



A Global Leader in High Performance Materials & Thermal Management Solutions

Standard Products Selection Guide

Version No. JS SP_Catalog V.A.0



Industry applications



ABOUT US

JONES Tech PLC (JONES) (SZSE: 300684) , High Technology Expertise, Established in 1997.

A Global Leader in High Performance Materials & Thermal Management Solutions.

JONES is a functional solution provider for improving the reliability of intelligent electronic equipment with its independently developed and produced electromagnetic compatible, and thermally conductive materials to protect intelligent electronic devices in the complex and harsh electromagnetic interference environment.

Over the years, JONES has accumulated rich experience in professional manufacturing. Customers' main focus is in the intelligent electronics, Telecommunications, Automotive, consumer, rail transportation, and new energy.

JONES provides Graphite materials, thermal interface materials, EMI materials and other functional materials, as well as advanced thermal management solutions based on core technologies such as two-phase flow and liquid cooling. The sales network covers Asia, Europe and America. Manufactory base are located in Wuxi, Yixing, Dongguan, and overseas manufactory base is located in Thailand. JONES factory has advanced production equipment and management system at home and abroad, and has passed ISO9000 quality system certification, ISO14000 environmental system certification and IATF16949 automobile quality management system certification. With that, JONES is ready to provide customers the most effective and reliability solutions.

CERTIFICATE



Quality Management System Certificate ISO9001



IECQ HSPM Certificate QC080000



Automotive Quality System Certificate IATF 16949



Environment Management System Certificate ISO14001



OHSMS Certificate ISO 45001



Greenhouse gas Verification Statement Certificate ISO14064



Energy Management System Certificate ISO50001

PRODUCTS

Thermal Interface Materials

Thermal Pad	02
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Graphite Materials

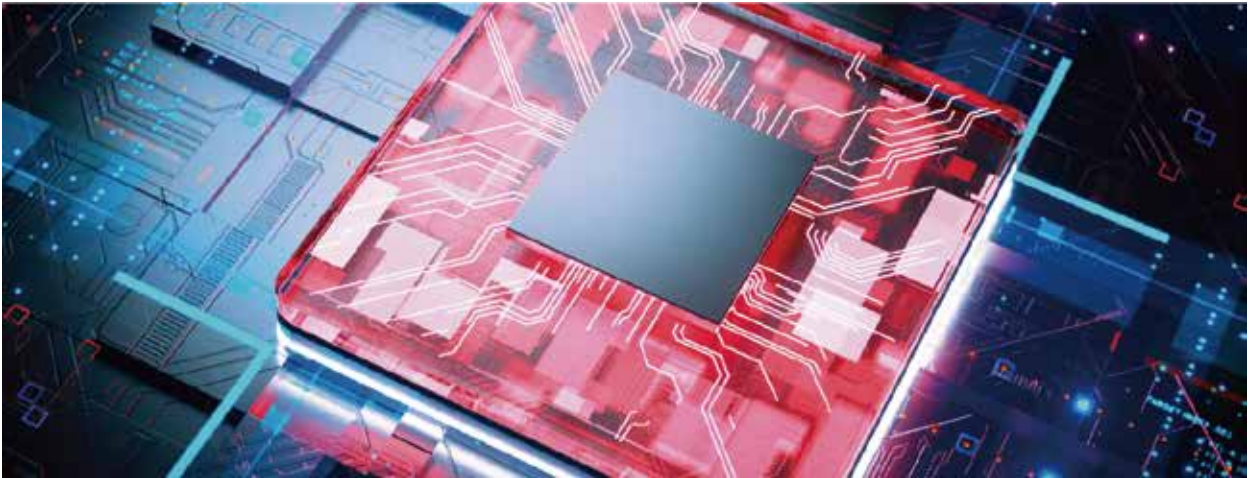
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TIM Introduction



General Introduction to Thermal Transmission

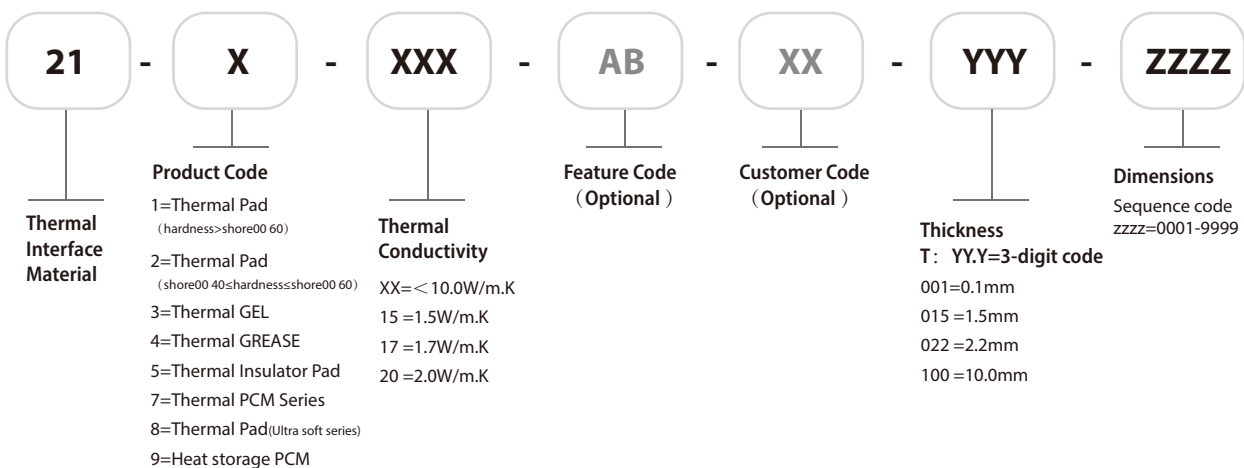
Thermal management is a key designing problem in the new generation products of semi-conductive industry, optoelectronics industry, consumption industry, automobile industry, production industry, medical industry, national defense and aviation industry. The aim of thermal management process of current electronic product is to achieve effective heat transmit from the combination part of the semi-conductor and its surroundings.

The 3 main phases of thermal transmission of electronic products:

1. Thermal transmission in the packing of the semi-conductive units
2. Thermal transmission from the units to the heat sink (the original heat sink)
3. Thermal transmission from heat sink to surroundings (the end heat sink)

The thermal transmission of the first phase is pre-decided by the device producers. The thermal transmission of the second phase and the third phase are controlled by the system thermal design engineer and the structure assembly engineer. The aim is to achieve the effective thermal transmission from the outer packing of the device to the radiator and then from the radiator to the surroundings. In order to achieve the thermal transmission goal, the designer not only needs to comprehensively understand the basic of thermal conduction, but also need to clearly master each feature of the TIM of every joint face.

TIM Product Coding Rules



Thermal Pads

JONES 21-117 Series

FEATURES & BENEFITS

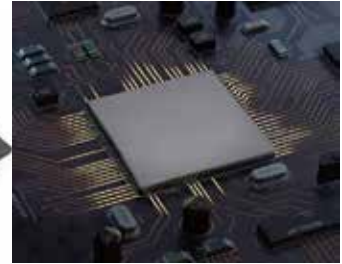
- Thermal Conductivity :1.7W/m · K
- Cost-Effective Solution
- Higher Breakdown Voltage
- Ultra Thin (fiber-enhanced)
- Easy For Installation

APPLICATIONS

- Memory Modules | Mass Storage Devices |
- Automotive Electronics | Telecommunication
- Hardware | Radios | Power Electronics |
- Set-Top Boxes

ORDERING INFORMATION

- Suitable for wide range of compression.
- Size: 16" X 8" (406mm X 203mm)
- Thickness: 0.5mm/1mm/2mm/3mm
- Customizable packaging
- Storage Requirement**
- 0°C to 35°C, 50%RH
- 12 months from date of manufacture.
- Unopened Original Package



JONES Thermal Pad 21-117 is a soft and conformable material. It is designed to provide good thermal performance and adhesion or natural tack. It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONES Thermal Pad 21-117 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It's also available in a variety of thicknesses and hardness.

21-117 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	1.7	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Black	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cm ³)	2.6	ASTM D792
	Thickness Range (mm)	0.3~5.0	ASTM D374
	Thickness Tolerance (mm) > 1	±10%	/
	Thickness Tolerance (mm) ≤ 1	±0.1	/
Electrical	Hardness (Shore 00)	60	ASTM D2240
	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant@1MHz	3.7	ASTM D150
Regulatory	Regulatory	V0	UL94

Thermal Pads

JONES 21-217 Series

FEATURES & BENEFITS

- Thermal Conductivity :1.7W/m · K
- Cost-Effective Solution
- Higher Breakdown Voltage
- Ultra Thin (fiber-enhanced)
- Easy For Installation

APPLICATIONS

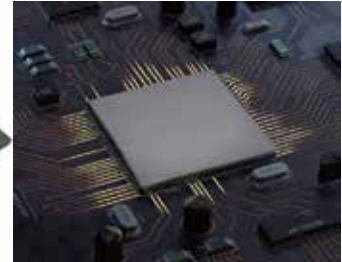
- Memory Modules | Mass Storage Devices |
- Automotive Electronics | Telecommunication
- Hardware | Radios | Power Electronics |
- Set-Top Boxes

ORDERING INFORMATION

- Compression range 20%~30%
- Size: 16" X 8" (406mm X 203mm)
- Thickness: 0.5mm/1mm/2mm/3mm
- Customizable packaging

Storage Requirement

- 0°C to 35°C, 50%RH
- 12 months from date of manufacture.
- Unopened Original Package



JONESThermal Pad 21-217 is a soft and conformable material. It is designed to provide good thermal performance and adhesion or natural tack. It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONESThermal Pad 21-217 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It's also available in a variety of thicknesses and hardness.

21-217 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	1.7	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Black	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cm ³)	2.6	ASTM D792
	Thickness Range (mm)	0.5~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	± 10%	/
	Thickness Tolerance(mm)<= 1mm	± 0.1	/
	Hardness (Shore 00)	40	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant@1MHz	3.3	ASTM D150
Regulatory	Flame Rating	V0	UL94

Thermal Pads

JONES 21-233 Series

FEATURES & BENEFITS

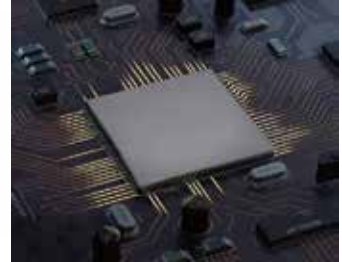
Thermal Conductivity :3.0W/m · K
 Very Good Thermal Performanc
 Good Compressibility and Elasticity
 Tiny Outgassing | Designed For Smartphone Industry | Easy For Installation

APPLICATIONS

Memory Modules | Mass Storage Devices |
 Automotive Electronics | Telecommunication
 Hardware | Radios | Power Electronics

ORDERING INFORMATION

Compression range 20%~30%
 Size: 16" X 8" (406mm X 203mm)
 Thickness: 0.5mm/1mm/1.5mm/3mm
 Customizable packaging
 Storage Requirement
 0°C to 35°C, 50%RH
 12 months from date of manufacture.
 Unopened Original Package



JONES Thermal Pad 21-233 is designed to provide good thermal performance and adhesion or naturaltack.It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONES Thermal Pad 21-233 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It's also available in a variety of thicknesses and hardness.

21-233 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	3.0	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Grey	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cm ³)	2.8	ASTM D792
	Thickness Range (mm)	0.5~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Thickness Tolerance(mm)<= 1mm	±0.1	/
	Hardness (Shore 00)	40	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant@1MHz	7.6	ASTM D150
Regulatory	Flame Rating	V0	UL94

Thermal Pads

JONES 21-233-SP01 Series



FEATURES & BENEFITS

Thermal Conductivity :3.0W/m · K
 Single-Side Sticky
 Very Good Thermal Performance
 Good Compressibility and Elasticity
 Tiny Outgassing | Easy For Installation



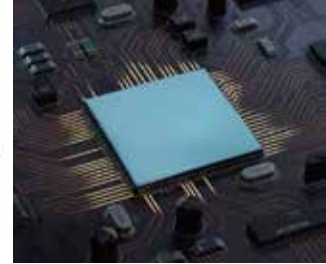
APPLICATIONS

Memory Modules | Mass Storage Devices |
 Automotive Electronics | Telecommunication
 Hardware | Radios | Power Electronics |
 Smartphone Industry



ORDERING INFORMATION

Compression range 20%~30%
 Size: 4" X 4" (100mm X 100mm)
 Thickness: 1mm/1.5mm/2mm/3mm
 Customizable packaging
 Storage Requirement
 0°C to 35°C, 50%RH
 12 months from date of manufacture.
 Unopened Original Package



JONES Thermal Pad 21-233-SP01 is designed to provide good thermal performance and adhesion or natural tack. It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONES Thermal Pad 21-233-SP01 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It's also available in a variety of thicknesses and hardness.

21-233-SP01 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	3.0	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Light Blue	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cm ³)	3.0	ASTM D792
	Thickness Range (mm)	0.5~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Thickness Tolerance(mm)≤ 1mm	±0.1	/
	Hardness (Shore 00)	25	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant@1MHz	5.0	ASTM D150
Regulatory	Flame Rating	V0	UL94

Thermal Pads

JONES 21-240 Series



FEATURES & BENEFITS

- Thermal Conductivity :3.8W/m · K
- Cost-Effective Solution
- Higher Breakdown Voltage
- Ultra Thin (fiber-enhanced)
- Easy For Installation



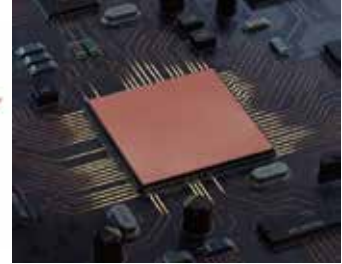
APPLICATIONS

- Memory Modules | Mass Storage Devices |
- Automotive Electronics
- Telecommunication Hardware | Radios |
- Power Electronics



ORDERING INFORMATION

- Compression range 20%~30%
- Size: 16" X 8" (406mm X 203mm)
- Thickness: 0.5mm/1mm/1.5mm/3mm
- Customizable packaging
- Storage Requirement
- 0°C to 35°C, 50%RH
- 12 months from date of manufacture.
- Unopened Original Package



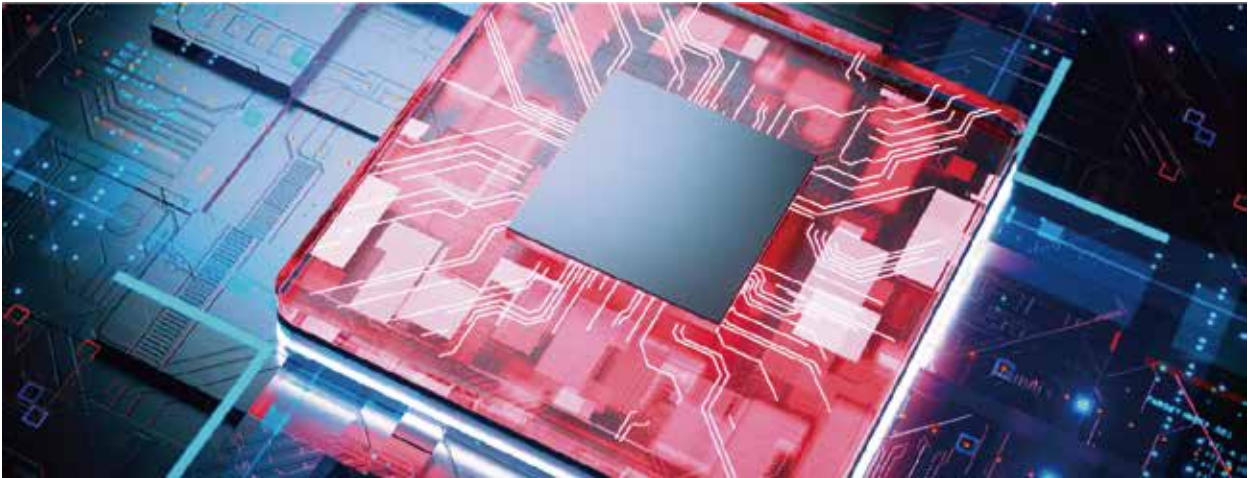
JONES Thermal Pad 21-240 is designed to provide excellent performance and adhesion or natural tack. It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONES Thermal Pad 21-240 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It's also available in a variety of thicknesses and hardness.

21-240 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	3.8	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Brown	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cm ³)	3.0	ASTM D792
	Thickness Range (mm)	0.5~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Thickness Tolerance(mm)<= 1mm	±0.1	/
	Hardness (Shore 00)	40	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant@1MHz	4.2	ASTM D150
Regulatory	Flame Rating	V0	UL94

TIM Introduction



General Introduction to Thermal Transmission

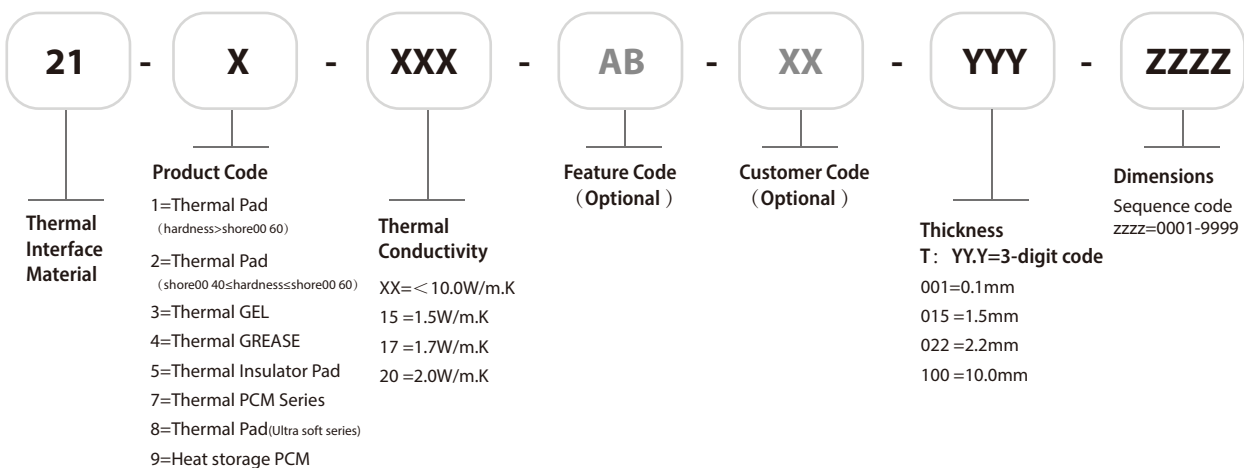
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The thermal transmission of the first phase is pre-decided by the device producers. The thermal transmission of the second phase and the third phase are controlled by the system thermal design engineer and the structure assembly engineer. The aim is to achieve the effective thermal transmission from the outer packing of the device to the radiator and then from the radiator to the surroundings. In order to achieve the thermal transmission goal, the designer not only needs to comprehensively understand the basic of thermal conduction, but also need to clearly master each feature of the TIM of every joint face.

TIM Product Coding Rules



Thermal Pads

JONES 21-250 Series

FEATURES & BENEFITS

- Thermal Conductivity :5.0W/m · K
- Extremely Good Thermal Performance
- Very Good Compressibility
- High Breakdown Voltage
- Easy For Installation

APPLICATIONS

- Memory Modules | Mass Storage Devices |
- Automotive Electronics | Telecommunication
- Hardware | Radios | Power Electronics

ORDERING INFORMATION

- Compression range 20%~30%
- Size: 16" X 8" (406mm X 203mm)
- Thickness: 0.5mm/1mm/1.5mm/3mm
- Customizable packaging

Storage Requirement

- 0°C to 35°C, 50%RH
- 12 months from date of manufacture.
- Unopened Original Package



JONES Thermal Pad 21-250 is designed to provide excellent performance and adhesion or natural tack. It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONES Thermal Pad 21-250 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It's also available in a variety of thicknesses and hardness.

21-250 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	5.0	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Grey	Visual
	Composition	Ceramic&Silicone	/
	Density (g/cm ³)	2.8	ASTM D792
	Thickness Range (mm)	0.5~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Thickness Tolerance(mm)<= 1mm	±0.1	/
	Hardness (Shore 00)	50	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹⁴	ASTM D257
	Dielectric Constant@1MHz	4.6	ASTM D150
Regulatory	Flame Rating	V0	UL94

Ultra Soft Thermal Pads

JONES 21-815 Series

FEATURES & BENEFITS

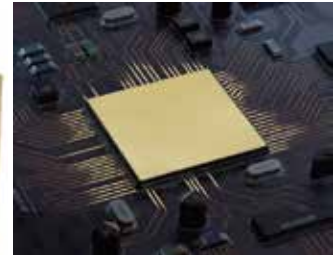
Thermal Conductivity :1.5W/m · K
 Ultra Soft (Putty Like) | Single-Side Sticky |
 PI-Reinforced, Shear And Tear Resistant | Very
 Good Thermal Performance | Easy For
 Installation | Good Compressibility and
 Elasticity | Tiny Outgassing

APPLICATIONS

Memory Modules | Mass Storage Devices |
 Automotive Electronics | Telecommunication
 Hardware | Radios | Power Electronics |
 Set-Top Boxes | Smartphone Industry

ORDERING INFORMATION

Compression range 20%~30%
 Size: 4" X 4" (100mm X 100mm)
 Thickness: 1mm/2mm/3mm
 Customizable packaging
Storage Requirement
 0°C to 35°C, 50%RH
 12 months from date of manufacture.
 Unopened Original Package



JONES Thermal Pad 21-815 is a ultra soft putty like material. It is designed to provide good thermal performance with single-side sticky. It demonstrates highly conformable to uneven and rough surfaces with minimal thermal gap filler compression.

JONES Thermal Pad 21-815 is available in custom die-cut parts, sheets and rolls, which makes it easy handling and simplified application. It is also available in a variety of thicknesses and hardness.

21-815 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	1.5	ASTM D5470
	Operating Temperature Range (°C)	-55~200	JONES Test Method
Physical	Color	Light Yellow	Visual
	Composition	Silicone (PI Reinforced)	/
	Density (g/cm ³)	2.5	ASTM D792
	Thickness Range (mm)	0.5~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Thickness Tolerance(mm)≤ 1mm	±0.1	/
	Hardness (Shore 00)	35	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant@1MHz	7.6	ASTM D150
Regulatory	Flame Rating	V0	UL94

Ultra Soft Thermal Pads

JONES 21-869 Series

FEATURES & BENEFITS

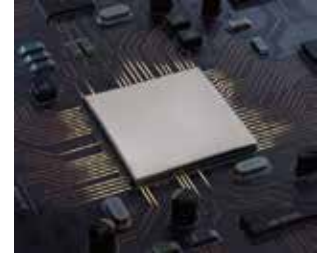
Thermal Conductivity :7.0W/m · K
 Ultra Soft (Putty Like) | Extremely Good
 Thermal Performance | Excellent Surface
 Wetting | High Breakdown Voltage |
 Easy For Installation

APPLICATIONS

Memory Modules | Mass Storage Devices |
 Automotive Electronics | Telecommunication
 Hardware | Radios | Power Electronics |
 Set-Top Boxes | IT Infrastructure

ORDERING INFORMATION

Suitable for wide range of compression.
 Size: 4" X 8" (100mm X 200mm)
 Thickness: 1mm/1.5mm/2mm/2.5mm
 Customizable packaging
Storage Requirement
 20°C to 25°C, 50%RH
 12 months from date of manufacture.
 Unopened Original Package



JONES Thermal Pad 21-869 is an ultra soft putty like gap filling material rated at a thermal conductivity of 7.0 W/m-K. It is highly conformable to uneven and rough surfaces, where require the thermal gap filler material has a characteristics of over 50% compressibility. Its soft construction offers high conformability and effectively reduces thermal resistance.

JONES Thermal Pad 21-869 is naturally tacky and 21-869A is single-side tacky, both of which facilitate easy handling and simplified application.

21-869 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	7.0	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Gray pink	Visual
	Composition	Ceramic&Silicone	/
	Density (g/cm ³)	3.0	ASTM D792
	Thickness Range (mm)	1.0~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Hardness (Shore 00)	35	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 [^] 12	ASTM D257
	Dielectric Constant@1MHz	6.0	ASTM D150
Regulatory	Flame Rating	V0	UL94

Ultra Soft Thermal Pads

JONES 21-870 Series

FEATURES & BENEFITS

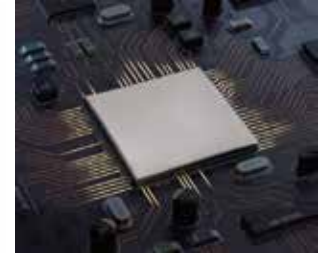
- Thermal Conductivity :7.0W/m · K
- Extremely Good Thermal Performance
- Excellent Surface Wetting
- High Breakdown Voltage
- Easy For Installation

APPLICATIONS

- Memory Modules | Mass Storage Devices |
- Telecommunication Hardware | Radios |
- Automotive Electronics

ORDERING INFORMATION

- Suitable for wide range of compression.
- Size: 4" X 8" (100mm X 200mm)
- Thickness: 1mm/1.5mm/2mm/2.5mm
- Customizable packaging
- Storage Requirement
- 20°C to 25°C, 50%RH
- 12 months from date of manufacture.
- Unopened Original Package



JONES Thermal Pad 21-870 is an ultra soft putty like gap filling material rated at a thermal conductivity of 7.0 W/m · K. It is conformable to uneven and rough surfaces, where require excellent compressibility to the thermal gap filler. Its soft construction offers high conformability and imparts minimum pressure to electronic components.

21-870 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	7.0	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Gray	Visual
	Composition	Ceramic&Silicone	/
	Density (g/cm ³)	2.5	ASTM D792
	Thickness Range (mm)	1.0~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Hardness (Shore 00)	20	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>1.5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ^{^11}	ASTM D257
	Dielectric Constant@1MHz	6.9	ASTM D150
Regulatory	Flame Rating	V0	UL94

Ultra Soft Thermal Pads

JONES 21-881 Series



FEATURES & BENEFITS

Thermal Conductivity :8.0W/m · K
 Ultra Soft (Putty Like) | Extremely Good
 Thermal Performance | Excellent Surface
 Wetting High Breakdown Voltage | Easy
 For Installation



APPLICATIONS

Memory Modules | Mass Storage Devices |
 Automotive Electronics | Telecommunication
 Hardware | Radios | Audio And Video Players |
 IT Infrastructure



ORDERING INFORMATION

Suitable for wide range of compression.
 Size: 4" X 8" (100mm X 200mm)
 Thickness: 1mm/1.5mm/2mm/2.5mm
 Customizable packaging
Storage Requirement
 20°C to 25°C, 50%RH
 12 months from date of manufacture.
 Unopened Original Package



JONES Thermal Pad 21-881 is an ultra soft putty like gap filling material rated at a thermal conductivity of 8.0 W/m-K. It is conformable to uneven and rough surfaces, where require excellent compressibility to the thermal gap filler.Its soft construction offers high conformability and imparts minimum pressure to electronic components.

21-881 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	8.0	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Blue	Visual
	Composition	Ceramic&Silicone	/
	Density (g/cm ³)	3.2	ASTM D792
	Thickness Range (mm)	1.0~5.0	ASTM D374
	Thickness Tolerance(mm)> 1mm	±10%	/
	Hardness (Shore 00)	50	ASTM D2240
Electrical	Breakdown Voltage (KV AC/mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ^{^13}	ASTM D257
	Dielectric Constant@1MHz	6.6	ASTM D150
Regulatory	Flame Rating	V0	UL94

Carbon Fiber Thermal Pads

JONES 21-1500 Series

FEATURES & BENEFITS

High thermal conductivity:
15W/m-K in thickness direction
Soft: Outstanding compressibility
Carbon fiber aligning

APPLICATIONS

Base station, IGBT module |
Optical transceiver | Mass Storage Devices |
Power Electronics

ORDERING INFORMATION

10-30%, which can keep the thermal
conductive structure.
Size: 2" X 2" (45mm X 45mm)
Thickness: 1mm/2mm
Customizable packaging
Storage Requirement
20°C to 25°C, 50%RH
12 months from date of manufacture.
Unopened Original Package



JONES Thermal Pad 21-1500 is a soft and super high thermal conductive material. It is conformable to uneven and rough surfaces, where require excellent compressibility to the thermal gap filler. Its soft construction offers high conformability and imparts minimum pressure to electronic components.

JONES Thermal Pad 21-1500 is non-tacky pad and 21-1500A is single-sided tacky pad, both of which are easy for handling and application.

21-1500 TYPICAL PROPERTIES

	Properties	Typical Properties			Test Method	
Thermal	Thermal Conductivity (W/m · K)	21-1500(non-tacky)	15			ASTM D5470
		21-1500A(single-side tacky)	13			
	Thermal Resistance(°C.in ² /W)	Thickness(mm)	1.0	2.0	3.0	ASTM D5470
		Thermal resistance @10Psi pressure(°C*cm ² /W)	0.84	1.39	1.87	
	Operating Temperature Range(°C)	-55~150			JONES Test Method	
Physical	Color	Dark Gray			Visual	
	Hardness(Shore 00)	50			ASTM D2240	
	Density (g/cm ³)	2.62			ASTM D792	
	Thickness Range (mm)	1.0~5.0			ASTM D374	
Electrical	Breakdown Voltage (KV AC/mm)	<0.1			ASTM D149	
	Volume Resistivity (Ohm · cm)	>10 ⁵			ASTM D257	
Regulatory	Flame Rating	V0			UL94	

Carbon Fiber Thermal Pads

JONES 21-1800 Series



FEATURES & BENEFITS

High thermal conductivity:
15W/m-K in thickness direction
Soft: Outstanding compressibility
Carbon fiber aligning



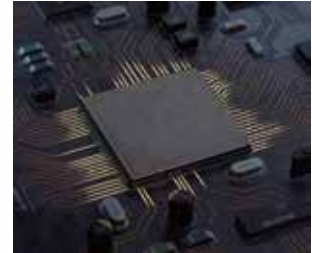
APPLICATIONS

Base station, IGBT module | Optical transceiver |
Mass Storage Devices | Power Electronics



ORDERING INFORMATION

10-30%, which can keep the thermal
conductive structure.
Customizable packaging
Storage Requirement
20°C to 25°C, 50%RH
12 months from date of manufacture.
Unopened Original Package



JONES Thermal Pad 21-1800 is a soft and super high thermal conductive material. It is conformable to uneven and rough surfaces, where require excellent compressibility to the thermal gap filler. Its soft construction offers high conformability and imparts minimum pressure to electronic components.

JONES Thermal Pad 21-1800 is non-tacky pad and 21-1800A is single-sided tacky pad, both of which are easy for handling and application.

21-1800 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method	
Thermal	Thermal Conductivity (W/m · K)	21-1800(non-tacky)	ASTM D5470	
		21-1800A(single-side tacky)		
	Operating Temperature Range(°C)		-55~150	JONES Test Method
Physical	Color		Dark gray	Visual
	Hardness(Shore 00)		60	ASTM D2240
	Density (g/cm ³)		2.6	ASTM D792
	Thickness Range (mm)		1.0~5.0	ASTM D374
Electrical	Volume Resistivity (Ohm · cm)		10 ⁵	ASTM D149
	Dielectric Breakdown Voltage (KV AC/mm)		<0.1	ASTM D257
Regulatory	Flame Rating		V0	UL94

Single-Part Thermal Gel

JONES 21-321 Series

FEATURES & BENEFITS

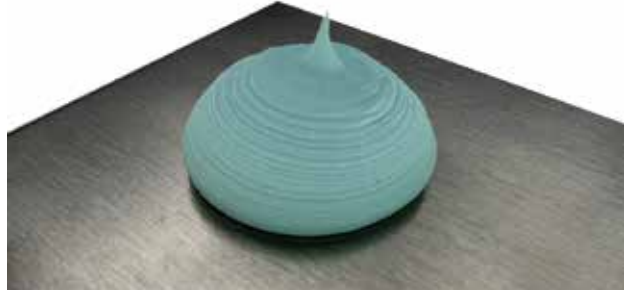
Thermal Conductivity :1.6W/m · K |
 Heat Cured | Easily Dispensable |
 Easy Rework After Fully Cured | Low
 Thermal Resistance | Low Bond Line
 Thickness | No Oil Bleeding |
 Electrically Isolating

APPLICATIONS

Mass Storage Devices | Automotive
 Electronics | Telecommunication Hardware |
 AR/VR | LED Solid State Lighting | Power
 Electronics

ORDERING INFORMATION

21-321-010-080G=Thermal Gel 21-321 in
 a 30cc Cartridge (80 g)
 Customizable packaging
 Storage Requirement
 -10°C to -25°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES ThermalGel 21-321 is a one-part curable thermal gel, based on silicone substrate, for thermal gap filling application. It is very soft and has good shape retention performance.

JONES ThermalGel 21-321 starts curing at 60°C with surface tack-free in 48 hours. Generally, about fully cured physical properties could be achieved with in 30 minutes at 85°C heating for acceleration.

21-321 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	1.6	ASTM D5470
	Thermal resistance (°C.cm ² /W) @1mm	5.55	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Color Before Curing	Green	Visual
	Density Before Curing (g/cc)	2.5	ASTM D792
	Flow Rate (g/min)	120	90 Psi,50cc @ Ø 2.41 mm nozzle
	Hardness After Cured (Shore 00)	70	ASTM D2240
	Cure Condition@25°C(h)	48	Rheometer
	Cure Condition@85°C (min)	30	Rheometer
Electrical	Breakdown Voltage (KV AC /mm)	>5	ASTM D149
	Volume Resistance (Ohm · cm)	10 [^] 12	ASTM D257
Regulatory	Flame Rating	V0	UL94
	Shelf Life @-10°C~-25°C(Month)	6	/

Single-Part Thermal Gel

JONES 21-335 Series

FEATURES & BENEFITS

Thermal Conductivity :3.5W/m · K
 Heat Cured | Easily dispensable | Low
 Thermal Resistance | Low Bond Line
 Thickness | No Oil Bleeding | Electrically
 Isolating

APPLICATIONS

Mass Storage Devices | Automotive
 Electronics | Telecommunication Hardware |
 AR/VR | LED Solid State Lighting | Power
 Electronics

ORDERING INFORMATION

21-335-010-080G=Thermal Gel 21-335 in
 a 30cc Cartridge (80 g)
 Customizable packaging
Storage Requirement
 -10°C to 10°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES ThermalGel 21-335 is a one-part curable thermal gel, based on silicone substrate, for thermal gap filling application. It is very soft and has good shape retention performance.

JONES Thermal Gel 21-335 starts curing at 60°C with surface tack-free in 24 hours. Generally, about fully cured physical properties could be achieved within 30 minutes at 90°C heating for acceleration.

21-335 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	3.5	ASTM D5470
	Thermal resistance (°C.cm ² /W) @1mm	5.2	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Color Before Curing	Green	Visual
	Density Before Curing (g/cc)	3.1	ASTM D792
	Flow Rate (g/min)	100	90 Psi,50cc @ Ø 2.41mm nozzle
	Hardness After Cured (Shore 00)	90	ASTM D2240
	Cure Condition@25°C(h)	48	Rheometer
	Cure Condition@90°C (min)	30	Rheometer
Electrical	Breakdown Voltage (KV AC /mm)	>5	ASTM D149
	Volume Resistance (Ohm · cm)	10 ¹²	ASTM D257
Regulatory	Flame Rating	V0	UL94
	Shelf Life @-10°C~-25°C(Month)	6	/

Single-Part Thermal Gel

JONES 21-340-SP01 Series



FEATURES & BENEFITS

Thermal Conductivity: 3.5 W/m-K | Soft and Compliant Transferring Little To No Pressure Between Interfaces | Pre-Cured | Electrically Isolating | Low Thermal Resistance | Easily Dispensable/Regulatory |



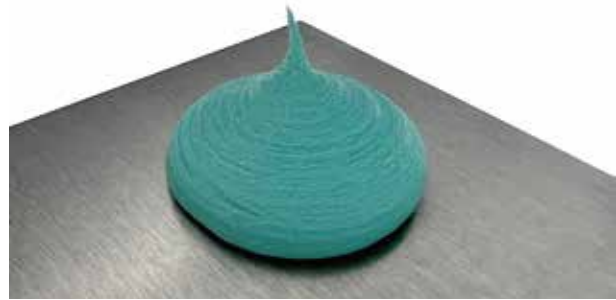
APPLICATIONS

Cooling components to chassis, frame, or other mating components | Memory modules | Mass storage devices | Automotive electronics | Telecommunication hardware | Power electronics | LCD and PDP flat panel | Audio and video component | IT infrastructure | GPS navigation and other portable devices



ORDERING INFORMATION

21-340-SP01-010-080G=Thermal Gel 21-340-SP01 in a 30cc Cartridge (80 g)
 Customizable packaging
 Storage Requirement
 0°C to 35°C, 50%RH, sealing preservation
 18 months from date of manufacture.
 Unopened Original Package



JONES Thermal Gel 21-340-SP01 is a soft, single part, silicone putty thermal gap filler in which no cure is required. This gap filler is designed to be used in where large gap tolerances presently and low mechanical stress on delicate components . It is ideal for filling variable gaps between multiple components and a common heat sink.

JONES Thermal Gel 21-340-SP01 has superior thermal performance and super compliancy. It provides outstanding reliability. Specialized rheology allows for easy flow under pressure.

21-340-SP01 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	3.5	ASTM D5470
	Thermal Resistance (°C.cm ² /W) @1mm	/	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Green	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cc)	3.2	ASTM D792
	Flow Rate (g/min)	48	90 Psi,EFD180cc @ Ø 3.17mm nozzle
	Typical Minimum Bondline Thickness (mm)	0.10	JONES Test Method
Electrical	Breakdown Voltage (KV AC /mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant @1MHz	5.0	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Single-Part Thermal Gel

JONES 21-340-SP02 Series



FEATURES & BENEFITS

Thermal Conductivity: 4.0 W/m-K | Soft and Compliant Transferring Little To No Pressure Between Interfaces | Easily Dispensable | Pre-Cured | Electrically Isolating | Low Thermal Resistance



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Memory modules | Mass storage devices | Automotive electronics | Telecommunication hardware | Power electronics | LCD and PDP flat panel | Audio and video component | IT infrastructure | GPS navigation and other portable devices



ORDERING INFORMATION

21-340-SP02-010-080G=Thermal Gel
21-340-SP02 in a 30cc Cartridge (80 g)
Customizable packaging
Storage Requirement
0°C to 35°C, 50%RH, sealing preservation
6 months from date of manufacture.
Unopened Original Package



JONES Thermal Gel 21-340-SP02 is a soft, single part, silicone putty thermal gap filler in which no cure is required. This gap filler is designed to be used in where large gap tolerances presently and low mechanical stress on delicate components . It is ideal for filling variable gaps between multiple components and a common heat sink.

JONES Thermal Gel 21-340-SP02 has superior thermal performance and super compliancy. It provides outstanding reliability. Specialized rheology allows for easy flow under pressure.

21-340-SP02 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	4.0	ASTM D5470
	Thermal Resistance(°C.cm ² /W)@1mm	/	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Green	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cc)	3.2	ASTM D792
	Flow Rate (g/min)	45	90 Psi,EFD180cc @ Ø 3.17mm nozzle
	Typical Minimum Bondline Thickness (mm)	0.10	JONES Test Method
Electrical	Breakdown Voltage (KV AC /mm)	>5	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant @1MHz	5.0	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Single-Part Thermal Gel

JONES 21-361-SP01 Series



FEATURES & BENEFITS

Soft and Compliant Transferring Little To No Pressure Between Interfaces | Thermal Conductivity: 6.0 W/m-K | Easily Dispensable | Fully-Cured | Electrically Isolating | Low Thermal Resistance



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Memory modules | Home & Small Office Network | Mass storage devices | Radios | Automotive electronics | LED solid Telecommunication hardware | state lighting | Power electronics | LCD and PDP flat panel | Set top boxes | Audio and video component | IT infrastructure | GPS navigation and other portable devices

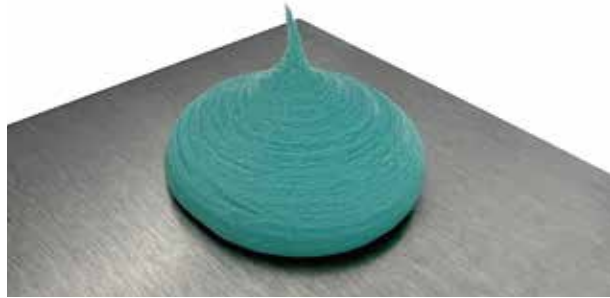


ORDERING INFORMATION

21-361-SP01-010-080G=Thermal Gel
21-361-SP01 in a 30cc Cartridge (80 g)
Customizable packaging

Storage Requirement

Room Temperature Between 0~35°C,
under 50%R.H.
6 months from date of manufacture.
Unopened Original Package



21-361-SP01 Series Thermal Gel is a soft, single part, silicone putty thermal gap filler in which no cure is required. This gap filler is designed to be used in where large gap tolerances are present and low mechanical stress on delicate components are needed. It is ideal for filling variable gaps between multiple components and a common heat sink.

21-361 Series Thermal Gel has a composition which yields superior thermal performance and super compliancy. This material transfers little to no pressure between interfaces. Specialized rheology allows for easy flow under pressure.

21-361-SP01 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	6.0	ASTM D5470
	Thermal Resistance(°C.cm ² /W)@1mm	/	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Green	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cc)	3.3	ASTM D792
	Flow Rate (g/min)	60	EFD 180 CC, Φ3.17 mm @90 PSI
	Typical Minimum Bondline Thickness (mm)	0.15	JONES Test Method
Electrical	Breakdown Voltage (KV AC /mm)	>6	ASTM D149
	Volume Resistivity (Ohm · cm)	>10 ¹³	ASTM D257
	Dielectric Constant @1MHz	6.0	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Single-Part Thermal Gel

JONES 21-361-SP02 Series



FEATURES & BENEFITS

Thermal Conductivity:6.0 W/m · k | High Reliability | Easily Dispensable | Pre-Cured | Electrically Isolating | Low Thermal Resistance



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Memory modules | Mass storage devices | Automotive electronics | Power electronics | Telecommunication hardware | LCD and PDP flat panel | Audio and video component | IT infrastructure | GPS navigation and other portable devices



ORDERING INFORMATION

21-361-SP02-010-080G=Thermal Gel
21-361-SP02 in a 30cc Cartridge (80 g)
Customizable packaging

Storage Requirement

0°C to 35°C, 50%RH, sealing preservation
6 months from date of manufacture.
Unopened Original Package



JONES Thermal Gel 21-361-SP02 is a soft, single part, silicone putty thermal gap filler in which no cure is required. This gap filler is designed to be used in where large gap tolerances are present and low mechanical stress on delicate components are needed. It is ideal for filling variable gaps between multiple components and a common heat sink.

JONESThermal Gel 21-361-SP02 has a composition which yields superior thermal performance and super compliancy. This material transfers little to no pressure between interfaces. Specialized rheology allows for easy flow under pressure.

21-361-SP02 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	6.0	ASTM D5470
	Thermal Resistance($^{\circ}\text{C}\cdot\text{cm}^2/\text{W}$)@1mm	/	ASTM D5470
	Operating Temperature Range ($^{\circ}\text{C}$)	-55~150	JONES Test Method
Physical	Color	Pink	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cc)	3.4	ASTM D792
	Flow Rate (g/min)	25	90 Psi,EFD50cc @ \varnothing 2.41mm nozzle
	Typical Minimum Bondline Thickness (mm)	0.15	JONES Test Method
Electrical	Breakdown Voltage (KV AC /mm)	>6	ASTM D149
	Volume Resistivity (Ohm · cm)	10^{13}	ASTM D257
	Dielectric Constant @1MHz	11.0	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Single-Part Thermal Gel

JONES 21-390 Series

FEATURES & BENEFITS

Thermal Conductivity: 9.0 W/m · k | High Reliability | Easily Dispensable | Pre-Cured | Electrically Isolating | Low Thermal Resistance

APPLICATIONS

Cooling components to chassis, frame, or other mating components | Memory modules | Mass storage devices | Automotive electronics | Telecommunication hardware | Power electronics | LCD and PDP flat panel | Audio and video component | IT infrastructure | GPS navigation and other portable devices

ORDERING INFORMATION

21-390-010-080G=Thermal Gel 21-390 in a 30cc Cartridge (80 g)
 Customizable packaging
 Storage Requirement
 0°C to 35°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES Thermal Gel 21-390 is a soft, single part, silicone putty thermal gap filler no cure is required. This gap filler is designed to be used in where large gap tolerances are present and low mechanical stress on delicate components are needed. It is ideal for filling variable gaps between multiple components and a common heat sink.

JONES Thermal Gel 21-390 has a composition which yields superior thermal performance and super compliancy. This material transfers little to no pressure between interfaces. Specialized rheology allows for easy flow under pressure.

21-390 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	9.0	ASTM D5470
	Operating Temperature Range (°C)	-55~150	JONES Test Method
Physical	Color	Blue	Visual
	Composition	Ceramic & Silicone	/
	Density (g/cc)	3.2	ASTM D792
	Flow Rate (g/min)	45	90 Psi,EFD50cc @ Ø 3.17mm nozzle
	Typical Minimum Bondline Thickness (mm)	0.24	JONES Test Method
Electrical	Breakdown Voltage (KV AC /mm)	>6	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹³	ASTM D257
	Dielectric Constant @1MHz	6.2	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Two-Part Thermal Gel

JONES 21-320LD Series



FEATURES & BENEFITS

Thermal Conductivity: 2.0 W/m · k | Minimal stress imparted to components during assembly | Easy Rework | Flow Rate: 100 g/min@90psi | Easily Dispensable | Electrically Isolating | Low Thermal Resistance& High Reliability



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Home & Small Office Network | Mass Storage Devices | Automotive Electronics | Telecommunication Hardware | Audio & Video Component



ORDERING INFORMATION

21-320-032-090G=Thermal Gel 21-390 in a 50cc Cartridge (90 g)
 Customizable packaging
 Storage Requirement
 0°C to 35°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES Thermal Gel 21-320LD is a soft, two-part, extremely high thermal conductivity silicone putty thermal gap filler which could be cured in room temperature . This gap filler is designed to be used where large gap tolerances are present and low mechanical stress on delicate components are needed. It is ideal for filling variable gaps between multiple components and a common heat sink. Specialized rheology allows for easy flow under pressure.

21-320LD TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity(W/m · K)	2.0	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Composition	Ceramic & Silicone	/
	Color	PartA: White PartB: Blue	Visual
	Flow rate (g/min)_one part	100	90 Psi,EFD50cc @ Ø 2.41mm nozzle
	Flow rate (g/min)_mixed	25	90 Psi,EFD50cc @21 Elements static mixer
	Density (g/cc)	2.0 ± 0.1	ASTM D792
	Mix Ratio	1:1	/
	Pot Life after mixing@25°C(h)	2	Time for Viscosity to Double
	Cure Condition@25°C(h)	24	Rheometer
	Cure Condition@120°C(min)	20	Rheometer
	Color after curing	Light Blue	Visual
Electrical	Hardness (Shore 00)	60	ASTM D2240
	Breakdown Voltage(KV AC/mm)	>10	ASTM D149
	Volume Resistivity(Ohm · cm)	10 ¹³	ASTM D257
Regulatory	Dielectric Constant @1MHz	8.8	ASTM D150
	Flammability Rating	V0	UL94

Two-Part Thermal Gel

JONES 21-335D Series



FEATURES & BENEFITS

Thermal Conductivity :3.5W/m · k | Minimal stress imparted to components during assembly | Easy for rework | Cured at room Temperature | Electrically Isolating | Low Thermal Resistance | Easily dispensable | High Reliability



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Home & Small Office Network | Mass Storage Devices | Automotive Electronics | Telecommunication Hardware | LED Solid State Lighting | Power Electronics



ORDERING INFORMATION

21-335D-032-130G=Thermal Gel 21-335D in a 50cc Cartridge (130 g)
 Customizable packaging
Storage Requirement
 0°C to 35°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES Thermal Gel 21-335D is a two-part dispensable materials compounded with thermal conductive fillers and silicone matrix. It demonstrates high thermal conductivity, good thermal performance and high reliability. In addition to providing variable gap adaption, it will impart little and reduced stress on components during assembly. JONES Thermal Gel 21-335D is ideal for applications that require a higher flow rate and easy reworking.

21-335D TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity(W/m · K)	3.5	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Composition	Ceramic & Silicone	/
	Color	PartA: Green PartB: White	Visual
	Flow rate (g/min)_mixed	21	90 Psi,EFD50cc @ 21 Elements static mixer
	Density (g/cc)	3.0	ASTM D792
	Mix Ratio	1:1	/
	Pot Life after mixing@25°C(h)	3	Time for Viscosity to Double
	Cure Condition@25°C(h)	24	Rheometer
	Cure Condition@120°C(min)	20	Rheometer
	Color after curing	Light Green	Visual
Electrical	Hardness (Shore 00)	45	ASTM D2240
	Breakdown Voltage(KV AC/mm)	>5	ASTM D149
	Volume Resistivity(Ohm · cm)	10 [^] 13	ASTM D257
Regulatory	Dielectric Constant @1MHz	5.9	ASTM D150
	Flammability Rating	V0	UL94

Two-Part Thermal Gel

JONES 21-360D Series

FEATURES & BENEFITS

Thermal Conductivity: 6.0 W/m · k | Minimal Stress Imparted To Components During Assembly | Clear Boundary | Easy Rework | Flow Rate: 33 g/min@90psi | Easily Dispensable | Electrically Isolating | Low Thermal Resistance & High Reliability

APPLICATIONS

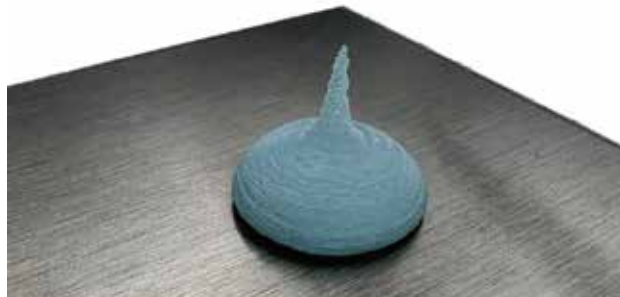
Cooling components to chassis, frame, or other mating components | Home & Small Office Network | Mass Storage Devices | Automotive Electronics | Telecommunication Hardware | LED Solid State Lighting | Power Electronics | Audio & Video Component

ORDERING INFORMATION

21-360D-032-150G=Thermal Gel 21-360D in a 50cc(150 g) cartridge;
21-360D-062-800G=Thermal Gel 21-360D in a 300cc(800 g) cartridge
Customizable packaging

Storage Requirement

0°C to 35°C, 50%RH, sealing preservation
6 months from date of manufacture.
Unopened Original Package



JONES Thermal Gel 21-360D is a two-part dispensable materials compounded with thermal conductive fillers and silicone matrix. It is designed for curing at room temperature. It demonstrates very high thermal conductivity, superior thermal performance and reliability. In addition to providing variable gap adaption, it is soft and will impart little and reduced stress on components.

JONES Thermal Gel 21-360D is ideal for applications that require a higher flow rate and easy reworking.

21-360D TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity(W/m · K)	6.0	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Composition	Ceramic & Silicone	/
	Color	PartA: Blue PartB: Gray	Visual
	Flow rate (g/min)_one part	33	90 Psi,EFD30cc @ Ø 2.41mm nozzle
	Flow rate (g/min)_mixed	4.7	90 Psi,EFD50cc @21 Elements static mixer
	Density (g/cc)	2.94	ASTM D792
	Mix Ratio	1:1	/
	Pot Life after mixing@25°C(h)	2	Time for Viscosity to Double
	Cure Condition@25°C(h)	24	Rheometer
	Cure Condition@120°C(min)	60	Rheometer
	Color after curing	Light Blue	Visual
Electrical	Hardness (Shore 00)	70	ASTM D2240
	Breakdown Voltage(KV AC/mm)	>3	ASTM D149
	Volume Resistivity(Ohm · cm)	10 ¹³	ASTM D257
Regulatory	Dielectric Constant @1MHz	6.0	ASTM D150
	Flammability Rating	V0	UL94

Two-Part Thermal Gel

JONES 21-380D Series



FEATURES & BENEFITS

Thermal Conductivity: 8.0 W/m · k |
Minimal stress imparted to components during assembly | Easy Rework | Easily Dispensable | Electrically Isolating | Low Thermal Resistance



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Home & Small Office Network | Mass Storage Devices | Automotive Electronics | Telecommunication Hardware | LED Solid State Lighting | Power Electronics | Audio & Video Component



ORDERING INFORMATION

21-380D-032-130G=Thermal Gel 21-380D in a 50cc Cartridge (130 g)

Customizable packaging

Storage Requirement

0°C to 35°C, 50%RH, sealing preservation
6 months from date of manufacture.

Unopened Original Package



JONES Thermal Gel 21-380D is a two-part dispensable materials compounded with thermal conductive fillers and silicone matrix. It is designed to be cured at room temperature. It exhibits very high thermal conductivity, outstanding thermal performance and high reliability. In addition to providing variable gap adaption, it will impart little and reduced stress on components during assembly.

JONES Thermal Gel 21-380D is ideal for applications that require a higher flow rate and easy reworking.

21-380D TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity(W/m · K)	8.0	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Composition	Ceramic & Silicone	/
	Color	PartA: Blue PartB: Gray	Visual
	Flow rate (g/min)_one part	36	90 Psi,EFD30cc @ Ø 2.41mm nozzle
	Flow rate (g/min)_mixed	4	90 Psi,EFD50cc @21 Elements static mixer
	Density (g/cc)	2.8	ASTM D792
	Mix Ratio	1:1	/
	Pot Life after mixing@25°C(h)	2~5	Time for Viscosity to Double
	Cure Condition@25°C(h)	24	Rheometer
	Cure Condition@120°C(min)	60	Rheometer
	Color after curing	Light Blue	Visual
	Hardness (Shore 00)	60	ASTM D2240
Electrical	Breakdown Voltage(KV AC/mm)	>3	ASTM D149
	Volume Resistivity(Ohm · cm)	10 ¹¹	ASTM D257
	Dielectric Constant @1MHz	6.9	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Two-Part Thermal Gel

JONES 21-3135D Series



FEATURES & BENEFITS

Thermal Conductivity: 13.5W/m · k | Minimal stress imparted to components during assembly | Easy Rework | Flow Rate: 20 g/min@90psi | Easily Dispensable | Electrically Isolating | Low Thermal Resistance & High Reliability



APPLICATIONS

Cooling components to chassis, frame, or other mating components | Home & Small Office Network | Mass Storage Devices | Automotive Electronics | Telecommunication Hardware | LED Solid State Lighting | Power Electronics | Audio & Video Component



ORDERING INFORMATION

21-3135D-032-150G=Thermal Gel 21-3135D in a 50cc(150 g) cartridge;
 21-3135D-062-800G=Thermal Gel 21-3135D in a 300cc(800 g) cartridge
 Customizable packaging
 Storage Requirement
 0°C to 35°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES Thermal gel 21-3135D is a two-part dispensable materials consist of thermal conductive fillers and silicone oil desinged for curing at room temperature. It demonstrates extremelyhigh thermal conductivity ,outstanding thermal performance and high reliability.In addition to providing variable gap adaption, Thermal Gel 21-3135D is soft and will exert minimum stress on your component.

JONES Thermal Gel 21-3135D is ideal for applications that require a higher flow rate and easy reworking.

21-3135D TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	13.5	ASTM D5470
	Operating Temperature Range(°C)	-55~150	JONES Test Method
Physical	Composition	Ceramic & Diamond & Silicone	/
	Color	PartA: Brown PartB: Gray	Visual
	Flow rate (g/min)_one part	≥20	90 Psi,EFD30cc @ Ø 2.41mm nozzle
	Flow rate (g/min)_mixed	1	90 Psi,EFD50cc @21 Elements static mixer
	Density (g/cm ³)	3.1	ASTM D792
	Mix Ratio	1:1	/
	Pot Life After Mixing @25°C(h)	2	Time for Viscosity to Double
	Cure Condition@25°C(h)	24	Rheometer
	Cure Condition@120°C(h)	60	Rheometer
	Color After Curing	Brown	Visual
	Hardness (Shore 00)	70	ASTM D2240
Electrical	Breakdown Voltage(KV AC/mm)	>1.5	ASTM D149
	Volume Resistivity(Ohm · cm)	10 ¹⁰	ASTM D257
	Dielectric Constan@1MHz	6.0	ASTM D150
Regulatory	Flammability Rating	V0	UL94

Thermal Grease

JONES 21-420 Series



FEATURES & BENEFITS

Thermal Conductivity: $2\text{W/m} \cdot \text{k}$ | Low Thermal Resistance | Moderate Viscosity | Solvent-free | No post "Cure" required | Low Bondlines Thickness



APPLICATIONS

CPUs (Notebooks, PCs, Servers) | LED Solid State Lighting | GPUs | Northbridge Chipsets | ASICS Chips



ORDERING INFORMATION

21-420-020-100G=Thermal grease 21-420
50ml cartridge
Customizable packaging
Storage Requirement
0° to 35°C, 50%RH, sealing preservation
12 months from date of manufacture.
Unopened Original Package



JONES Thermal Grease 21-420 is a silicone based, high performance thermal interface material. It is designed to perform high thermal conductivity between high watt density chips like CPUs, GPUs, ASIC, Northbridge chipsets and heat sink. It demonstrates outstanding thermal performance and high reliability while wetting out the thermal interfaces under assembly pressure.

21-420 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	2.0	ASTM D5470
	Thermal Resistance@40psi (°C.cm ² /W)	0.138	ASTM D5470
	Operating Temperature Range (°C)	-40~125	JONES Test Method
Physical	Composition	Metal&Ceramic&Silicon	/
	Color	Grey	Visual
	Typical Minimum Bondline Thickness(μm)	30	JONES Test Method
	Viscosity@20rpm (Pa · s)	100	ASTM D2196
	Density (g/cm ³)	2.1	ASTM D792
Electrical	Dielectric Constan@1MHz	8.0	ASTM D150
	Volume Resistivity(Ohm · cm)	10 ¹²	ASTM D257
Regulatory	Flame Rating	V0	UL94

Silicone-Free Thermal Grease

JONES 21-430SF Series



FEATURES & BENEFITS

Thermal Conductivity: 3.0W/m · k | Moderate Viscosity | Low Thermal Resistance | High Thermal Conductivity | Silicon-free | Solvent-free



APPLICATIONS

CPUs (Notebooks, PCs, Servers) | LED Solid State Lighting | GPUs



ORDERING INFORMATION

21-430SF-020-100G=Thermal grease
 21-430SF 50ml cartridge
 Customizable packaging
 Storage Requirement
 0° to 35°C, 50%RH, sealing preservation
 6 months from date of manufacture.
 Unopened Original Package



JONES Thermal Grease 21-430SF is a silicone-free based, high performance thermal interface material. It is designed to perform high thermal conductivity between high watt density chips like CPUs, GPUs, ASIC, Northbridge chipsets and heat sink. It demonstrates outstanding thermal performance and high reliability while wetting out the thermal interfaces under assembly pressure.

21-430SF TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	3.0	ASTM D5470
	Thermal Resistance@40psi (°C.cm ² /W)	0.153	ASTM D5470
	Operating Temperature Range (°C)	-40~125	JONES Test Method
Physical	Composition	Ceramic & Silicone-free	/
	Color	Grey	Visual
	Typical Minimum Bondline Thickness(μm)	25	JONES Test Method
	Viscosity@20rpm (Pa · s)	150	ASTM D2196
	Density (g/cm ³)	2.3	ASTM D792
Electrical	Breakdown Voltage (KV AC/mm)	>12.0	ASTM D149
	Volume Resistivity (Ohm · cm)	10 ¹²	ASTM D257
	Dielectric Constant @1MHz	4.8	ASTM D150
Regulatory	Flame Rating	V0	UL94

Thermal Grease

JONES 21-430 Series



FEATURES & BENEFITS

Thermal Conductivity: 3.3W/m · k |
 Moderate Viscosity For Easy Application |
 No post "Cure" required | High Thermal
 Conductivity | No Dry Out @150°C |
 Solvent-free



APPLICATIONS

CPUs (Notebooks, PCs, Servers) | LED Solid
 State Lighting | GPUs | Northbridge
 Chipsets | ASICS Chips



ORDERING INFORMATION

21-430-020-100G=Thermal grease 21-430
 50ml cartridge
 Customizable packaging
 Storage Requirement
 0° to 35°C, 50%RH, sealing preservation
 12 months from date of manufacture.
 Unopened Original Package



JONES Thermal Grease 21-430 is a silicone based, high performance thermal interface material. It is designed to perform high thermal conductivity between high watt density chips like CPUs, GPUs, ASIC, Northbridge chipsets and heat sink. It demonstrates outstanding thermal performance and high reliability while wetting out the thermal interfaces under assembly pressure.

21-430 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity(W/m · K)	3.3	ASTM D5470
	Thermal Resistance@40psi (cm ² °C/W)	0.119	ASTM D5470
	Operating Temperature Range (°C)	-40~125	JONES Test Method
Physical	Composition	Ceramic&Silicone	/
	Color	Grey	Visual
	Typical Minimum Bondline Thickness (µm)	50	JONES Test Method
	Viscosity@20rpm (Pa · s)	350	ASTM D2196
	Density (g/cm ³)	2.4	ASTM D792
Electrical	Breakdown Voltage (KV AC/mm)	>5.0	ASTM D149
	Volume Resistivity@1MHz	10 ¹³	ASTM D257
	Dielectric Constan(Ohm · cm)	5.3	ASTM D150
Regulatory	Flame Rating	V0	UL94

Thermal Grease

JONES 21-460 Series



FEATURES & BENEFITS

High Thermal Conductivity: 6.0W/m · k |
 Moderate Viscosity For Easy Application |
 No Post "Cure" Required | Low Thermal
 Resistance



APPLICATIONS

CPUs (Notebooks, PCs, Servers) | LED Solid
 State Lighting | GPUs | Memory Modules |
 Chipsets | Northbridge Chipsets | ASICS
 Chips



ORDERING INFORMATION

21-460-1000 = thermal grease 21-460
 600cc can (1kg)
 21-460-2000 = thermal grease 21-460 1L
 can (2kg)
 Customizable packaging
Storage Requirement
 0° to 35°C,50%RH, sealing preservation
 12 months from date of manufacture
 Unopened Original Package



JONES Thermal Grease 21-460 is a silicone based, high performance thermal interface material with thermal conductivity at 6W/m.K.It is designed to perform high thermal conductivity between high watt density chips like CPUs, GPUs, ASIC, Northbridge chipsets and heat sink. It demonstrates outstanding thermal performance and high reliability while wetting out the thermal interfaces under assembly pressure.

21-460 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	6.0	HOT DISK
	Thermal Resistance@40psi (cm ² °C/W)	0.062	ASTM D5470
	Operating Temperature Range (°C)	-40~125	JONES Test Method
Physical	Composition	Metal&Ceramic&Silicone	/
	Color	Grey	Visual
	Typical Minimum Bondline Thickness (µm)	30	JONES Test Method
	Viscosity@20rpm (Pa · s)	250	ASTM D2196
	Density (g/cm ³)	2.2	ASTM D792
Electrical	Dielectric Constan@1MHz	8.3	ASTM D150
	Volume Resistivity (Ohm · cm)	10 [^] 10	ASTM D257
Regulatory	Flame Rating	V0	UL94

Thermal PCM

JONES 21-725 Series

FEATURES & BENEFITS

Low Thermal Resistance |
Phase Change ~50 °C | Excellent Interface
Wetability | High Reliability | RoHS
Compliant | Form: Pad

APPLICATIONS

CPUs (Notebooks, Desktops, Servers) |
Chipsets | GPUs | ASICs Chips

ORDERING INFORMATION

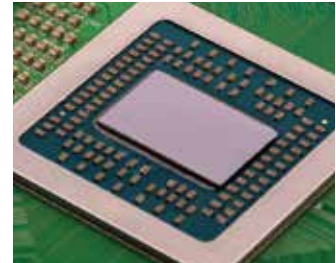
100mm X 100mm*0.2mm
100mm X 100mm*0.5mm
100mm X 100mm*1.0mm
Customizable packaging

Storage Requirement

10° to 30°C, <65%RH,
sealing preservation

6 months from date of manufacture.

Unopened Original Package



JONES PCM 21-725, phase change interface thermal material, is designed to maximize heat sink performance and improve component reliability. It minimizes thermal resistance at interfaces and maintains excellent performance when it fills interfacial gaps and voids.

At room temperature, JONES PCM 21-725 is solid and easy to handle. This allows it to be consistently and cleanly applied as dry pad to a heat sink or component surface. Upon reaching its softening temperature of ~50 °C, PCM 21-725 begins to soften and flow, filling the microscopic irregularities of the component. The result is an interface with minimal bond-line thickness and thermal contact resistance.

21-725 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	2.0	Hot Disk
		1.6	ASTM D5470
	Thermal Resistance (cm ² °C/W)	0.140	ASTM D5470
	Phase Change Softening Temp (°C)	~50	ASTM D3418
	Operation Temperature Range (°C)	-40-125	JONES Test Method
Physical	Color	Grey	Visual
	Standard Thickness (mm)	0.20-1.00	ASTM D374
	Density (g/cm ³)	2.1	ASTM D792
Electrical	Volume Resistivity (Ohm · cm)	10 ¹²	ASTM D257
	Surface Insulation Resistance (Ohm)	10 ⁸	IPC-TM-650
Regulatory	Flammability Rating	V0	UL94

Thermal PCM

JONES 21-745 Series



FEATURES & BENEFITS

Low Thermal Resistance | RoHS Compliant |
Phase Change ~ 50 °C | Excellent Interface
Wetability | High Reliability | Form:Pad



APPLICATIONS

CPUs (Notebooks, Desktops, Servers) |
Chipsets | GPUs | ASICs Chips | Smart
Phones | Form:Pad



ORDERING INFORMATION

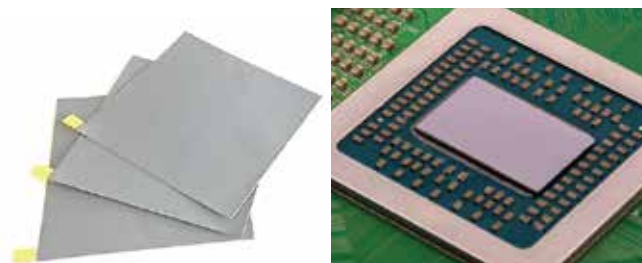
100mm X 100mm*0.2mm
100mm X 100mm*0.5mm
100mm X 100mm*1.0mm
Customizable packaging

Storage Requirement

10° to 30°C, <65%RH,
sealing preservation

12 months from date of manufacture.

* Unopened Original Package



JONES PCM 21-745, phase change interface thermal material, is designed to maximize heat sink performance and improve component reliability. It minimizes thermal resistance at interfaces and maintains excellent performance when it fills interfacial gaps and voids.

At room temperature, JONES PCM 21-745 is solid and easy to handle. This allows it to be consistently and cleanly applied as dry pad to heat sink or component surface. Upon reaching its softening temperature of 50 °C, PCM 21-745 begins to soften and flow, filling the microscopic irregularities of the component. The result is an interface with minimal bond-line thickness and thermal contact resistance.

21-745 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity(W/m · K)	5.8	Hot Disk
		4.4	ASTM D5470
	Thermal Resistance (cm ² °C/W)	0.060	ASTM D5470
	Phase Change Softening Temp(°C)	~50	ASTM D3418
	Operation Temperature Range(°C)	-40~125	JONES Test Method
Physical	Color	Grey	Visual
	Standard Thickness (mm)	0.20-1.00	ASTM D374
	Density (g/cm ³)	2.6	ASTM D792
Electrical	Volume Resistivity (Ohm · cm)	10 ¹²	ASTM D257
	Surface Insulation Resistance(Ohm)	10 ⁸	IPC-TM-650
Regulatory	Flammability Rating	V0	UL94

Thermal PCM

JONES 21-780 Series



FEATURES & BENEFITS

Phase Change ~ 50 °C | Super Low Thermal Resistance | High Thermal Conductivity | Excellent Interface Wetability | High Reliability | Form:Pad



APPLICATIONS

CPUs (Notebooks,Desktops, Servers) | Chipsets | GPUs | ASICS Chips | Smart Phone

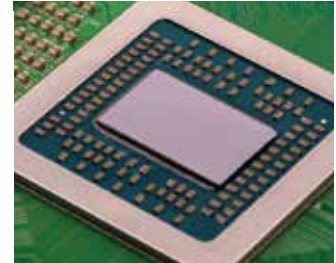


ORDERING INFORMATION

100mm X 100mm*0.2mm
100mm X 100mm*0.5mm
100mm X 100mm*1.0mm
Customizable packaging

Storage Requirement

10° to 30°C, <65%RH,
sealing preservation
12 months from date of manufacture.
Unopened Original Package



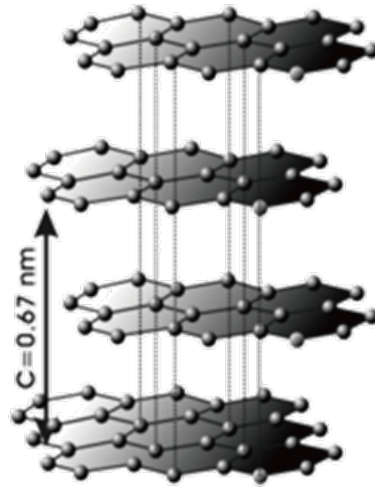
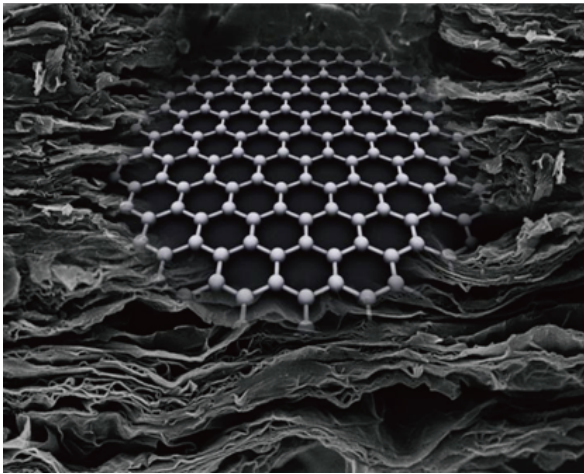
JONES PCM 21-780, phase change interface thermal material, is designed to maximize heat sink performance and improve component reliability. It minimizes thermal resistance at interfaces and maintains excellent performance when it fills interfacial gaps and voids.

At room temperature, JONES PCM 21-780 is solid and easy to handle. This allows it to be consistently and cleanly applied as dry pad to heat sink or component surface. Upon reaching its softening temperature of ~50°C, PCM 21-780 begins to soften and flow, filling the microscopic irregularities of the component. The result is an interface with minimal bond-line thickness and thermal contact resistance.

21-780 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity (W/m · K)	6.4	Hot Disk
		4.9	ASTM D5470
	Thermal Resistance(cm ² °C/W)	0.050	ASTM D5470
	Phase Change Softening Temp(°C)	~50	ASTM D3418
	Operation Temperature Range(°C)	-40~125	JONES Test Method
Physical	Color	Grey	Visual
	Standard Thickness (mm)	0.20-1.00	ASTM D374
	Density (g/cm ³)	2.7	ASTM D792
Electrical	Volume Resistivity (Ohm · cm)	10 ¹²	ASTM D257
	Surface Insulation Resistance(Ohm)	10 ⁸	IPC-TM-650
Regulatory	Flammability Rating	V0	UL94

Graphite Introduction



Graphite structure

Graphite to Cope with Tough Thermal Management Challenges

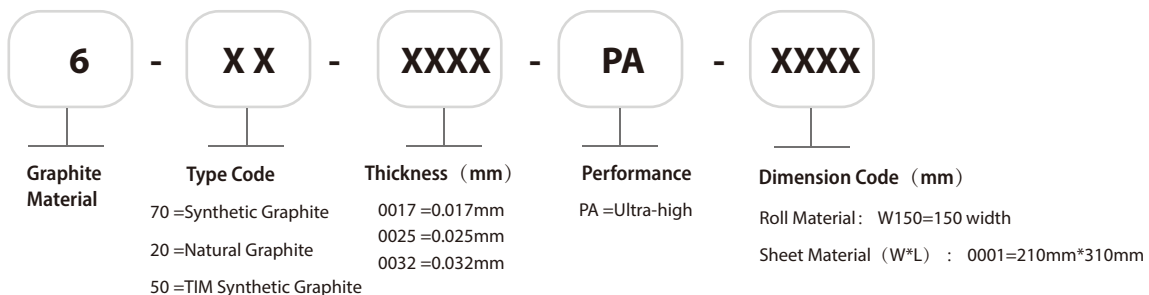
Thermal Management Challenge

- Computation power in 5G technology leads to significantly higher power generation;
- 2.5x power consumption compared with 4G smart phone
- 3x power consumption compared with 4G for base stations in communication
- Higher configuration laptops (gaming, work station, computation) lead to significantly higher power consumption
- Generated heat needs to be dissipated effectively to ensure smooth operation of products
- New trends in electronic products require high performance thermal dissipation;
- Smaller size/miniature requires higher performance thermal management materials/solutions
- Foldable electronics devices desires flexible/bendable thermal management materials
- Conventional thermal management materials faces severe performance gap vs requirements
- Copper, Aluminum are conventional heat-dissipation materials and suffer from low thermal conductivity

Why Graphite?

- Enhanced properties on thermal conductivity; Thermal conductivity of synthetic graphite: 4X of Cu, 6-7 of Al
- Bendable & flexible >100,000 times of bending
- Light weighted; Density: 1/4 of Cu, 20% lower than Al
- Chemical & performance stability Operation temperature:-55°C-400°C

Graphite Product Coding Rules



Synthetic Graphite

JONES 6-70-0017PA Series

FEATURES & BENEFITS

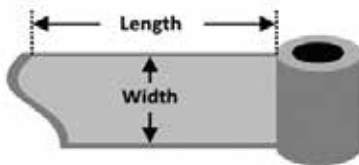
Anisotropic and over all high thermal conductivity | High thermally stability | Light weight | Flexible and conformable | RoHS compliant

APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments

ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-70-0017PA	130	10



JONES synthetic graphite is an extremely light and flexible material synthesized from polymer precursor through high temperature heat treatment process. Derived from the crystal structure of graphite, JONES graphite features an anisotropic and overall high thermal conductance. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space.

6-70-0017 is able to be supplied in rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-70-0017PA TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity In-plane(W/m · K)	≥1500	Thermal Wave
	Thermal Conductivity in Z Direction (W/m · K)	5~10	Thermal Wave
	Continuous Working Temperature(°C)	-55~400	/
Physical	Color	Dark Grey	Visua
	Thickness (mm)	0.017±0.003	ASTM D374
	Density (g/cm ³)	2.1±0.10	ASTM D2638 Modified
Electrical	Electrical Conductivity (S/m)	4X10 ⁵	ASTM C611
Mechanical	Repeat Bending@180°, R5 (cycle)	20000	/

Synthetic Graphite

JONES 6-70-0025PA Series



FEATURES & BENEFITS

Anisotropic and over all high thermal conductivity | High thermally stability | Light weight | Flexible and conformable | RoHS compliant



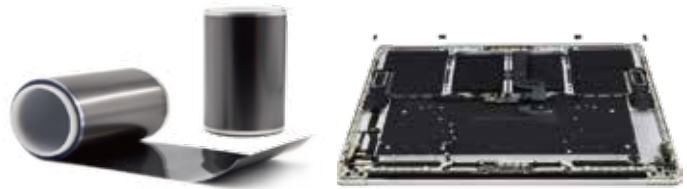
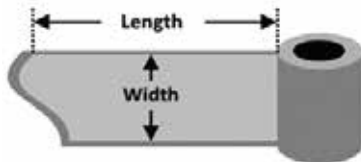
APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments



ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-70-0025PA	130	10



JONES synthetic graphite is an extremely light and flexible material synthesized from polymer precursor through high temperature heat treatment process. Derived from the crystal structure of graphite, JONES graphite features an anisotropic and overall high thermal conductance. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space. 6-70-0025 is able to be supplied in rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-70-0025PA TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity In-plane(W/m · K)	≥1500	Thermal Wave
	Thermal Conductivity in Z Direction (W/m · K)	5~10	Thermal Wave
	Continuous Working Temperature(°C)	-55~400	/
Physical	Color	Dark Grey	Visua
	Thickness (mm)	0.025±0.005	ASTM D374
	Density (g/cm ³)	2.0±0.15	ASTM D2638 Modified
Electrical	Electrical Conductivity (S/m)	4X10 ⁵	ASTM C611
Mechanical	Repeat Bending@180°, R5 (cycle)	20000	/

Synthetic Graphite

JONES 6-70-0032PA Series



FEATURES & BENEFITS

Anisotropic and over all high thermal conductivity | High thermally stability | Light weight | Flexible and conformable | RoHS compliant



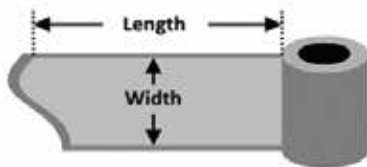
APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments



ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-70-0032PA	130	10



JONES synthetic graphite is an extremely light and flexible material synthesized from polymer precursor through high temperature heat treatment process. Derived from the crystal structure of graphite, JONES graphite features an anisotropic and overall high thermal conductance. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space.

6-70-0032 is able to be supplied in rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-70-0032PA TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity In-plane(W/m · K)	≥ 1400	Thermal Wave
	Thermal Conductivity in Z Direction (W/m · K)	5~10	Thermal Wave
	Continuous Working Temperature(°C)	-55~400	/
Physical	Color	Dark Grey	Visua
	Thickness (mm)	0.025 ± 0.005	ASTM D374
	Density (g/cm ³)	2.0 ± 0.15	ASTM D2638 Modified
Electrical	Electrical Conductivity (S/m)	4×10^5	ASTM C611
Mechanical	Repeat Bending@180°, R5 (cycle)	20000	/

Synthetic Graphite

JONES 6-70-0040PA Series

FEATURES & BENEFITS

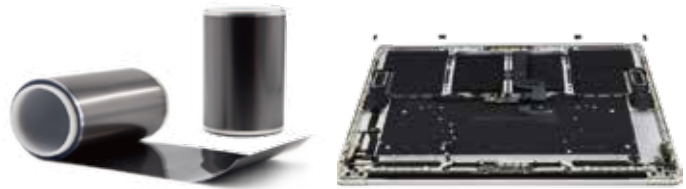
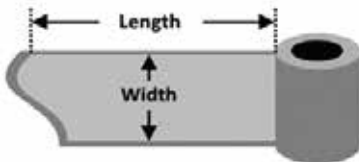
Anisotropic and over all high thermal conductivity | High thermally stability | Light weight | Flexible and conformable | RoHS compliant

APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments

ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-70-0040PA	120	10



JONES synthetic graphite is an extremely light and flexible material synthesized from polymer precursor through high temperature heat treatment process. Derived from the crystal structure of graphite, JONES-graphite features an anisotropic and overall high thermal conductance. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space.

21-670-0040 is able to be supplied in rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-70-0040PA TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity In-plane(W/m · K)	≥1350	Thermal Wave
	Thermal Conductivity in Z Direction (W/m · K)	5~10	Thermal Wave
	Continuous Working Temperature(°C)	-55~400	/
Physical	Color	Dark Grey	Visua
	Thickness (mm)	0.040±0.005	ASTM D374
	Density (g/cm ³)	1.9±0.15	ASTM D2638 Modified
Electrical	Electrical Conductivity (S/m)	4X10 ⁵	ASTM C611
Mechanical	Repeat Bending@180°, R5 (cycle)	20000	/

Synthetic Graphite

JONES 6-70-0070PA Series



FEATURES & BENEFITS

Anisotropic and over all high thermal conductivity | High thermally stability | Light weight | Flexible and conformable | RoHS compliant



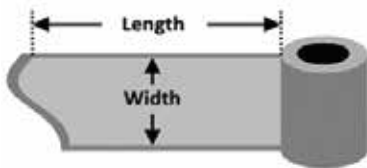
APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments



ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-70-0070PA	100	10



JONES synthetic graphite is an extremely light and flexible material synthesized from polymer precursor through high temperature heat treatment process. Derived from the crystal structure of graphite, JONES graphite features an anisotropic and overall high thermal conductance. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space.

6-70-0070 is able to be supplied in rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-70-0070PA TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Conductivity In-plane(W/m · K)	≥1350	Thermal Wave
	Thermal Conductivity in Z Direction (W/m · K)	5~10	Thermal Wave
	Continuous Working Temperature(°C)	-55~400	/
Physical	Color	Dark Grey	Visua
	Thickness (mm)	0.070±0.007	ASTM D374
	Density (g/cm ³)	≥2.0	ASTM D2638 Modified
Electrical	Electrical Conductivity (S/m)	4X10 ⁵	ASTM C611
Mechanical	Repeat Bending@180°, R5 (cycle)	20000	/

Nature Graphite

JONES 6-20-0137 Series



FEATURES & BENEFITS

Anisotropic and medium to high thermal conductivity | High thermal stability | Lightweight | Flexible and conformable | RoHS compliant



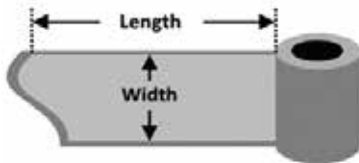
APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments



ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-20-0137	600	10



JONES 6-20-0137 heat spreading materials are natural graphite sheet with high thermal conductivity and high flexibility. It is manufactured entirely from natural graphite flakes with no fillers or binders. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space.

6-20 series is able to be supplied in sheets, rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-20-0137 TYPICAL PROPERTIES

	Properties	Typical Properties
Thermal	Thermal Conductivity In-plane(W/m·K)	≥350
	Continuous Working Temperature(°C)	-40~400
Physical	Specific Heat @50°C (J/gk)	≥0.7
	Thickness (mm)	0.137±0.013
	Density (g/cm ³)	≥1.5
Electrical	Electrical Conductivity (S/m)	1.5×10 ⁴
Mechanical	Tensile Strength (Mpa)	≥1.5

Nature Graphite

JONES 6-20-0280 Series



FEATURES & BENEFITS

Anisotropic and medium to high thermal conductivity | High thermal stability | Lightweight | Flexible and conformable | RoHS compliant



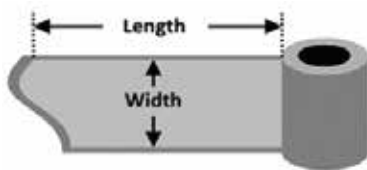
APPLICATIONS

Smart phone | Notebook | Ultrabook | Tablet | Other consumer electronics | Optical communication equipments



ORDERING INFORMATION

Part Number	Width(mm)	Length(m)
6-20-0280	600	10



JONES 6-20-0280 heat spreading materials are natural graphite sheet with high thermal conductivity and high flexibility. It is manufactured entirely from natural graphite flakes with no fillers or binders. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space.

6-20 series is able to be supplied in sheets, rolls or die-cut form and can be laminated with plastics, foams and PSA.

6-20-0280 TYPICAL PROPERTIES

	Properties	Typical Properties
Thermal	Thermal Conductivity In-plane(W/m · K)	≥350
	Continuous Working Temperature(°C)	-40~400
Physical	Specific Heat @50°C (J/gk)	≥0.7
	Thickness (mm)	0.280±0.025
	Density (g/cm ³)	≥1.5
Electrical	Electrical Conductivity (S/m)	1.5×10 ⁴
Mechanical	Tensile Strength (Mpa)	≥1.5

TIM Graphite

JONES 6-50-0200 Series



FEATURES & BENEFITS

Anisotropic and over all high thermal conductivity | High thermally stability | Light weight | Flexible and conformable | RoHS compliant



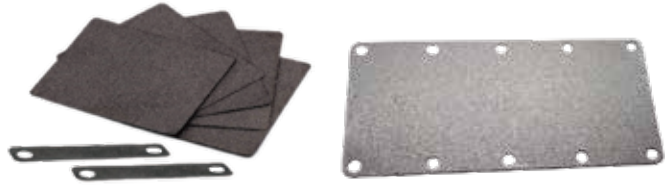
APPLICATIONS

Base Stations | Consumer electronics | Optical communication equipments



ORDERING INFORMATION

Standard size
310mm X 210mm



JONES synthetic graphite film is an extremely light and flexible material synthesized from polymer precursor by a high temperature heat treatment process. Derived from the crystal structure of graphite, the synthetic graphite features an anisotropic and overall high thermal conductance. It possesses unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is an ideal heat spreader for thermal management in limited space. It can also function as a thermal interface material for applications requiring low contact resistance and high thermal conductivity.

6-50-0200 series of JONES synthetic graphite series is designed for use as thermal interface material. Comparing to traditional thermal conductive grease, phase change materials and thermal conductive pad, the synthetic graphite films have a much higher thermal conductivity thru-thickness, stable quality, no ageing problem and a much lower density. The films are supplied in sheets, rolls or die-cut form and can be laminated with plastics, foams and adhesives.

6-50-0200 TYPICAL PROPERTIES

	Properties	Typical Properties	Test Method
Thermal	Thermal Resistance (in ² C/W) @100psi	0.032 ± 0.02	ASTM D5470
	Continuous Working Temperature (°C)	-55~400	/
Physical	Color	Dark Grey	Visua
	Thickness (mm)	0.200 ± 0.025	ASTM D374
	Density (g/cm ³)	0.4 ± 0.1	ASTM D2638 Modified
Electrical	Electrical Conductivity (S/m)	6 × 10 ⁴	ASTM C611

Graphite Die-Cutting Options

Black PET and Adhesives Design

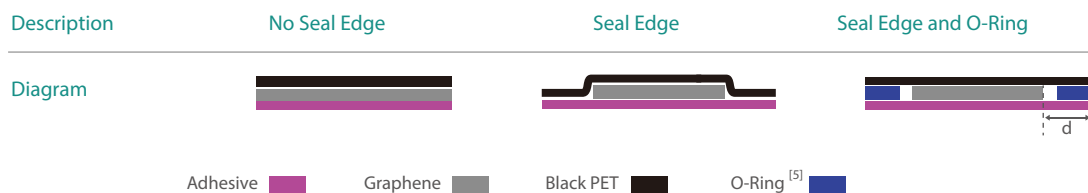
JONES heat spreader graphite film can be designed with or without black PET and adhesives. The table below contains typical black PET and adhesive options available for sampling along with their typical properties. Each option is representative of a family of materials for the purpose of qualifying the performance of the solution, and may or may not be part of the recommended bill of material for the final solution.

For additional product information, please reference Technical Data Sheet.

	B-PET OPTIONS			ADHESIVE OPTIONS			
	P1 ^[1]	P2	P3	A1	A2	A3	A4
Description	Black PET	Black PET	Black PET	PET Film Adhesive	PET Film Adhesive	PET Film Adhesive	PET Film Adhesive
Thickness (mm)	0.015	0.020	0.030	0.010	0.015	0.020	0.030
Release Liner Type	PET	PET	PET	PET	PET	PET	PET
Adhesion to SUS (gf/in) ^[3]	≥500	≥800	≥1000	≥1300	≥1300	≥1300	≥1300
GLOSS UNIT	2±1	2±1	2±1	NA	NA	NA	NA

Die-Cut Edge Options^[4]

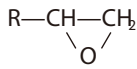
In addition to the black PET and adhesive options, JONES Graphene products are also available with die-cut edge options, as shown in the table to the right. Available edge options are dependent upon the B-PET selected and may not be available for all material configurations. Please contact JONES for additional information.



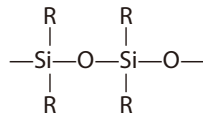
Notes:

- [1] P1 is most often offered in black matte finish for natural graphite
- [2] B-PET thickness specified includes acrylic adhesive and matte black, test method follow ASTM-3300 ASTM-3652.
- [3] Adhesion to SUS, test method follow ASTM-3300
- [4] Availability and specified envelope edge seal width "d" will vary depending upon graphite thickness and B-PET selected. Please contact JONES for additional information.
- [5] O-Ring introduction: When the graphite stack height is greater than 80um, Proposal to add O-Ring on seal edge to reduce delamination risk significantly

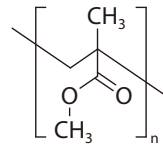
Adhesives Materials Introduction



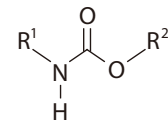
Epoxy



Silicone



Acrylic



Polyurethane

Silicone: silicone is a siloxane polymer crosslinked by silicon and oxygen. according to the reaction mechanism, it can be divided into condensation type and addition type.

Polyurethane: the full name of PU is polyurethane, which is a macromolecular polymer containing repeated urethane groups in the main chain. It is formed by adding diisocyanate or polyisocyanate with polyhydroxy compounds. It can be divided into polyester type and polyether type according to raw materials.

Epoxy: it is an adhesive based on epoxy resin formed by polycondensation of epichlorohydrin with bisphenol A or polyol.

After curing, epoxy will form tough and hard thermosetting polymers, which have good adhesion to various substrates and excellent environmental resistance. Thermal curing can also improve bond strength, heat resistance and chemical resistance.

ABTek Polyurethane products are divided into one component and two components. From low viscosity potting adhesive to high strength structural adhesive, it can meet the performance requirements of various applications. After curing, polyurethane can range from very soft elastomer to very hard plastic.

	Condensation Type Silicone	Addition Type Silicone	Polyurethane	Epoxy
Advantage	<ul style="list-style-type: none"> Simple operation; No Catalyst poisoning; Soft, low stress; Excellent performance stability, environmental resistance, electrical performance. 	<ul style="list-style-type: none"> Fast cure; No by-products; Excellent performance stability, environmental resistance, electrical performance; repair available. 	<ul style="list-style-type: none"> Soft and resistant to low temperature; The adhesion performance is between epoxy resin and silicone; Good waterproof, moisture-proof and insulation. 	<ul style="list-style-type: none"> Extensive adhesion to a variety of substrates; High hardness and mechanical stress; Good insulation, acid and alkali resistance.
Disadvantage	<ul style="list-style-type: none"> Long curing time Release of small molecule compounds; Bad adhesion. 	<ul style="list-style-type: none"> Bad adhesion; Catalyst poisoning problem. 	<ul style="list-style-type: none"> Bad high temperature resistance, aging resistance, seismic resistance, UV resistance; Easy foam(vacuum defoaming is necessary); The surface is not smooth and bad toughness. 	<ul style="list-style-type: none"> Easy to produce cracks by Cold and heat shock; Bad moisture-proof; Brittle after curing.

Adhesives Product Coding Rules

Type	Product Code	Thermal Conductivity	Distinguishing Code	Supplementary Code	Package Code
S = Silicone	1 = Structural adhesive	06 = 0.6 MPa	0 = Low hardness shore00 grade	W = White	Internal control serial number is added for different packages
U = Polyurethane	2 = Thermal conductive structural adhesive	08 = 0.8 MPa	1 = First generation products	G = Gray	
E = Epoxy	3 = Potting	10 = 1.0 MPa	2 = Second generation or two-component products	R = Red	
A = Acrylic	4 = Sealant	12 = 1.2 MPa	3 = Rapid curing series		
	7 = Conformal Coating	15 = 1.5 MPa	4 = Silicone condensation type		
	8 = Hot melt adhesive				

Potting Adhesive

▶ ABTek U3-061 Series



FEATURES & BENEFITS

Thermal Conductivity: 0.6W/m · k | Flame Rating UL/94 V0 | Electrical insulation property



APPLICATIONS

Battery pack potting | Power potting | Automotive electronics



ORDERING INFORMATION

ABTek U3-061 part A 25 kg/barrel, part B 20 kg/barrel, or customized packaging

Storage Requirement

Store at room temperature 5-35°C
6 months from date of manufacture.



ABTek U3-061 is a two-component polyurethane thermal conductivity potting adhesive. It has excellent aging resistance and chemical resistance after curing at room temperature. It can meet the thermal conductivity requirements in the field of electrical/electronic potting and casting, while maintaining the stress characteristics of polyurethane elastomers.

U3-061 TYPICAL PROPERTIES (Precure)

Item	Unit	Test Standard	Value
Part A Appearance	/	Visual	Black viscous liquid
Part B Appearance	/	Visual	Colorless to light yellow liquid
Part A/B Viscosity	cps	ABTek Test Method	5000/80
Part A/B Density	g/cm ³	GB6750-86	1.55/1.20
Initial Viscosity	cps	ABTek Test Method	1000
Operation time	min	ABTek Test Method	30

(After curing) Condition of cure: 24hrs/RT+ 4hrs/60°C

Item	Unit	Test Standard	Value
Hardness	shore A	ASTM D2240	75
Thermal conductivity	W/m · K	ASTM D5470	0.65
Tensile strength	MPa	ASTM D412	3.1
Elongation at break	%	ASTM D412	30
Dielectric strength	kV/mm	ASTM D149	22
Moisture rate	%	Abtek Test Method	<0.1
Density	g/cm ³	ASTM D792	1.45
Flame Rating	/	UL94	V0

Potting Adhesive

▶ ABTek U3-101 Series



FEATURES & BENEFITS

Thermal Conductivity: 1.0W/m · k | Flame Rating UL/94 V0 | Electrical insulation property



APPLICATIONS

Battery pack potting | Power potting | Automotive electronics



ORDERING INFORMATION

ABTek U3-101 part A 25 kg/barrel, part B 20 kg/barrel, or customized packaging

Storage Requirement

Store at room temperature 20-25°C, 50%RH

It can be stored between -5°C and 30°C for 6 months.



ABTek U3-101 is a two-component polyurethane thermal conductivity potting-sealant with excellent aging and chemical resistance after curing at room temperature, which can meet the thermal conductivity requirements of the electrical/electronic potting-sealing field while maintaining the stress characteristics of polyurethane elastomers.

U3-101 TYPICAL PROPERTIES (Precure)

Item	Unit	Test Standard	Value
Part A Appearance	/	Visual	Black viscous liquid
Part B Appearance	/	Visual	Colorless to light yellow liquid
Part A/B Viscosity	cps	ABTek Test Method	15000/70
Part A/B Density	g/cm ³	GB6750-86	1.65/1.22
Initial Viscosity	cps	ABTek Test Method	5000
Operation time	min	ABTek Test Method	15

(After curing) Condition of cure: RT/7d

Item	Unit	Test Standard	Value
Hardness	shore A	ASTM D2240	95
Thermal conductivity	W/m · K	ASTM D5470	1.0
Tensile strength	MPa	ASTM D412	3.5
Elongation at break	%	ASTM D412	100
Dielectric strength	kV/mm	ASTM D149	22
Moisture rate	%	ABTek Test Method	<0.1
Density	g/cm ³	ASTM D792	1.63
Flame Rating	/	UL94	V0

Potting Adhesive

▶ ABTek U3-032 Series



FEATURES & BENEFITS

Excellent mechanical properties | Low viscosity | Electrical insulation property | Completely solid, no volatile solvent | Flame Rating UL/94 V0 | Thermal Conductivity: 0.2W/m · k



APPLICATIONS

Battery pack potting | Power potting | Automotive electronics



ORDERING INFORMATION

ABTek U3-032 part A 25 kg/barrel, part B 20 kg/barrel, or customized packaging

Storage Requirement

Store at room temperature 5-35°C, 50%RH
It can be stored between -5°C and 30°C for 6 months.



ABTek U3-032 is a two-component polyurethane thermal potting adhesive, which has excellent aging resistance and chemical resistance after curing at room temperature, and can meet the requirements of thermal conductivity in the field of electrical/electronic potting.

U3-032 TYPICAL PROPERTIES (Precure)

Item	Unit	Test Standard	Value
Part A Appearance	/	Visual	Black viscous liquid
Part B Appearance	/	Visual	Amber liquid
Part A/B Viscosity	cps	ABTek Test Method	600/80
Part A/B Density	g/cm ³	GB6750-86	0.98/1.20
Initial Viscosity	cps	ABTek Test Method	200
Operation time	min	ABTek Test Method	40

(After curing) Condition of cure: 4hrs/60°C+16hrs/RT

Item	Unit	Test Standard	Value
Hardness	shore A	ASTM D2240	50
Thermal conductivity	W/m · K	ASTM D5470	0.20
Tensile strength	MPa	ASTM D412	1
Elongation at break	%	ASTM D412	45
Dielectric strength	kV/mm	ASTM D149	20
Moisture rate	%	ABTek Test Method	<0.1
Density	g/cm ³	ASTM D792	1.10
Flame Rating	/	UL94	V0

Conformal Coatings

▶ ABTek S7-015 Series



FEATURES & BENEFITS

Room temperature curing - moisture curing, dealcoholized type | Low viscosity, low odor | UV fluorescence assisted QA inspection | Completely solid, no volatile solvent



APPLICATIONS

Moisture-proof coating of circuit board surface | Insulation and moisture-proof treatment of components | Shallow potting of electrical modules



ORDERING INFORMATION

310mL packaging, or customized packaging

Storage Requirement

Store in dry environment and under 30°C away from light.
9 months from date of manufacture.



ABTek S7-015 is a single component silicone coating, used to protect circuit boards and related equipment from environmental erosion, moisture, corrosion and salt spray to improve and extend their service life, to ensure the safety and reliability of use.

ABTek S7-015 coating cures at room temperature.

S7-015 TYPICAL PROPERTIES (Precure)

Item	Unit	Test Standard	Value
Appearance	/	Visual	Pale yellow translucent liquid
Viscosity	mPa.s	ABTek Test Method	1200
Surface drying time	min	GB/T 13477-2002	22


(After curing) Condition of cure: 23°C/50%RH/7d

Item	Unit	Test Standard	Value
Hardness	shore A	ASTM D2240	19
Elongation at break	%	ASTM D412	90
Flexibility	/	ASTM D522	No cracking of paint film
Dielectric Strength	kV/mm	ASTM D149	19
Volume resistivity	Ω -cm @ 25°C	ASTM D257	1.00E+14

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 **Summit Die-cutting (Dongguan) Co.,Ltd.**
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