliance upon kinds of metal and ceramic components. Therm-Pad 1000 is able to achieve low interfacial thermal resistance and high-efficiency heat dissipation of power components under lower pressures with its high thermal conductivity.

Therm-Pad 1000 Typical Properties

Property	Typical Value			Test Method
Color	Pink			Visual Inspection
Thickness (mm)	0.15			ASTM D374
Reinforcement Carrier	Polyimide			N/A
Hardness (Shore A)	90			ASTM D2240
Elongation at Break (%)	20			ASTM D412
Tensile Strength (MPa)	30			ASTM D412
Operating Temperature (°C)	-60~180			N/A
Flame Rating	V-0			UL94
Electrical				
Dielectric Breakdown Voltage (kV)	⩾ 7			ASTM D149
Volume Resistivity (Ω · cm)	$1.1x10^{12}$			ASTM D257
Thermal				
Thermal Conductivity (W/m · K)	1.0			ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 0.15mm / Thickness)				
Pressure (psi)	5	10	25	50	60
Thermal Impedance (°C · in^2/W)	1.11	0.97	0.67	0.45	0.43
Compression Rate	3%	7%	11%	13%	14%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Insulator

Therm-Pad 1300

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown voltage
- Smooth, good surface compliance
- Low mounting pressure
- UL94-V0 Flame Rating
- RoHS, Halogen-Free
- Single-Face adhesive can be choose (total thickness with adhesive is 0.18mm)

Typical Applications

Power Supply | Automotive Electronics | LED
Consumer Electronics | Communication Equipment
Network Terminal | Storage Device | Security Equipment

Packaging Related

① Standard Roll Form
② Packaging Specification:(Width * Thickness) * Length (250mm*0.15mm) *100m

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Pad 1300 is a thermally conductive insulator made from thermally conductive silicone rubber with polyimide as reinforcement carrier, which has good thermal conductivity and high dielectric strength. Therm-Pad 1300 is mainly used between a power semiconductor component and its heat sink, where requires high thermal conductivity and insulating property.

Therm-Pad 1300 is soft and smooth, also has quite good surface compliance upon kinds of metal and ceramic components. Therm-Pad 1300 is able to achieve low interfacial thermal resistance and high-efficiency heat dissipation of power components under lower pressures with its high thermal conductivity.

Therm-Pad 1300 Typical Properties

Property	Typical Value				Test Method
Color	Yellow				Visual Inspection
Thickness (mm)	0.15				ASTM D374
Reinforcement Carrier	Polyimide				N/A
Hardness (Shore A)	89				ASTM D2240
Elongation at Break (%)	40				ASTM D412
Tensile Strength (MPa)	26				ASTM D412
Operating Temperature (°C)	-60~180				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage (kV)	⩾ 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.1x10^{12}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	1.3				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 0.15mm / Thickness)					
Pressure (psi)	5	10	25	50	60
Thermal Impedance (°C · in^2/W)	0.98	0.88	0.61	0.41	0.36
Compression Rate	3%	7%	11%	13%	14%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Insulator

Therm-Pad 1600

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown voltage
- Smooth, good surface compliance
- Low mounting pressure
- UL94-V0 Flame Rating
- RoHS, Halogen-Free

Typical Applications

Power Supply | Automotive Electronics | LED
Consumer Electronics | Communication Equipment
Network Terminal | Storage Device | Security Equipment

Packaging Related

① Standard Roll Form
② Packaging Specification:(Width * Thickness) * Length (305mm * 0.23mm) * 76.2m

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Pad 1600 is a thermally conductive insulator made from thermally conductive silicone rubber with fiberglass the reinforcement carrier, which has good thermal conductivity and high dielectric strength. Product is mainly used between a power semiconductor component and its heat sink, where requires high thermal conductivity and insulating property.

Therm-Pad 1600 is soft and smooth, also has quite good surface compliance upon kinds of metal and ceramic components. Therm-Pad 1600 is able to achieve low interfacial thermal resistance and high-efficiency heat dissipation of power components under lower pressures with its good thermal conductivity.

Therm-Pad 1600 Typical Properties

Property	Typical Value			Test Method
Color	Pink			Visual Inspection
Thickness (mm)	0.23			ASTM D374
Reinforcement Carrier	Fiberglass			N/A
Hardness (Shore A)	88			ASTM D2240
Elongation at Break (%)	3.0			ASTM D412
Tensile Strength (MPa)	28			ASTM D412
Operating Temperature (°C)	-60~180			N/A
Flame Rating	V-0			UL94
Electrical				
Dielectric Breakdown Voltage (kV)	⩾ 6			ASTM D149
Volume Resistivity (Ω · cm)	$1.1x10^{12}$			ASTM D257
Thermal				
Thermal Conductivity (W/m · K)	1.6			ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 0.23mm / Thickness)				
Pressure (psi)	5	10	25	50	60
Thermal Impedance (°C · in^2/W)	1.04	0.98	0.78	0.61	0.5
Compression Rate	2%	6%	11%	13%	14%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Insulator

Therm-Pad 3500H

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown voltage
- Smooth, good surface compliance
- Low mounting pressure
- UL94-V0 Flame Rating
- RoHS, Halogen-Free
- Single-Face adhesive can be choose

Typical Applications

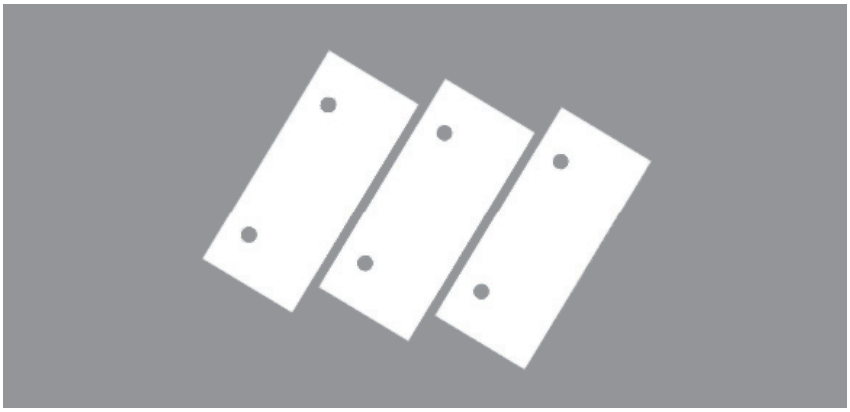
Power Supply | Automotive Electronics | LED
Consumer Electronics | Communication Equipment
Network Terminal | Storage Device | Security Equipment

Packaging Related

① Packaging Specification:(Width * Thickness) * Length
(350mm * 0.25mm) * 350mm

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:8°C < T < 28°C
- Relative Humidity:RH < 70%



Therm-Pad 3500H is a thermally conductive insulator made from thermally conductive silicone rubber with fiberglass as reinforcement carrier, which has good thermal conductivity and high dielectric strength.

Therm-Pad 3500 is mainly used between a power semiconductor component and heat sink, where requires high thermal conductivity and insulating property.

Therm-Pad 3500H Typical Properties

Property	Typical Value			Test Method
Color	White			Visual Inspection
Thickness (mm)	0.25			ASTM D374
Reinforcement Carrier	Fiberglass			N/A
Hardness (Shore A)	90			ASTM D2240
Operating Temperature (°C)	-50~200			N/A
Flame Rating	V-0			UL94
Electrical				
Dielectric Breakdown Voltage (kV)	6			ASTM D149
Volume Resistivity (Ω · cm)	$1.0x10^{12}$			ASTM D257
Thermal				
Thermal Conductivity (W/m · K)	3.5			ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 0.25mm / Thickness)				
Pressure (psi)	10	30	50	100
Thermal Impedance (°C · in^2/W)	0.52	0.35	0.27	0.21

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Composite Structure, Gap Filling Material

Therm-Gap 1100SP05

Features

- Good thermal conductivity, low thermal impedance
- Composite structure, high dielectric breakdown strength
- Highly soft, splendid surface compatibility
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

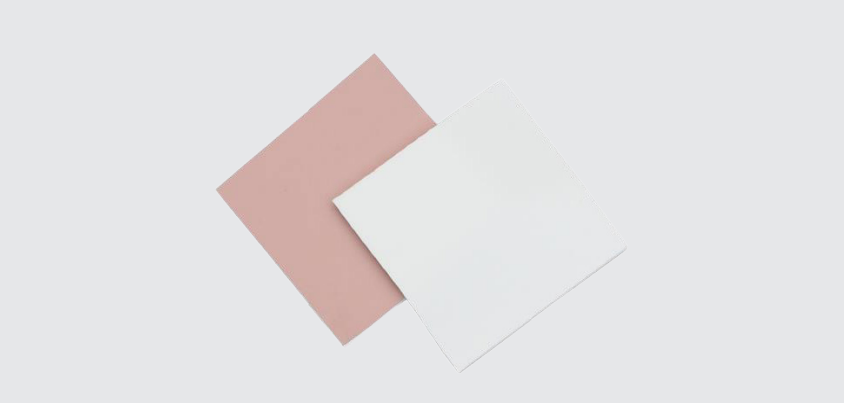
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*580mm (0.5 ⩽ T < 1.0mm)
400mm*560mm (1.0 ⩽ T < 2.0mm)
400mm*520mm (2.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 1100SP05 is a composite material with good thermal conductivity.
Therm-Gap 1100SP05 is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 1100SP05 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 1100SP05 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 1100SP05 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 1100SP05 Typical Properties

Property	Typical Value				Test Method
Color	White/Pink				Visual Inspection
Thickness (mm)	0.5~5.0				ASTM D374
Single Reinforcement Carrier	Thermally Conductive Insulator				N/A
Density (g/cm^3)	1.6				ASTM D792
Hardness (Shore OO)	5				ASTM D2240
Tensile Strength （MPa）	25				ASTM D412
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	>10				ASTM D149
Volume Resistivity (Ω · cm)	9.6x10^{12}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	1.1				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	0.80	0.70	0.59	0.53	0.50
Compression Rate	20%	34%	49%	57%	62%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Composite Structure, Gap Filling Material

Therm-Gap 1300SP

Features

- Good thermal conductivity, low thermal impedance
- Composite structure, high dielectric breakdown strength
- Highly soft, splendid surface compatibility
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*580mm (0.5 ⩽ T < 1.0mm)
400mm*560mm (1.0 ⩽ T < 2.0mm)
400mm*520mm (2.0 ⩽ T ⩽ 5.0mm)
400mm*320mm (5.0 < T ⩽ 8.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gap 1300SP is a composite material with good thermal conductivity. Therm-Gap 1300SP is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 1300SP is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 1300SP is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 1300SP possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 1300SP Typical Properties

Property	Typical Value				Test Method
Color	Light green/Pink				Visual Inspection
Thickness (mm)	0.50~8.0				ASTM D374
Single Reinforcement Carrier	Thermally Conductive Insulator				N/A
Density (g/cm^3)	2.30				ASTM D792
Hardness (Shore OO)	30				ASTM D2240
Tensile Strength (MPa)	25				ASTM D412
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 10				ASTM D149
Volume Resistivity (Ω · cm)	9.6x10^{12}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	1.3				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	1.12	0.92	0.78	0.70	0.64
Compression Rate	12%	21%	30%	36%	40%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 1500

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Soft, splendid surface compatibility
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 400mm (1.0 ⩽ T < 2.0mm)
400mm * 200mm (2.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gap 1500 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 1500 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 1500 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 1500 possesses highly soft property and excellent elasticity.

Therm-Gap 1500 Typical Properties

Property		Typical Value			Test Method
Color		Green			Visual Inspection
Thickness (mm)		1.0~5.0			ASTM D374
Fiberglass Reinforcement Carrier	NO	Fiberglass	PI	GP	N/A
Hardness (Shore OO)	50	60	75	75	ASTM D2240
Density (g/cm^3)		2.0			ASTM D792
Tensile Strength (MPa)		>0.1			ASTM D412
Elongation at Break (%)		>100			ASTM D412
Operating Temperature (°C)		-45~200			N/A
Flame Rating		V-0			UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm		>8			ASTM D149
Volume Resistivity (Ω · cm)		$1x10^{13}$			ASTM D257
Flame Rating					
Thermal Conductivity (W/m · K)		1.5			ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 2.0mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	1.91	1.45	1.14	0.94	0.84
Compression Rate	13%	32%	50%	60%	64%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 2000S40

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

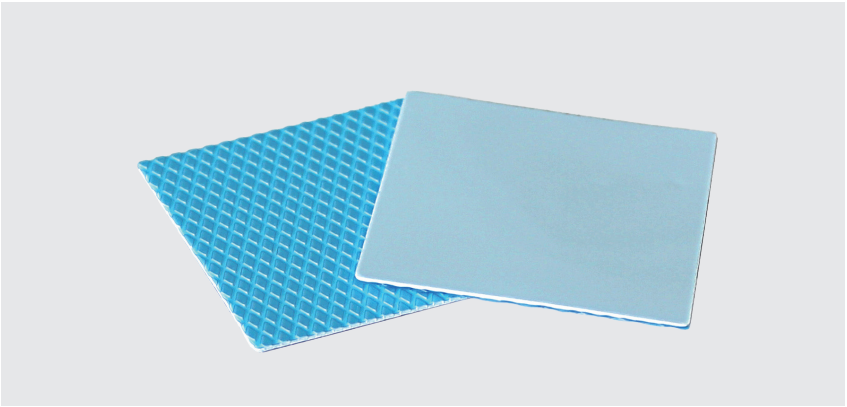
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 400mm (1.0 ⩽ T < 2.0mm)
400mm * 200mm (2.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 2000S40 has good thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 2000S40 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 2000S40 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 2000S40 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 2000S40 Typical Properties

Property	Typical Value				Test Method
Color	Blue				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	2.5				ASTM D792
Hardness (Shore OO)	45				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	1.1x10^{11}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	2.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	0.71	0.64	0.60	0.58	0.56
Compression Rate	7%	13%	17%	20%	23%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 2000PI HS LD

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 400mm (1.0 ⩽ T < 2.0mm)
400mm * 200mm (2.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gap 2000PI HS LD has good thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 2000PI HS LD is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 2000PI HS LD is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 2000PI HS LD possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 2000PI HS LD Typical Properties

Property	Typical Value				Test Method
Color	Green / Yellow				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Single Reinforcement Carrier	PI				N/A
Frequency of Wear	> 50000				TABER5750
Density (g/cm^3)	2.0				ASTM D792
Hardness (Shore OO)	40				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 10				ASTM D149
Volume Resistivity (Ω · cm)	$1.26x10^{13}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	2.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 3mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	2.13	1.90	1.76	1.65	1.57
Compression Rate	9%	19%	26%	30%	34%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 2200SM NH

Features

- Good thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

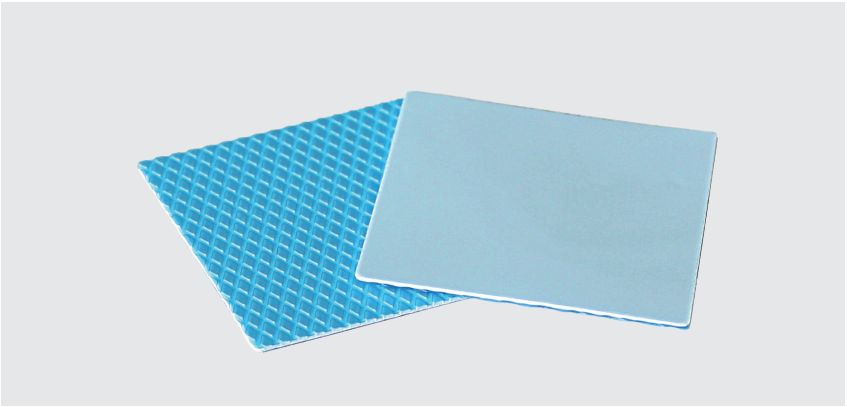
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 400mm (1.0 ⩽ T < 2.0mm)
400mm * 200mm (2.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 2200SM NH has good thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 2200SM NH is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 2200SM NH is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 2200SM NH possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 2200SM NH Typical Properties

Property	Typical Value				Test Method
Color	Blue				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Fiberglass Reinforcement Carrier	Yes				N/A
Density (g/cm^3)	2.3				ASTM D792
Hardness (Shore OO)	45				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$8x10^{11}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	2.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 2mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	1.21	1.12	1.03	0.97	0.93
Compression Rate	12%	24%	32%	36%	43%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 2400S20

Features

- High thermal conductivity low thermal impedance
- High dielectric breakdown strength, splendid surface wettability
- Highly soft, fiberglass reinforced
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

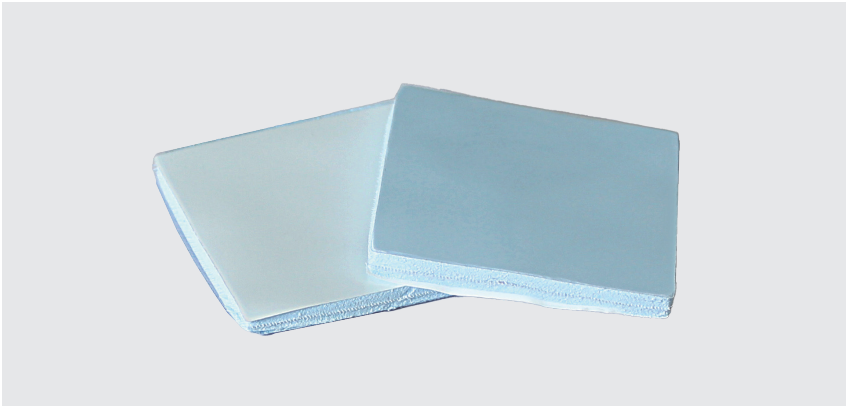
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 200mm (0.5 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 2400S20 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 2400S20 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 2400S20 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 2400S20 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 2400S20 Typical Properties

Property	Typical Value				Test Method
Color	Blue				Visual Inspection
Thickness (mm)	0.5~5.0				ASTM D374
Fiberglass Reinforcement Carrier	Yes				N/A
Density (g/cm^3)	2.8				ASTM D792
Hardness (Shore OO)	20				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.5x10^{13}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	2.6				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	0.78	0.58	0.44	0.40	0.39
Compression Rate	22%	36%	51%	60%	66%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 2500BU HS

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Medium hardness, splendid surface compatibility
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

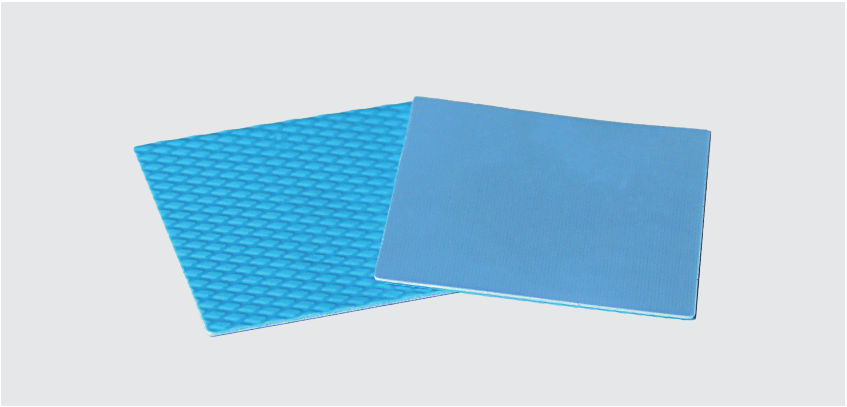
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 400mm (0.30 ⩽ T ⩽ 5mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 2500BU HS has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 2500BU HS is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 2500BU HS is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 2500BU HS possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 2500BU HS Typical Properties

Property	Typical Value				Test Method
Color	Blue				Visual Inspection
Thickness (mm)	0.3~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	2.7				ASTM D792
Hardness (Shore OO)	70				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	⩾ 6				ASTM D149
Volume Resistivity (Ω · cm)	$2.5x10^{13}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	2.5				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance ($°C \cdot in^2/W$)	0.79	0.70	0.63	0.58	0.56
Compression Rate	7%	13%	21%	27%	30%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 3000ST

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

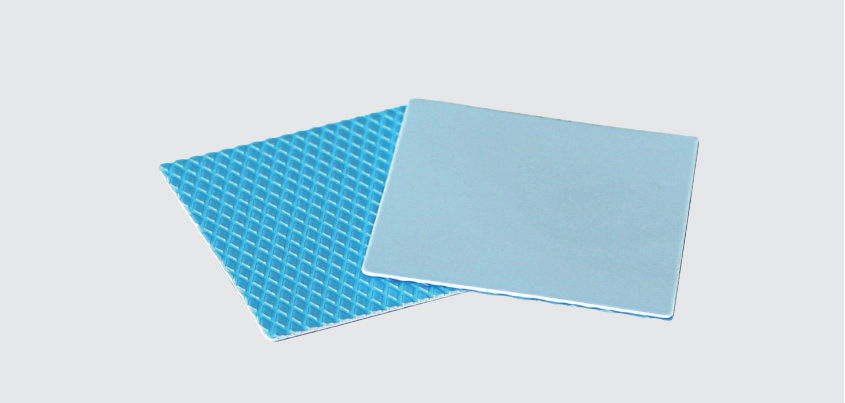
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*200mm (0.35 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 3000ST has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 3000ST is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 3000ST is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 3000ST possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 3000ST Typical Properties

Property	Typical Value				Test Method
Color	Blue				Visual Inspection
Thickness (mm)	0.3~0.5		0.5~5.0		ASTM D374
Fiberglass Reinforcement Carrier	Yes		No		N/A
Density (g/cm^3)	3.0				ASTM D792
Hardness (Shore OO)	30				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	1x10^{12}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	3.2				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	0.52	0.41	0.36	0.33	0.31
Compression Rate	17%	33%	43%	49%	54%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 3000ZS

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

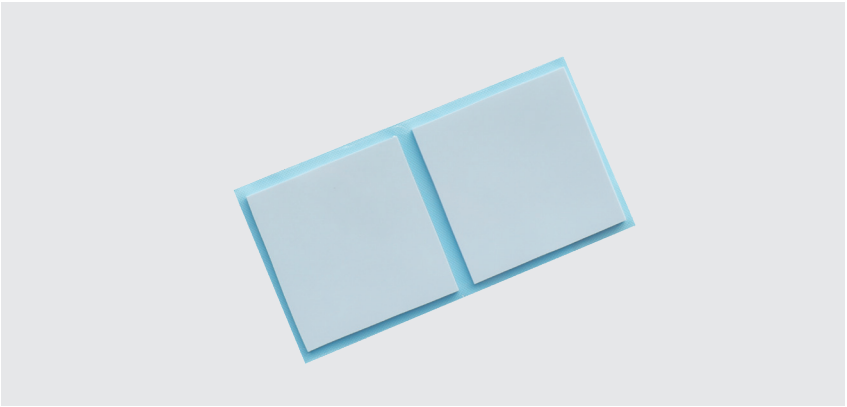
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 200mm (1.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 3000ZS has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 3000ZS is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 3000ZS is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 3000ZS possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 3000ZS Typical Properties

Property	Typical Value				Test Method
Color	Light Blue				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Fiberglass Reinforcement Carrier	Yes				N/A
Density (g/cm^3)	2.8				ASTM D792
Hardness (Shore OO)	30				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.5x10^{12}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	3.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	0.65	0.54	0.47	0.44	0.41
Compression Rate	12%	20%	29%	35%	40%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 3000 SP UE

Features

- Excellent thermal conductivity, extremely low thermal impedance
- High dielectric breakdown strength
- Splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*560mm (1.0 ⩽ T ⩽ 2.0mm)
400mm*520mm (2.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gap 3000 SP UE has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures. Product is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.

Therm-Gap 3000 SP UE single side composite thermal insulation material, can enhance its electrical and mechanical properties, greatly improve its operation; one side of the product is sticky, which can play a certain pre-fixing role in assembly.Product is resistant to high voltage and has good thermostability, with safety and reliability.

Therm-Gap 3000 SP UE Typical Properties

Property	Typical Value				Test Method
Color	Pink				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Density (g/cm^3)	2.8				ASTM D792
Hardness (Shore OO)	< 40				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 8				ASTM D149
Volume Resistivity (Ω · cm)	10^{14}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	3.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 2.5mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	1.69	1.57	1.36	1.21	1.00
Compression Rate	1%	4%	12%	22%	42%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 4000

Features

- Excellent thermal conductivity, extremely low thermal impedance
- High dielectric breakdown strength
- Splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

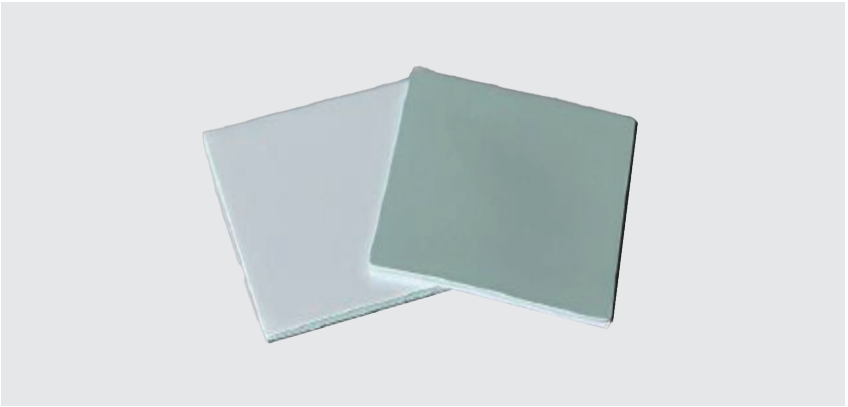
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 200mm (1.0 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 4000 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 4000 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 4000 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 4000 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 4000 Typical Properties

Property	Typical Value				Test Method
Color	Light blue				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.0				ASTM D792
Hardness (Shore OO)	40				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$8x10^{13}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	4.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	4	8	12	16	20
Thermal Impedance (°C · in^2/W)	0.66	0.54	0.47	0.41	0.37
Compression Rate	9%	13%	19%	27%	34%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 5000

Features

- Excellent thermal conductivity, extremely low thermal impedance
- High dielectric breakdown strength
- Splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

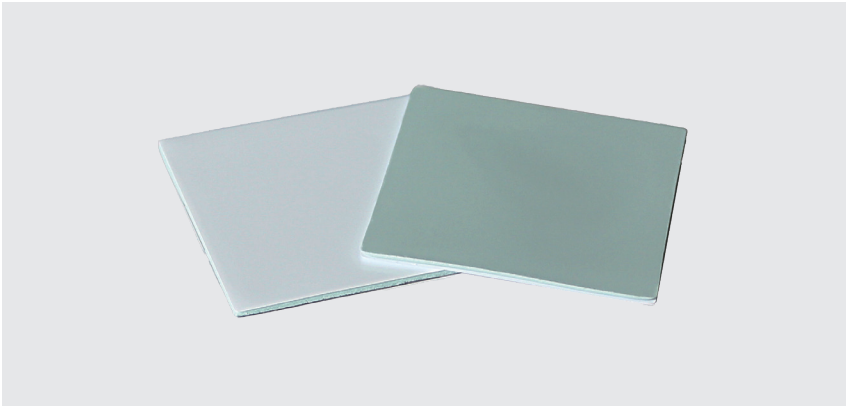
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 200mm (0.5 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 5000 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 5000 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 5000 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 5000 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 5000 Typical Properties

Property	Typical Value				Test Method
Color	Light blue				Visual Inspection
Thickness (mm)	0.5~0.75		1.0~5.0		ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.0				ASTM D792
Hardness (Shore OO)	75		50		ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	1.5x10^{13}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	5.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	0.36	0.30	0.26	0.22	0.20
Compression Rate	8%	14%	25%	31%	35%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 5000 ST

Features

- Excellent thermal conductivity, extremely low thermal impedance
- High dielectric breakdown strength
- Splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

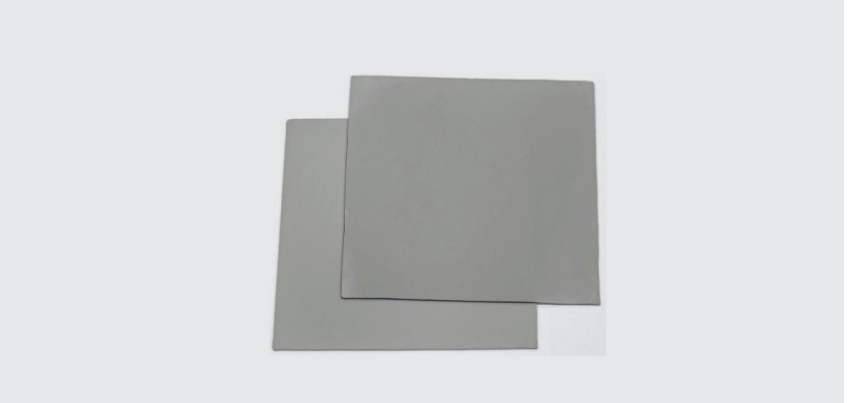
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm * 200mm (0.5 ⩽ T ⩽ 5.0mm)

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 5000 ST has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 5000 ST is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 5000 ST is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 5000 ST possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 5000 ST Typical Properties

Property	Typical Value				Test Method
Color	Gray				Visual Inspection
Thickness (mm)	0.5~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.2				ASTM D792
Hardness (Shore OO)	27				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.0x10^{12}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	5.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	0.31	0.28	0.23	0.18	0.15
Compression Rate	29%	42%	51%	57%	62%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 6000 ST

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*200mm（0.5 ⩽ T ⩽ 5.0mm）

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gap 6000 ST has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 6000 ST is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 6000 ST is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 6000 ST possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 6000 ST Typical Properties

Property	Typical Value				Test Method
Color	Gray				Visual Inspection
Thickness (mm)	0.5~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.2				ASTM D792
Hardness (Shore OO)	27				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.0x10^{12}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	6.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	0.29	0.26	0.21	0.16	0.14
Compression Rate	27%	41%	49%	56%	61%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 7000

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

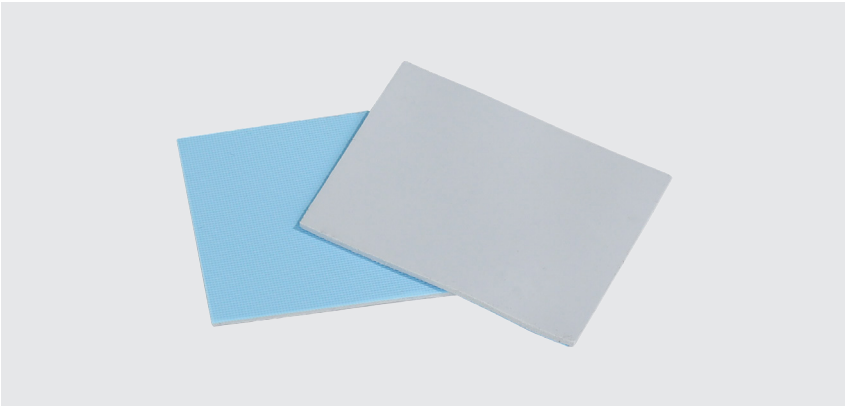
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*200mm（0.75 ⩽ T ⩽ 5.0mm）

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 7000 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 7000 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 7000 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 7000 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 7000 Typical Properties

Property	Typical Value				Test Method
Color	Light blue				Visual Inspection
Thickness (mm)	0.75~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.0				ASTM D792
Hardness (Shore OO)	55				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.0x10^{13}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	7.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance (°C · in^2/W)	0.21	0.18	0.15	0.13	0.12
Compression Rate	6%	12%	19%	25%	31%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 8000 S60

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

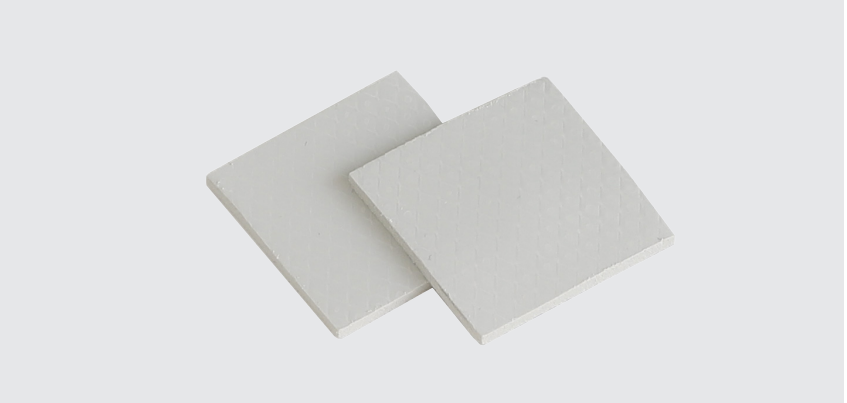
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*200mm（0.5 ⩽ T ⩽ 5.0mm）

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 8000 S60 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 8000 S60 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 8000 S60 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 8000 S60 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 8000 S60 Typical Properties

Property	Typical Value				Test Method
Color	Gray				Visual Inspection
Thickness (mm)	0.5~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.0~3.5				ASTM D792
Hardness (Shore OO)	60				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 6				ASTM D149
Volume Resistivity (Ω · cm)	$1.0x10^{13}$				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	8.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	10	20	30	40	50
Thermal Impedance (°C · in^2/W)	0.21	0.17	0.14	0.12	0.09
Compression Rate	18%	31%	44%	54%	66%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 10000

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

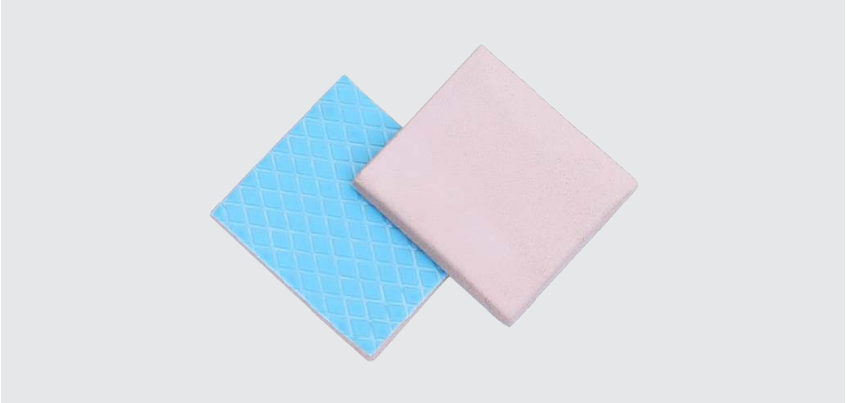
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
200mm*200mm （0.5mm ≤ T < 5.0mm）

Storage

① Shelf Life:18 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 10000 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 10000 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
Therm-Gap 10000 is resistant to high voltage and has good thermostability, which allows its safety and reliability.
Therm-Gap 10000 possesses highly soft property and excellent elasticity to reduce the structural stress and protect microchips.

Therm-Gap 10000 Typical Properties

Property	Typical Value				Test Method
Color	Red				Visual Inspection
Thickness (mm)	0.5~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.0				ASTM D972
Hardness (Shore OO)	78				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	> 5				ASTM D149
Volume Resistivity (Ω · cm)	1.0x10^{10}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	10.0				ISO 22007
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	20	30	40	50	60
Thermal Impedance (°C · in^2/W)	0.2	0.19	0.19	0.18	0.17
Compression Rate	6%	8%	10%	12%	14%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 12000 GY

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

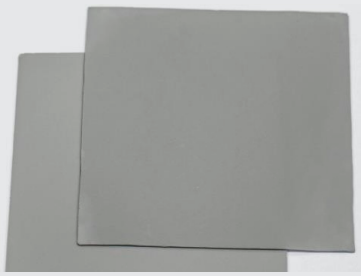
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*200mm （1.0mm ≤ T < 5.0mm）

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature: 8°C < T < 28°C
- Relative Humidity:RH < 70%



Therm-Gap 12000 GY has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 12000 GY is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
The viscidity of Therm-Gap 12000 GY is of benefit to prefixation treatment.
Therm-Gap 12000 GY is resistant to high voltage and has good thermostability, which allows its safety and reliability.

Therm-Gap 12000 GY Typical Properties

Property	Typical Value				Test Method
Color	Gray				Visual Inspection
Thickness (mm)	1.0~5.0				ASTM D374
Fiberglass Reinforcement Carrier	No				N/A
Density (g/cm^3)	3.0				ASTM D972
Hardness (Shore OO)	40				ASTM D2240
Operating Temperature (°C)	-45~200				N/A
Flame Rating	V-0				UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm	5				ASTM D149
Volume Resistivity (Ω · cm)	1.0x10^{12}				ASTM D257
Thermal					
Thermal Conductivity (W/m · K)	12.0				ISO 22007
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	15	20	25
Thermal Impedance (°C · in^2/W)	0.14	0.13	0.11	0.09	0.05
Compression Rate	5%	11%	25%	42%	67%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive, Gap Filling Material

Therm-Gap 13000

Features

- High thermal conductivity, low thermal impedance
- High dielectric breakdown strength
- Highly soft, splendid surface wettability
- Excellent elasticity, high reliability in long-term work
- Multiple choices of thickness for wide range of application

Typical Applications

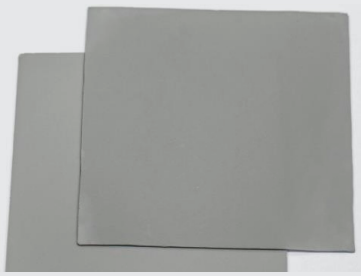
Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Sheet Form
② Packaging Specification:Length * Width (Thickness)
400mm*200mm （0.5mm ⩽ T < 5.0mm）

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%



Therm-Gap 13000 has high thermal conductivity and is able to achieve low interfacial thermal resistance under lower pressures.
Therm-Gap 13000 is mainly used between power components and the aluminous heat sinks or machine casings, which can eliminate air effectively and achieve excellent fill effects.
The viscidity of Therm-Gap 13000 is of benefit to prefixation treatment.
Therm-Gap 13000 is resistant to high voltage and has good thermostability, which allows its safety and reliability.

Therm-Gap 13000 Typical Properties

Property			Typical Value		Test Method
Color			Gray		Visual Inspection
Thickness (mm)			0.5~5.0		ASTM D374
Fiberglass Reinforcement Carrier			No		N/A
Density (g/cm^3)			3.1		ASTM D972
Hardness (Shore OO)			75		ASTM D2240
Operating Temperature (°C)			-45~200		N/A
Flame Rating			V-0		UL94
Electrical					
Dielectric Breakdown Voltage （KV） @1mm			5		ASTM D149
Volume Resistivity (Ω · cm)			1.0x10^{12}		ASTM D257
Thermal					
Thermal Conductivity (W/m · K)			13.0		ISO 22007
Thermal Impedance VS. Pressure (Reference Sample: 2mm / Thickness)					
Pressure (psi)	10	20	30	50	70
Thermal Impedance (°C · in^2/W)	0.3	0.26	0.24	0.22	0.18
Compression Rate	8%	15%	21%	30%	45%

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Filler 2000LV

Features

- Two-Part 1:1, 100% solids
- Curing at room or elevated temperatures
- Resistant to high voltage, working well on the irregular structure gap
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:Two-Part 1: 1, Mixed syring Volume: 50cc/400cc/5gal/55gal

Storage

① Shelf Life:6 months （Syring）
4 months （Barrel）
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Filler 2000LV is a paste gap filled with low siloxane content (D4~D10 content ⩽ 70PPM) silicone thermal conductivity material. It can be cured at room or accelerated temperature. Therm-Filler 2000LV is a soft elastomer with good thermally conductive performance after curing and forming along with the surface. Therm-Filler 2000LV possesses excellent structural applicability and untra conforming property, to fill the gaps fully, for compoents such as a heat sink, uneven ceramic or irregular cavity.
Therm-Filler 2000LV is resistant to high voltage and has good thermostability, which allows It's safety and reliability.
Therm-Filler2000LV can flow by applying pressure before curing and has the same performance as the thermal conductive pad after curing. Therm-Filler 2000LV will never fall off from the interface after heat cycling.

Therm-Filler 2000LV Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**A Part**	**B Part**	
Color	Yellow	White	Visual Inspection
Viscosity (mPa·s)	$230x10^3$	$230x10^3$	ASTM D2196
Density (g/cm^3)	2.0	2.0	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Yellow		Visual Inspection
Hardness (Shore OO)	55		ASTM D2240
Surface Curing Time (min)	75		N/A
Operating Temperature (°C)	-45~200		N/A
Electrical			
Dielectric Strength （KV/mm）	＞ 10		ASTM D149
Volume Resistivity (Ω·cm)	$1.0x10^{13}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity (W/m·K)	2.0		ASTM D5470
Cure Schedule			
25°C (H)	24		N/A
100°C (min)	15		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Filler 3500LV

Features

- Two-Part 1:1, 100% solids
- Curing at room or elevated temperatures
- Resistant to high voltage, working well on the irregular structure gap
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:Two-Part 1: 1, Mixed syring Volume: 50cc / 400cc

Storage

① Shelf Life:6 months （Syring）
4 months （Barrel）
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Filler 3500LV is a thermal conductive, paste-like, gap filling material, curing at room or accelerated temperature. Therm-Filler 3500LV is a soft elastomer with good thermally conductive performance after curing and forming along with the surface. Therm-Filler 3500LV possesses excellent structural applicability and untra conforming property, to fill the gaps fully, for compoents such as a heat sink, uneven ceramic or irregular cavity.
Therm-Filler 3500LV is resistant to high voltage and has good thermostability, which allows It's safety and reliability.
Therm-Filler 3500LV can flow by applying pressure before curing and has the same performance as the thermal conductive pad after curing. Therm-Filler 3500LV will never fall off from the interface after heat cycling.

Therm-Filler 3500LV Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**A Part**	**B Part**	
Color	Yellow	White	Visual Inspection
Density (g/cm^3)	3.15	3.15	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Hardness (Shore OO)	65 (1:1 as cured)		ASTM D2240
Siloxane （ppm）	⩽ 100		ASTM F2466
Surface Curing Time (min)	60		N/A
Operating Temperature (°C)	-40~200		N/A
Viscosity (mPa·s)	100x10^3		ASTM D2196
Electrical			
Dielectric Strength （KV/mm）	＞ 8		ASTM D149
Volume Resistivity (Ω·cm)	1.0x10^{13}		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity (W/m·K)	3.5		ASTM D5470
Cure Schedule			
25°C (H)	24		N/A
100°C (min)	40		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Filler 3500 S65

Features

- Two-Part 1:1, 100% solids
- Curing at room or elevated temperatures
- Resistant to high voltage, working well on the irregular structure gap
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:Two-Part 1: 1, Mixed syring Volume: 50cc / 400cc

Storage

① Shelf Life:6 months （Syring）
4 months （Barrel）
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Filler 3500 S65 is a thermal conductive, paste-like, gap filling material, curing at room or accelerated temperature. Therm-Filler 3500 S65 is a soft elastomer with good thermally conductive performance after curing and forming along with the surface. Therm-Filler 3500 S65 possesses excellent structural applicability and untra conforming property, to fill the gaps fully, for compoents such as a heat sink, uneven ceramic or irregular cavity.
Therm-Filler 3500 S65 is resistant to high voltage and has good thermostability, which allows It's safety and reliability.
Therm-Filler 3500 S65 can flow by applying pressure before curing and has the same performance as the thermal conductive pad after curing. Therm-Filler 3500 S65 will never fall off from the interface after heat cycling.

Therm-Filler 3500 S65 Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**A Part**	**B Part**	
Color	Yellow	White	Visual Inspection
Viscosity (mPa·s)	$260x10^3$	$260x10^3$	ASTM D2196
Density (g/cm^3)	3.1	3.1	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Yellow		Visual Inspection
Hardness (Shore OO)	65 (1:1 as cured)		ASTM D2240
Surface Curing Time (min)	60		N/A
Operating Temperature (°C)	-40~200		N/A
Electrical			
Dielectric Strength （KV/mm）	＞8		ASTM D149
Volume Resistivity (Ω·cm)	$1.0x10^{13}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity (W/m·K)	3.5		ASTM D5470
Cure Schedule			
25°C (H)	24		N/A
100°C (min)	40		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Filler 4000

Features

- Two-Part 1:1, 100% solids
- Curing at room or elevated temperatures
- Resistant to high voltage, working well on the irregular structure gap
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:Two-Part 1: 1, Mixed syring Volume: 50cc / 400cc

Storage

① Shelf Life:6 months （Syring）
4 months （Barrel）
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Filler 4000 is a thermal conductive, paste-like, gap filling material, curing at room or accelerated temperature. Therm-Filler 4000 is a soft elastomer with good thermally conductive performance after curing and forming along with the surface. Therm-Filler 4000 possesses excellent structural applicability and untra conforming property, to fill the gaps fully, for compoents such as a heat sink, uneven ceramic or irregular cavity.
Therm-Filler 4000 is resistant to high voltage and has good thermostability, which allows It's safety and reliability.
Therm-Filler 4000 can flow by applying pressure before curing and has the same performance as the thermal conductive pad after curing. Therm-Filler 4000 will never fall off from the interface after heat cycling.

Therm-Filler 4000 Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**A Part**	**B Part**	
Color	Yellow	White	Visual Inspection
Viscosity (mPa·s)	$200x10^4$	$200x10^4$	ASTM D2196
Density (g/cm^3)	3.0	3.0	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Yellow		Visual Inspection
Hardness (Shore OO)	60 (1:1 as cured)		ASTM D2240
Surface Curing Time (min)	60		N/A
Operating Temperature (°C)	-45~200		N/A
Electrical			
Dielectric Strength （KV/mm）	⩾ 6.0		ASTM D149
Volume Resistivity (Ω·cm)	$1.0x10^{12}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity (W/m·K)	4.0		ASTM D5470
Cure Schedule			
25°C (H)	24		N/A
100°C (min)	40		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Filler 4500LV

Features

- Two-Part 1:1, 100% solids
- Curing at room or elevated temperatures
- Resistant to high voltage, working well on the irregular structure gap
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:Two-Part 1: 1, Mixed syring Volume: 50cc/400cc/5gal/55gal

Storage

① Shelf Life:6 months （Syring）
4 months （Barrel）
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Filler 4500LV is a thermal conductive, paste-like, gap filling material, curing at room or accelerated temperature. Therm-Filler 4500LV is a soft elastomer with good thermally conductive performance after curing and forming along with the surface. Therm-Filler 4500LV possesses excellent structural applicability and untra conforming property, to fill the gaps fully, for compoents such as a heat sink, uneven ceramic or irregular cavity.
Therm-Filler 4500LV is resistant to high voltage and has good thermostability, which allows It's safety and reliability.
Therm-Filler 4500LV can flow by applying pressure before curing and has the same performance as the thermal conductive pad after curing. Therm-Filler 4500LV will never fall off from the interface after heat cycling.

Therm-Filler 4500LV Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**A Part**	**B Part**	
Color	Yellow	White	Visual Inspection
Viscosity (mPa·s)	$250x10^3$	$250x10^3$	ASTM D2196
Density (g/cm^3)	3.2	3.2	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Yellow		Visual Inspection
Hardness (Shore OO)	65 (1:1 as cured)		ASTM D2240
Surface Curing Time (min)	90		N/A
Tensile Strength （MPa)	⩾ 0.1		ASTM D412
Elongation at break （%)	30		ASTM D412
Operating Temperature (°C)	-45~200		N/A
Electrical			
Dielectric Strength （KV/mm)	＞ 8		ASTM D149
Volume Resistivity (Ω·cm)	$1.0x10^{11}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity (W/m·K)	4.5		ASTM D5470
Cure Schedule			
25°C (H)	24		N/A
100°C (min)	15		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Single-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Gel 3500S FR60

Features

- Single-Part
- No curing with high reliability
- Working well on the irregular structure gap
- Resistant to high strength
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:
Manner: Single-Part
Volume: 30cc / 300cc

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gel 3500S FR60 is a thermally conductive, form-in-place, liquid gap filling material.
Therm-Gel 3500S FR60 possesses excellent structural applicability and ultra-conforming property, as well as fills the gaps fully, for components such as a heat sink, uneven ceramic or irregular cavity.
Therm-Gel 3500S FR60 is resistant to high voltage and has good thermostability, which allows its safety and reliabilty.
Therm-Gel 3500S FR60 flows under pressure like grease and will not cure as a result of thermal cycling.

Therm-Gel 3500S FR60 Typical Properties

Property	Typical Value	Test Method
Color	Yellow	Visual Inspection
Density (g/cm^3)	2.8	ASTM D792
Extrusion Rate (g/min)	60	2.54mm Needle under 90Psi Pressure (30cc Packaging)
Typical Minimum Thickness (mm)	0.1	N/A
Operating Temperature (°C)	-45~200	N/A
Flame Rating	V-0	UL94
Electrical		
Volume Resistivity (Ω · cm)	9.6x10^{13}	ASTM D257
Thermal		
Thermal Conductivity (W/m · K)	3.5	ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Single-Part, Thermally Conductive Liquid Gap Filling Material

Therm-Gel 6000S

Features

- Single-Part
- No curing with high reliability
- Working well on the irregular structure gap
- Resistant to high strength
- Excellent mechanical property and weather resistance

Typical Applications

Power Supply | Consumer Electronics | LED
Communication Equipment | Network Terminal
Storage Device | Security Equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:
Manner: Single-Part
Volume: 30cc / 300cc

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:5°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Gel 6000S is a thermally conductive, form-in-place, liquid gap filling material.
Therm-Gel 6000S possesses excellent structural applicability and ultra-conforming property, as well as fills the gaps fully, for components such as a heat sink, uneven ceramic or irregular cavity.
Therm-Gel 6000S is resistant to high voltage and has good thermostability, which allows its safety and reliabilty.
Therm-Gel 6000S flows under pressure like grease and will not cure as a result of thermal cycling.

Therm-Gel 6000S Typical Properties

Property	Typical Value	Test Method
Color	Gray	Visual Inspection
Density (g/cm^3)	3.4	ASTM D792
Extrusion Rate (g/min)	40	2.54mm Needle under 90Psi Pressure (30cc Packing)
Corrosive	Not corrode copper and nickel	N/A
50% Static Comperssion Stress (psi)	<1	N/A
50% Instantaneous Compressive Stress (psi)	<20	N/A
Operating Temperature （°C）	-45~150	N/A
Flame Rating	V-0	UL94
Electrical		
Volume Resistivity (Ω-cm)	10^{11}	ASTM D257
Dielectric Strength （KV/mm）	>3	ASTM D149
Thermal		
Thermal Conductivity (W/m·K)	6.0	ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive, Structural Bonding Adhesive

Therm-Bond 1200 YG C

Features

- Two-Part, 1:1，no solvent volatilization
- Cure at room or accelerated temperature
- Easy to operate
- Excellent electrical insulation
- Excellent mechanical property and weather resistance

Typical Applications

Communication Devices | Power supply
Network terminal & Storage device | Battery Pack
LED & Consumer electronics | Security equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:
Manner: Two-Part
Volume: 50cc/400cc/5gal/55gal

Storage

① Shelf Life:6 months
② Storage Conditions: Cool and dry environment
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 60%

Therm-Bond 1200 YG C is a two-component polyurethane thermal conductivity structural bonding adhesive with thermal conductivity and bonding functions. It can be cured at room or accelerated temperature. After curing, it has good insulation and voltage resistance properties and bond stability.Bonding interface can be metal materials, such as Al, Fe, stainless steel, etc., or plastic, such as PC, PI, PP, acrylic plate, etc. But the bonding strength of metal interface is usually higher than that of plastic interface.

Therm-Bond 1200 YG C is often applied to the bonding scheme of modules in new energy vehicles, such as blade battery bonding, CTP scheme, CTC scheme, etc. The main bonding interfaces are AL-PC, Blue film-PC, AL-Blue film and other materials. In order to achieve the best bonding effect of the interface, the bonding interface should be pre-cleaned in advance to prevent the influence of dust and oil impurities on the bonding strength.

Therm-Bond 1200 YG C Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	Part A	Part B	
Color	Yellow	Blue	Visual Inspection
Viscosity（mPa·s）	$105x10^3$	$110x10^3$	ASTM D2196
Density（g/cm³）	1.7	1.8	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Green		Visual Inspection
Hardness（Shore D）	65（1:1 after curing))		ASTM D2240
Operating time (min) @25°C	30~50		N/A
Tensile Lap-shear Strength （MPa）	10 （AL-AL）; 4.0（AL-PET）		GB/T 7124-2008
Tensile Strength（MPa）	12		ASTM D412
Tensile elongation（%）	20		ASTM D412
Operating temperature（°C）	-40~85		N/A
Electrical			
Dielectric Strength （KV/mm）	14		ASTM D149
Volume Resistance（Ω·cm）	$1.0x10^{13}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity（W/m·K）	1.2		ASTM D5470
Electrical			
25°C（D）	7		N/A
80°C（H）	8		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive, Structural Bonding Adhesive

Therm-Bond 1500 D60

Features

- Two-Part, 1:1，no solvent volatilization
- Cure at room or accelerated temperature
- Easy to operate
- Excellent electrical insulation
- Excellent mechanical property and weather resistance

Typical Applications

Communication Devices | Power supply
Network terminal & Storage device | Battery Pack
LED & Consumer electronics | Security equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:
Manner: Two-Part
Volume: 50cc/400cc/5gal/55gal

Storage

① Shelf Life:6 months Syring
4 months(Barrel)
② Storage Conditions: Cool and dry environment
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 60%

Therm-Bond 1500 D60 is a two-component polyurethane thermal conductivity structural bonding adhesive with thermal conductivity and bonding functions. It can be cured at room or accelerated temperature. After curing, it has good insulation and voltage resistance properties and bond stability.Bonding interface can be metal materials, such as Al, Fe, stainless steel, etc., or plastic, such as PC, PI, PP, acrylic plate, etc. But the bonding strength of metal interface is usually higher than that of plastic interface.
Therm-Bond 1500 D60 is often applied to the bonding scheme of modules in new energy vehicles, such as blade battery bonding, CTP scheme, CTC scheme, etc. The main bonding interfaces are AL-PC, Blue film-PC, AL-Blue film and other materials. In order to achieve the best bonding effect of the interface, the bonding interface should be pre-cleaned in advance to prevent the influence of dust and oil impurities on the bonding strength.

Therm-Bond 1500 D60 Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**Part A**	**Part B**	
Color	White	Black	Visual Inspection
Viscosity（mPa·s）	$110x10^3$~$170x10^3$	$130x10^3$~$190x10^3$	ASTM D2196
Density（g/cm³）	2.0	2.0	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Gray		Visual Inspection
Hardness（Shore D）	65（1:1 after curing)）		ASTM D2240
Operating time (min) @25°C	40~60		N/A
Tensile Lap-shear Strength （MPa）	8 （AL-AL）; 3.0（AL-PET）		GB/T 7124-2008
Tensile Strength（MPa）	8		ASTM D412
Tensile elongation（%）	20		ASTM D412
Operating temperature（°C）	-40~85		N/A
Electrical			
Dielectric Strength （KV/mm）	16		ASTM D149
Volume Resistance（Ω·cm）	$1.0x10^{13}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity（W/m·K）	1.5		ASTM D5470
Electrical			
25°C（D）	7		N/A
80°C（H）	12		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Two-Part, Thermally Conductive, Structural Bonding Adhesive

Therm-Bond 2000 LD

Features

- Two-Part, 1:1，no solvent volatilization
- Cure at room or accelerated temperature
- Easy to operate
- Excellent electrical insulation
- Excellent mechanical property and weather resistance

Typical Applications

Communication Devices | Power supply
Network terminal & Storage device | Battery Pack
LED & Consumer electronics | Security equipment

Packaging Related

① Supplied in syringe or canning form
② Packaging Specification:
Manner: Two-Part
Volume: 50cc/400cc/5gal/55gal

Storage

① Shelf Life:6 months Syring
4 months(Barrel)
② Storage Conditions: Cool and dry environment
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 60%

Therm-Bond 2000 LD is a two-component polyurethane thermal conductivity structural bonding adhesive with thermal conductivity and bonding functions. It can be cured at room or accelerated temperature. After curing, it has good insulation and voltage resistance properties and bond stability.Bonding interface can be metal materials, such as Al, Fe, stainless steel, etc., or plastic, such as PC, PI, PP, acrylic plate, etc. But the bonding strength of metal interface is usually higher than that of plastic interface.

Therm-Bond 2000 LD is often applied to the bonding scheme of modules in new energy vehicles, such as blade battery bonding, CTP scheme, CTC scheme, etc. The main bonding interfaces are AL-PC, Blue film-PC, AL-Blue film and other materials. In order to achieve the best bonding effect of the interface, the bonding interface should be pre-cleaned in advance to prevent the influence of dust and oil impurities on the bonding strength.

Therm-Bond 2000 LD Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**Part A**	**Part B**	
Color	White	Black	Visual Inspection
Viscosity（mPa·s）	$190x10^3$	$210x10^3$	ASTM D2196
Density（g/cm³）	2.0	2.0	ASTM D792
Mix Ratio	1:1		N/A
Performance after Mixture			
Color	Gray		Visual Inspection
Hardness（Shore D）	75（1:1 after curing))		ASTM D2240
Operating time (min) @25°C	70		N/A
Tensile Lap-shear Strength （MPa）	10 （AL-AL）; 4.0（AL-PET）		GB/T 7124-2008
Tensile Strength（MPa）	12		ASTM D412
Tensile elongation（%）	8		ASTM D412
Operating temperature（°C）	-40~85		N/A
Electrical			
Dielectric Strength （KV/mm）	15		ASTM D149
Volume Resistance（Ω·cm）	$1.0x10^{13}$		ASTM D257
Flame Rating	V-0		UL94
Thermal			
Thermal Conductivity（W/m·K）	2.0		ASTM D5470
Electrical			
25°C（D）	7		N/A
80°C（H）	8		N/A

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Grease Compound

Therm-Grease 2000 C

Features

- Good thermal conductivity, low thermal impedance
- Good thixotropy, operating easily
- Low sedimentation, good chemical and mechanical stability
- Good crumpling resistance, high reliability in long-term work
- Suitable for silk-screen printing process

Typical Applications

Communication Equipment | Network Terminal
LED | Storage Device | Consumer Electronics
Power Components | Security Equipment

Packaging Related

① Canning Form
② Packaging Specification:1kg per can
Other packaging specifications can be customized

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Note: Stirring uniformly before use when finding any sedimentation

Therm-Grease 2000 C is a thermally conductive grease used between high power electronic components and the heat sink. Good wettability allows it to fill the interface micropore quickly, which reduces the interfacial thermal resistance greastly and the temperature of electronic components fast and efficiently, so that the electronic components have longer service life and higher reliability.

Therm-Grease 2000 C is highly stabile for use from -45 °C to 125 °C ,and has good weatherability for high thermal conductivity, which meets the requirements of electronics inductries as a thermal interface material.

Therm-Grease 2000 C Typical Properties

Property	Typical Value	Test Method
Color	Gray	Visual Inspection
Density (g/cm^3)	3.0	ASTM D792
Viscosity (mPa·s)	40x10^3~100x10^3	ASTM D2196
Operating Temperature （°C）	-45~150	N/A
Flame Rating	V-0	UL94
Electrical		
Dielectric Strength （KV/mm）	＞6	ASTM D149
Thermal		
Thermal Conductivity (W/m·K)	2.0	ASTM D5470
Thermal Impedance (°C·in^2/W) @40psi	0.037	ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Grease Compound

Therm-Grease 3000

Features

- Excellent thermal conductivity, low thermal impedance
- Good thixotropy, operating easily
- Low sedimentation, good chemical and mechanical stability
- Good crumpling resistance, high reliability in long-term work
- Suitable for silk-screen printing process

Typical Applications

Communication Equipment | Network Terminal
LED | Storage Device | Consumer Electronics
Power Components | Security Equipment

Packaging Related

① Canning Form
② Packaging Specification
25cc syringe,0.5L,1L can or 20kg Barrel

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:15°C < T < 35°C
- Relative Humidity:RH < 70%

Note: Stirring uniformly before use when finding any sedimentation

Therm-Grease 3000 is a thermally conductive grease used between high power electronic components and the heat sink. Good wettability allows it to fill the interface micropore quickly, which reduces the interfacial thermal resistance greastly and the temperature of electronic components fast and efficiently, so that the electronic components have longer service life and higher reliability.

Therm-Grease 3000 is highly stabile for use from -45°C to 125°C ,and has good weatherability for high thermal conductivity, which meets the requirements of electronics industries as a thermal interface material.

Therm-Grease 3000 Typical Properties

Property	Typical Value	Test Method
Color	Gray	Visual Inspection
BLT	50	N/A
Density (g/cm^3)	3.2	ASTM D792
Viscosity (mPa·s)	90x10^3	ASTM D2196
Operating Temperature (°C)	-40~125	N/A
Flame Rating	V-0	UL94
Electrical		
Dielectric Strength （KV/mm）	5	ASTM D149
Thermal		
Thermal Conductivity (W/m·K)	3.3	ASTM D5470
Thermal Impedance (°C·in^2/W) @40psi	0.026	ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Grease Compound

Therm-Grease 6000 01

Features

- Excellent thermal conductivity, low thermal impedance
- Good thixotropy, operating easily
- Low sedimentation, good chemical and mechanical stability
- Good crumpling resistance, high reliability in long-term work
- Suitable for silk-screen printing process

Typical Applications

Communication Equipment | Network Terminal
LED | Storage Device | Consumer Electronics
Power Components | Security Equipment

Packaging Related

① Canning Form
② Packaging Specification
Weight: 2Kg(1L), 8Kg(1gallon), 30Kg(5gallon)

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Note: Stirring uniformly before use when finding any sedimentation

Therm-Grease 6000 01 is a thermally conductive grease used between high power electronic components and the heat sink. Good wettability allows it to fill the interface micropore quickly, which reduces the interfacial thermal resistance greastly and the temperature of electronic components fast and efficiently, so that the electronic components have longer service life and higher reliability.

Therm-Grease 6000 01 is highly stabile for use from -45 °C to 125 °C ,and has good weatherability for high thermal conductivity, which meets the requirements of electronics inductries as a thermal interface material.

Therm-Grease 6000 01 Typical Properties

Property	Typical Value	Test Method
Color	Gray	Visual Inspection
BLT	25	N/A
Density (g/cm^3)	2.5	ASTM D792
Viscosity (mPa·s)	105x10^3	ASTM D2196
Operating Temperature (°C)	-40~125	N/A
Menstruum	NO	N/A
Flame Rating	V-0	UL94
Electrical		
Dielectric Strength （KV/mm）	5	ASTM D149
Thermal		
Thermal Conductivity (W/m·K)	6	ASTM D5470
Thermal Impedance (°C·in^2/W) @40psi	0.012	ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Potting Gel

Therm-Form 500

Features

- Good thermal and insolating performance
- Good aging resistance
- Good flowability
- Good mechanical property and weather resistance
- Good ductility

Typical Applications

| Connection between automotive electronic components and PCB | Potting protection for car power supply module | communication Equipment | Consumer Electronics | Frequency Converter, Sensor

Packaging Related

① Canning Form
② Packaging Specification
400cc syringe, 12.5kg or 20kg Barrel

Storage

① Shelf Life:6 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Form 500, thermal potting gel, is a two-part silicone rubber, which is designed to be used in electronic modules.

Therm-Form 500 cures to a thermally conductive, elastic, and flame-retardant rubber at room or elevated temperature.

Therm-Form 500 is usually used by manual or automatic dispensing way.

Therm-Form 500 Typical Properties

Property	Typical Value		Test Method
Performance before Mixture	**A Part**	**B Part**	N/A
Color	Black	White	Visual Inspection
Viscosity (mPa·s)	1800	1800	ASTM D2196
Mix Ratio	1:1		N/A
Shelf Life@25°C (months)	6		N/A
Performance after Mixture			
Viscosity (mPa·s)	1800		ASTM D2196
Hardness (Shore A)	60		ASTM D2240
Tensile Strength (psi)	130		ASTM D412
Elongation at Break (%)	30		ASTM D412
Density (g/cm^3)	1.6		ASTM D792
Surface Curing Time @25°C (min)	40		N/A
Flame Rating (2.0mm)	V-0		UL94
Electrical			
Dielectric Strength （KV/mm）	⩾ 20		ASTM D149
Volume Resistivity (Ω·cm)	4.0x10^{14}		ASTM D257
Operating Temperature (°C)	-45~200		N/A
Cure Schedule			
25°C (H)	16		N/A
100°C (min)	30		N/A
Thermal			
Thermal Conductivity (W/m·K)	0.5		ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermally Conductive Potting Gel

Therm-Form 1000

Features

- Good thermal and insolating performance
- Good aging resistance
- Good flowability
- Good mechanical property and weather resistance
- Good ductility

Typical Applications

| Connection between automotive electronic components and PCB | Potting protection for car power supply module | communication Equipment | Consumer Electronics | Frequency Converter, Sensor

Packaging Related

① Canning Form
② Packaging Specification
400cc syringe, 12.5kg or 20kg Barrel

Storage

① Shelf Life:6 months
② Storage Conditions:
- Temperature:15°C < T < 30°C
- Relative Humidity:RH < 70%

Therm-Form 1000, thermal potting gel, is a two-part silicone rubber, which is designed to be used in electronic modules.

Therm-Form 1000 cures to a thermally conductive, elastic, and flame-retardant rubber at room or elevated temperature.

Therm-Form 1000 is usually used by manual or automatic dispensing way.

Therm-Form 1000 Typical Properties

Property	Typical Value				Test Method
Performance before Mixture	A Part		B Part		N/A
Color	Gray		White		Visual Inspection
Viscosity (mPa·s)	4500		4600		ASTM D2196
Mix Ratio	1:1				N/A
Shelf Life@25°C (months)	6				N/A
Performance after Mixture					
Viscosity (mPa·s)	4500				ASTM D2196
Hardness (Shore A)	45				ASTM D2240
Tensile Strength (psi)	80				ASTM D412
Elongation at Break (%)	15				ASTM D412
Density (g/cm^3)	2.3				ASTM D792
Surface Curing Time @25°C (min)	50				N/A
Flame Rating (2.0mm)	V-0				UL94
Electrical					
Dielectric Strength (KV/mm)	⩾ 10				ASTM D149
Volume Resistivity (Ω·cm)	$1.29x10^{15}$				ASTM D257
Operating Temperature (°C)	-45~200				N/A
Cure Schedule					
25°C (H)	8				N/A
100°C (min)	15				N/A
Thermal					
Thermal Conductivity (W/m·K)	1.0				ASTM D5470
Thermal Impedance VS. Pressure (Reference Sample: 1mm / Thickness)					
Pressure (psi)	5	10	20	30	40
Thermal Impedance ($°C·in^2/W$)	2.49	2.01	1.70	1.59	1.51

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermal Phase Change Material

Therm-Flow 4200

Features

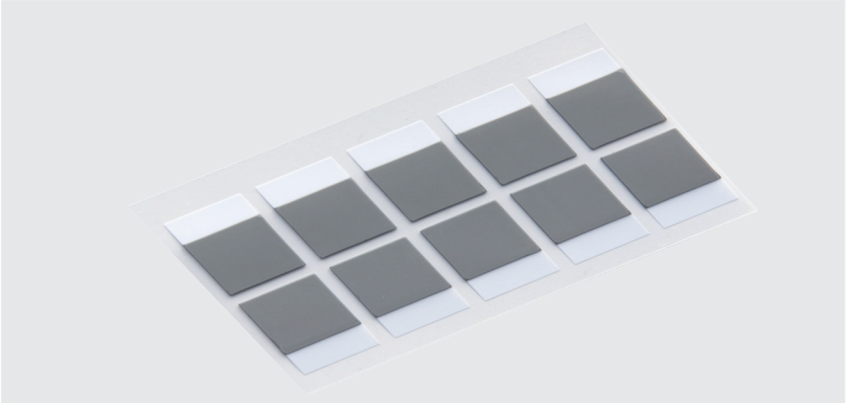
- High thermal conductivity, low thermal impedance
- Thermal phase change material
- Excellent compressibility
- Excellent wettability
- Excellent reliability

Typical Applications

Communication Equipment | Computer | LED
Power Converter | Storage Device

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:T < 30°C
- Relative Humidity:RH < 70%



Therm-Flow 4200 is a high-performance, thermally conductive, phase change material.
Therm-Flow 4200 is solid under room temperature, and fluid over phase changing temperature, having good wettability and compressinility.
Therm-Flow 4200 is used to beattached between a heat sink and a power component to reduce thermal resistance with any size according to customer requirement.
Therm-Flow 4200 has high thermal conductivity, low thermal resistance and excellent reliability

Therm-Flow 4200 Typical Properties

Property	Typical Value	Test Method
Structure	No reinforcement carrier	N/A
Color	Gray	Visual Inspection
Thickness（mm）	0.13 / 0.20 / 0.25	ASTM D374
Density (g/cm^3)	2.6	ASTM D792
Operating Temperature (°C)	-40~125	N/A
Phase Change Softening Temperature (°C)	42	N/A
Flame Rating	V-0	UL94
Electric		
Volume Resistance (Ω·cm)	1.0x10^{12}	ASTM D257
Thermal		
Thermal Conductivity (W/m·K)	4.2	ASTM D5470
Thermal Impedance (°C·in^2/W) /0.25mm@50°C	0.015	ASTM D5470

*Note:The listed performance parameters are based on sample test data and are for reference only.

Thermal Phase Change Material

Therm-Flow 4200PI

Features

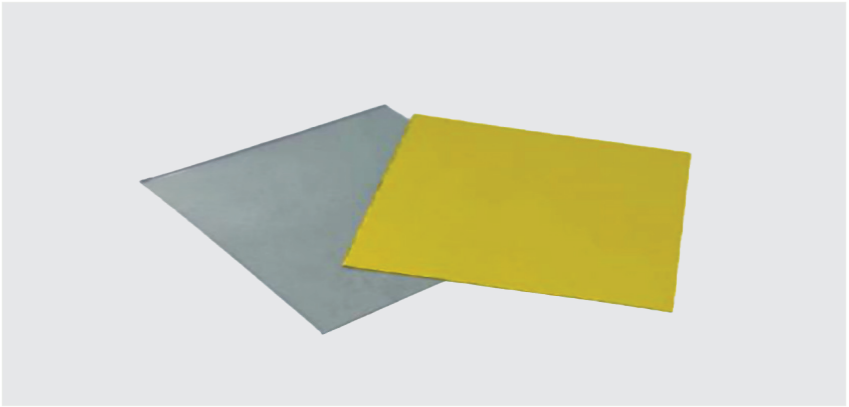
- High thermal conductivity, low thermal impedance
- Thermal phase change material
- Excellent compressibility
- Excellent wettability
- Excellent reliability

Typical Applications

Communication Equipment | Computer | LED
Power Converter | Storage Device

Storage

① Shelf Life:12 months
② Storage Conditions:
- Temperature:T < 30°C
- Relative Humidity:RH < 70%



Therm-Flow 4200PI is PI enhanced thermal phase change material, high thermal conductivity, high insulation strength.
Therm-Flow 4200PI is solid under room temperature, and fluid over phase changing temperature, having good wettability and compressinility.
Therm-Flow 4200PI is used to beattached between a heat sink and a power component to reduce thermal resistance with any size according to customer requirement.
Therm-Flow 4200PI has low thermal resistance, excellent pluggable and reliable performance.

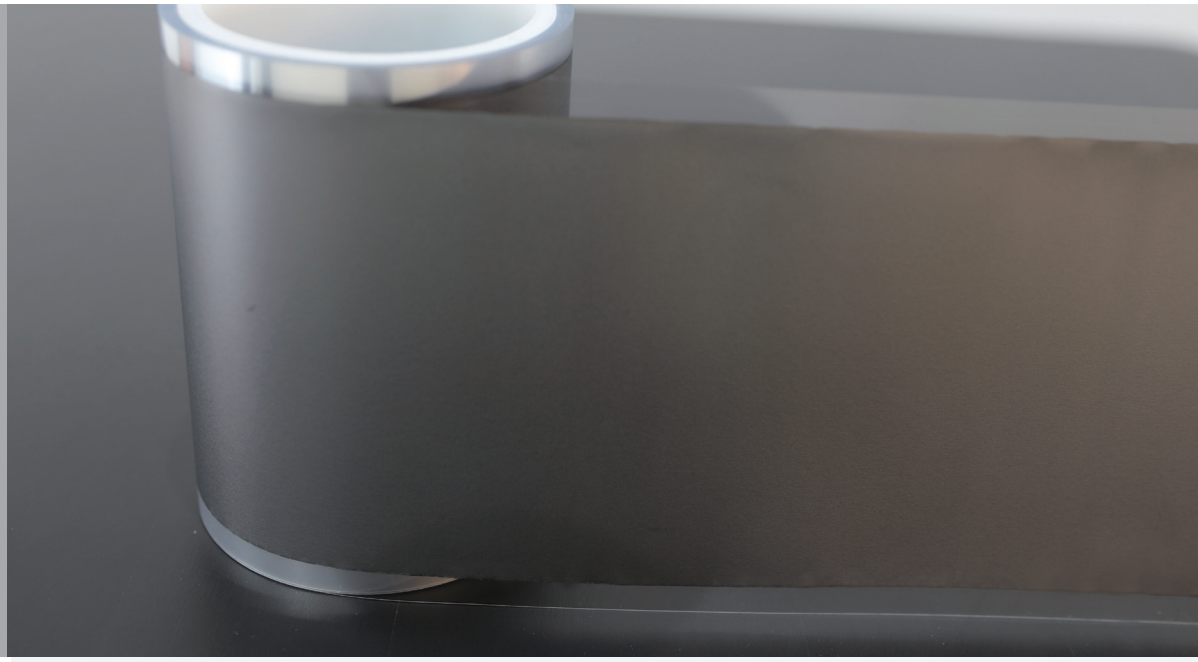
Therm-Flow 4200PI Typical Properties

Property		Typical Value	Test Method
Adhesive Layer Adhesion （N/mm）		⩾ 0.8	GB/T 2792-2014
Thickness （mm）	PI	0.025	ASTM D374
	Therm-Flow 4200PI	0.15/ 0.20	
PI Thermal Conductivity (W/m · K)		⩾ 0.4	ASTM D5470
Phase Changing Softening Temperature (°C)		42	N/A
Dielectric Strength （KV/mm）		⩾ 1.5	ASTM D149
Thermal Impedance (°C · in^2/W) /0.15mm@40Psi		⩽ 0.23	ASTM D5470
Thermal Weight Loss@125°C		⩽ 0.5%	TGA
RoHS		Pass	RoHS

*Note:The listed performance parameters are based on sample test data and are for reference only.

TIM Thermal Property and Specification Summary

Type	Thermal Conductivity（W/m·K）	Thickness or Capacity
Therm-Pad		
Therm-Pad 1000	1.0	0.15mm
Therm-Pad 1300	1.3	0.15mm
Therm-Pad 1600	1.6	0.23mm
Therm-Pad 3500H	3.5	0.25mm
Therm-Gap		
Therm-Gap 1100SP05	1.1	0.5~5.0mm
Therm-Gap 1300SP	1.3	0.5~8.0mm
Therm-Gap 1500S35	1.5	1.0~5.0mm
Therm-Gap 2000S40	2.0	1.0~5.0mm
Therm-Gap 2000 PI HS LD	2.0	1.0~5.0mm
Therm-Gap 2200 SM NH	2.2	1.0~5.0mm
Therm-Gap 2400S20	2.4	0.5~5.0mm
Therm-Gap 2500BU HS	2.5	0.3~5.0mm
Therm-Gap 3000 ST	3.2	0.3~5.0mm
Therm-Gap 3000 ZS	3.0	1.0~5.0mm
Therm-Gap 3000 SP UE	3.0	1.0~5.0mm
Therm-Gap 4000	4.0	1.0~5.0mm
Therm-Gap 5000	5.0	0.50~5.0mm
Therm-Gap 5000 ST	5.0	0.50~5.0mm
Therm-Gap 6000 ST	6.0	0.50~5.0mm
Therm-Gap 7000	7.0	0.75~5.0mm
Therm-Gap 8000 S60	8.0	0.5~5.0mm
Therm-Gap 10000	10.0	0.5~5.0mm
Therm-Gap 12000 GY	12.0	1.0~5.0mm
Therm-Gap 13000	13.0	0.5~5.0mm
Therm-Filler		
Therm-Filler 2000 LV	2.0	50cc / 400cc
Therm-Filler 3500 LV	3.5	50cc / 400cc
Therm-Filler 3500 S65	3.5	50cc / 400cc
Therm-Filler 4000	4.0	50cc / 400cc
Therm-Filler 4500 LV	4.5	50cc / 400cc
Therm-Gel		
Therm-Gel 3500S FR60	3.5	30cc / 300cc
Therm-Gel 6000S	6.0	30cc / 300cc
Therm-Bond		
Therm-Bond 1200 YG C	1.2	50cc/400cc/5gallon
Therm-Bond 1500 D60	1.5	50cc/400cc/5gallon
Therm-Bond 2000 LD	2.0	50cc/400cc/5gallon
Therm-Grease		
Therm-Grease 2000 C	2.0	1kg
Therm-Grease 3000	3.3	25cc / 0.5L / 1L / 20kg
Therm-Grease 6000 01	6	1kg / 8kg / 30kg
Therm-Form		
Therm-Form 500	0.5	400cc / 12.5kg / 25kg
Therm-Form 1000	1.0	400cc / 12.5kg / 25kg
Therm-Flow		
Therm-Flow 4200	4.2	0.13 / 0.2 / 0.25mm
Therm-Flow 4200PI	/	0.15 / 0.2 mm

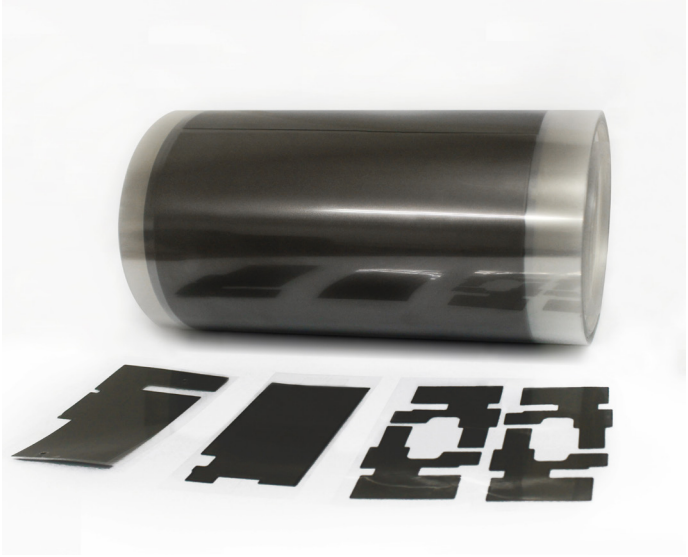


Graphite Film

Artificial Graphite Film

GR 1500

Graphite Film



Properties:

GR 1500 is graphite based material and has super-high thermal conductivity up to 1900W/m · k, over 4 times of copper. Its ultra-thin structure (10-40μm) and flexibility ensured the good mechanical property (over 10,000 times folding), which provides thinner and cooler design for electronic devices.

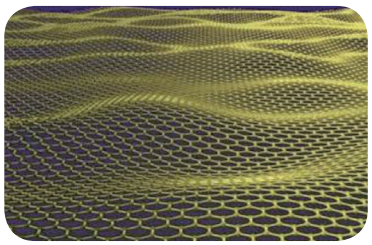
- Element: C(⩾ 99.99%)
- Thermal conductivity: 800~1900W/m · k

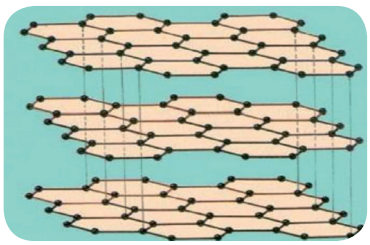
Applications:

GR 1500 can be applied alone in electronic device with limited space, such as smart phone, LCD and Tablet PC and transfer the point heat source (chip and battery) into area heat source to accelerate the heat dissipation. It can also be combined with heat sink as in ultra-high power LED to increase the efficiency of heat dissipation.

Electronic device, as Smart Phone, Tablet PC etc.

- Optical communications equipment
- High integration semiconductor equipment
- Lighting and display devices

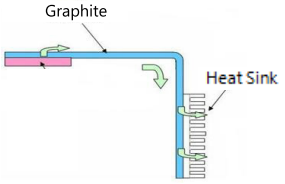




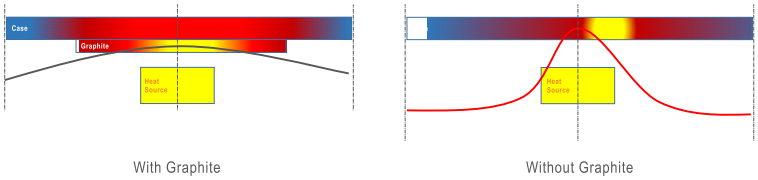
Environmental certification:

- RoHS Compliant
- Halogen-free
- Reach Compliant

【 Long Distance 】



【 In Plane 】



With Graphite

Without Graphite

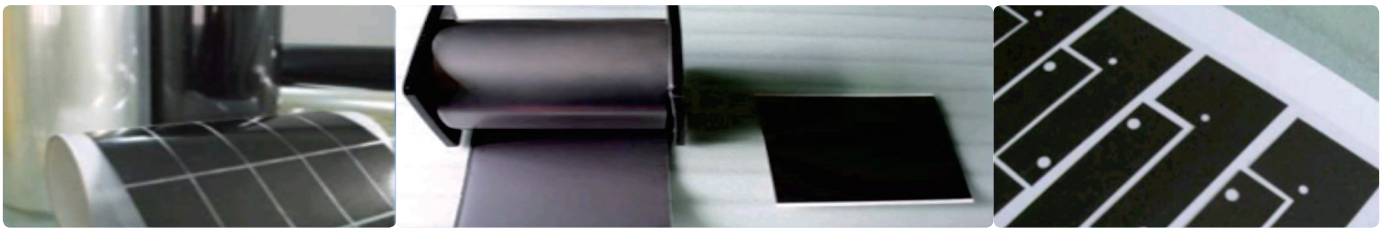
Characteristics		Specification					Test Method
		GR 1500-017	GR 1500-025	GR 1500-032	GR 1500-040	GR 1500-050	
Thickness (μm)		17(±3)	25(±5)	32(±5)	40(±5)	50(±10)	ASTM D374
Density (g/cm^3)		≧ 1.9	≧ 1.8	≧ 1.6	≧ 1.5	≧ 1.4	ASTM D792
Thermal Conductivity (W/m · k)	X-Y Plane	1700±100	1500±100	1300±100	1200±100	900±100	Laser flash method
	Z Axis	15	15	15	15	15	Laser flash method
Tensile Strength (Mpa)		22	22	22	22	22	ASTM D882
Heat resistance (°C)		500	500	500	500	500	EN344
(R5/180O) folding		> 20000					JIS-C5016
Width(mm)		60~190					/

*Note:The listed performance parameters are based on sample test data and are for reference only.

GR 1500 Laminating & Die Cuting

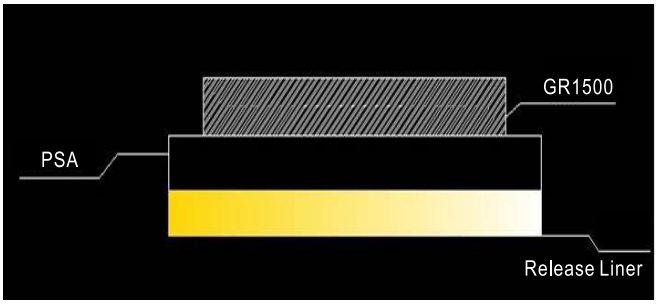
In order to better adapt to the undulating surface of the electronic device and the circuit module, it is necessary to perform certain processing on the graphite thermal conductive sheet. The main processing methods are as follows:

① Insulative Adhesion ② Enveloped Sealing



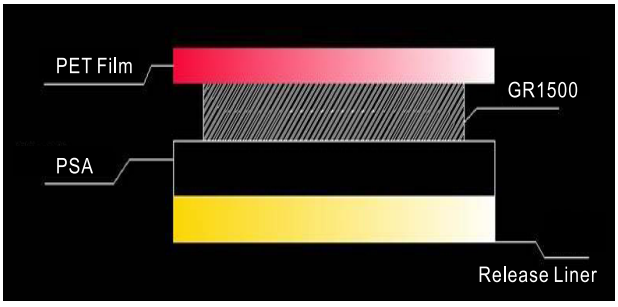
Insulative Adhesion

For the purpose of better adhering the IC and the circuit board, the surface of the heat conductive graphite sheet is subjected to back-bonding processing.



Enveloped Sealing

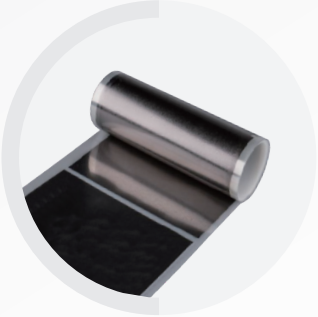
In some circuit designs that require insulation or thermal insulation, back-film processing is performed on the surface of the graphite sheet for better function optimization.



For Thermal Solutions

We also have graphene film & heat pipe & vc

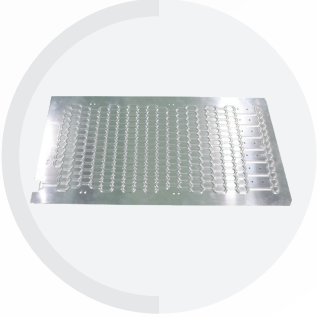
& blown plate & fan & thermal module & semi-solid die-casting products.



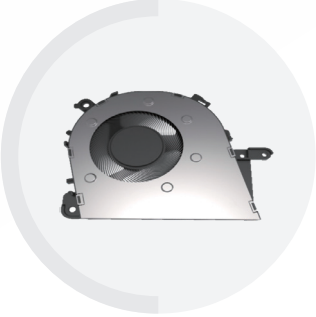
Graphene Film

Heat Pipe

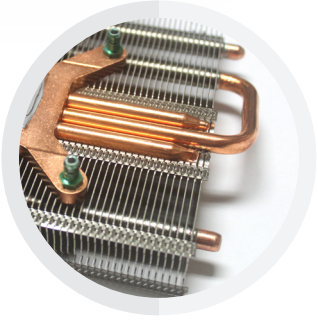
VC



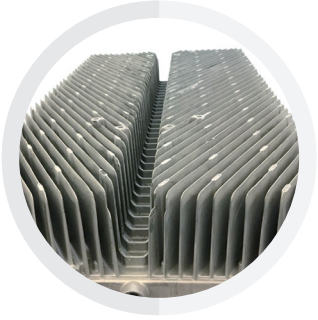
Blown Plate



Fan



Thermal Module



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