SPEED SPREAD

速传电子材料有限公司

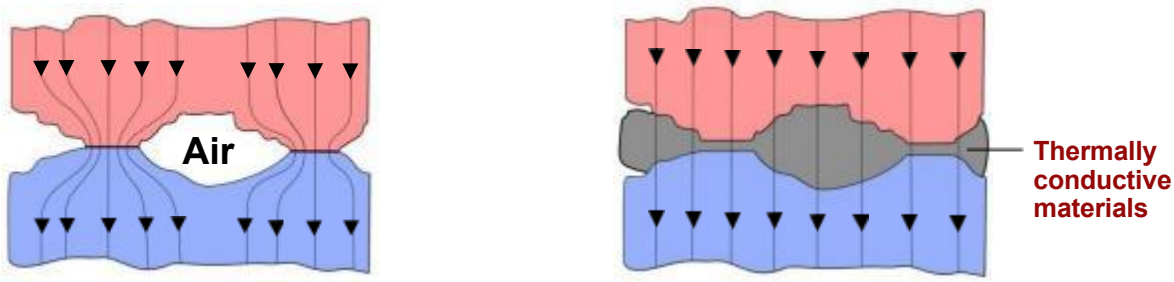
Speed Spread Electronic Materials Co., Ltd

Engineering Products Introduction

TIM Brief
Thermal Interface Materials Brief

Thermal Conductive Theory

The heat of the heating element can be effectively and quickly discharged, avoiding the temperature of the heating component being too high, which may cause a decrease in working efficiency or damage.



Before Use　　After Use

Thermal Conductivity K

The ratio of heat to time when the temperature difference is 1 (K or °C) through unit area and unit thickness. Thermal conductivity is a physical quantity that describes the heat transfer ability of a material. It is an inherent property of homogeneous materials and has nothing to do with the size and shape of the material.

$$K \quad \frac{*dx}{A*dt}$$

Thermal Resistance R

The amount of resistance to heat transfer through an interface or a material, a property that is related to thickness and area.

R contact: thermal contact resistance

$$R \quad \frac{X_{(\text{厚度})}^{\text{thickness}}}{K} \quad R_{\text{contact}}$$

All components that need to dissipate heat may use thermal interface materials.

New Energy Power & Charging Stations

Server

Communication base station

Notebook computer

TV Display Screen

Mobile Terminal

Medical Products

Solar Panel

LED

Product List

Thermal Interface Materials Brief

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Graphite, Conductive Foam, Thermal Insulation Aerogel, Double-sided Tape, etc.

SC-TP

Thermal Insulation Pad

Introduction

Thermally conductive silicone has high softness, good compressibility, strong self-adhesion and excellent filling performance.

Property

Thermal conductivity of 1.5-15.0 W/m-k, can be dispersed on uneven surfaces, no deformation, strong self-adhesion, low thermal impedance, fireproof and good insulation

Application

- Automotive lithium battery cooling device
- LED lighting equipment
- Power conversion equipment
- Power supply conversion equipment
- Automotive engine control unit
- Vibration damping application

Product Name	SC-TP150	SC-TP200	SC-TP300	SC-TP400	SC-TP500	SC-TP600	SC-TP800	SC-TP1000	SC-TP1200	SC-TP1500
Color	Light Blue	Off-White	Light Green	Purple	Yellow	Pink	Light Grey	Light Grey	Light Grey	Light Grey
Thermal Conductivity W/m·K	1.2	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0
Thickness mm	0.15 ~ 10	0.2 ~ 10	0.25 ~ 10	0.3 ~ 10	0.5 ~ 10	0.5 ~ 10	0.5 ~ 10	0.5 ~ 10	0.5 ~ 10	0.5 ~ 10
Hardness	40	40	45	45	50	50	55	55	55	55
Density g/cm^3	1.75	2.5	2.98	3.1	3.2	3.26	3.36	3.3	3.3	3.3
Breakdown Voltage KV (>1mm)	>6	>6	>5	>5	>5	>5	>6	>5	>5	>5
Dielectric Constant@ 1Mhz	5.3	7.0	7.3	7.5	7.4	7.9	7.2	7.0	7.0	7.0
Volume Resistivity Ω·cm	10^{12}	10^{13}	10^{13}	10^{13}	10^{10}	10^{12}	10^{12}	10^{12}	10^{12}	10^{12}
Temperature Range ℃	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150
Flame Rating	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0

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SC-TCF
Carbon Fiber Thermal Conductive Pad

Introduction

SC-TCF is a new lightweight, high-strength directional thermal pad with ultra-high thermal conductivity and ultra-low thermal resistance. By using an advanced arrangement technology, the thermal conductive filling material is evenly and vertically distributed in the matrix of high thermal conductivity molecules, which can greatly improve the heat transfer efficiency. At the same time, the low filling ratio makes the material have good mechanical properties and excellent thermal stability, and is widely used in the electronic field with high requirements for heat dissipation. This high thermal conductive filling itself is fibrous and can be designed with thermal orientation, which is the biggest difference and advantage from previous thermal conductive materials.

Property

- Thermal conductivity 20~35 W/m·k
- Ultra-low thermal impedance, low filling ratio, lightweight
- Zero oil seepage, excellent reliability
- Safe and environmentally friendly, RoHS compatible
- Corrosion resistant, anti-oxidation

Application

Product Application:

- Satellites, radars
- Large servers
- Data processing centers
- Signal converters
- Mass storage devices
- High-power devices
- Electronic communication equipment

Product Name	SC-TCF2000	SC-TCF2500	SC-TCF3000	SC-TCF3500
Color	Black	Black	Black	Black
Standard Dimensions (mm)	100*100	100*100	100*100	100*100
Thickness (mm)	0.5 to 5.0	0.5 to 5.0	0.5 to 5.0	0.5 to 5.0
Thermal Conductivity (W/m-k)	20.00	25.00	30.00	35.00
Hardness (Shore00)	55±5	55±5	55±5	55±5
Density g/cm³	2.5±0.2	2.5±0.2	2.5±0.2	2.5±0.2
Breakdown Voltage KV (>1mm)	< 0.5	< 0.5	< 0.5	< 0.5
Flame Rating	V-0	V-0	V-0	V-0
Temperature Range ℃	-40 to 150	-40 to 150	-40 to 150	-40 to 150
Thermal Resistance @50psi@1mm(℃-cm2/W)	≤0.11	≤0.11	≤0.11	≤0.11

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SC-TFC

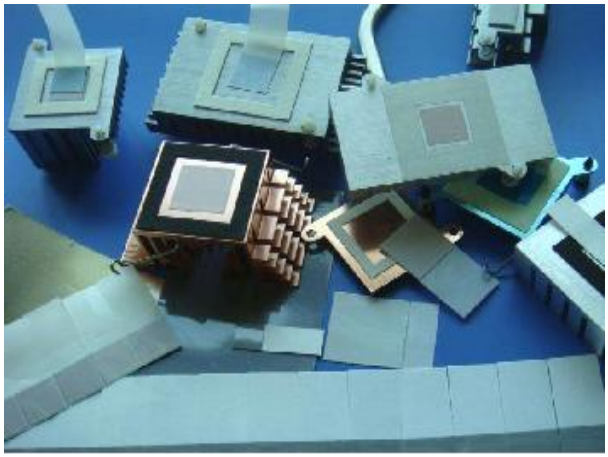
Thermal Conductive Phase Change Material

Introduction

Thermally conductive phase change materials are often used to fill the gaps between high-efficiency processors and heat dissipation modules to provide extremely low thermal resistance. This material undergoes a phase change at 50-52°C, has a certain fluidity but does not overflow, can fully fill gaps, thoroughly wet the contact surface, and improve the heat transfer capacity between the heating part and the heat dissipation part. Thermally conductive pads have inherent adhesive properties, do not require an adhesive layer, and cover the microscopic uneven surface so that the mating parts are fully in contact and improve the heat transfer efficiency.

Property

- Very low thermal resistance
- High adhesive surface for easy use
- RoHS compliant



Application

- Desktops, laptops and servers
- Microprocessors
- Chips and chipsets
- NB cooling modules
- Graphics cards
- Storage modules

Color	Pink	Yellow	Grey	Grey	Grey	Grey
Thermal Conductivity W/m·K	1.0±0.3	2.0±0.3	3.0±0.3	5.0±0.3	6.0±0.3	8.0±0.3
Thickness mm	0.1 ~ 1.0	0.1 ~ 1.0	0.1 ~ 1.0	0.1 ~ 0.5	0.1 ~ 0.5	0.1 ~ 0.5
Change Temperature ℃	55 ~ 60	55 ~ 60	45 ~ 55	45 ~ 55	45 ~ 55	45
Density g/cm	2.3	2.7	3.15	2.8	2.8	2.8
Thermal Impedance 50psi(℃-cm2/W)	<0.22	<0.18	<0.14	< 0.07	< 0.06	< 0.05
Dielectric Coefficient MHz	3.1	3.1	3.1	3.1	3.1	3.1
Volume Resistivity Ω·cm	4.0x 10^{13}	4.0x 10^{13}	4.0x 10^{13}	2.0x 10^{13}	2.0x 10^{13}	2.0x 10^{13}
Temperature Range ℃	-20~120	-20~120	-20~120	-20~120	-20~120	-20~150

SC-TS
Thermal Insulation Mud

Introduction

As a medium for transferring heat, FG thermal conductive mud has excellent thermal conductivity, good lubricity and electrical insulation, as well as good resistance to high and low temperatures. It has low viscosity and good construction performance. This product is based on polysiloxane and supplemented with high thermal conductive fillers. It is non-toxic, odorless and non-corrosive. It complies with R O H S directives and related environmental protection requirements, and has stable chemical and physical properties.

Property

- Strong plasticity, easy to use
- Thoroughly wet the contact surface to improve heat dissipation effect
- Safe and environmentally friendly, RoHS compliant

Application

- Computer processors CPUs
- Chips and chipsets Power supplies and UPS
- Graphics cards LCD and PDP Flat panel displays
- Massive storage devices
- Computer cooling fans

Product Configuration & Storage

1 kg/can, 2 kg/can, 10 kg/drum; 30 cc syringe.
Store in a cool and dry place. Shelf life 12 months.

Color	**Off-White**	**Off-White**	**Off-White**
Thermal Conductivity W/m·K	**1.0±0.3**	**2.0±0.3**	**3.0±0.3**
Density g/cm	**1.75**	**2.3**	**2.98**
Breakdown Voltage KV (>1mm)	**4**	**4**	**4**
Volume Resistivity Ω·cm	**4.0x 10^{13}**	**4.0x 10^{13}**	**4.0x 10^{13}**
Temperature Range	**-40~150**	**-40~150**	**-40~150**
Flame Rating	**94V-0**	**94V-0**	**94V-0**
Packaging	**Filling**	**Filling**	**Filling**

SC-TG

Thermal Paste

Introduction

As a medium for transferring heat, TG thermal paste has excellent thermal conductivity, good lubricity and electrical insulation, as well as good high and low temperature resistance; it has low viscosity and good construction performance. This product is based on polysiloxane and supplemented with high thermal conductivity fillers. It is non-toxic, odorless and non-corrosive, complies with the R O H S directive and related environmental protection requirements, and has stable chemical and physical properties.

Property

- Thermal conductivity 1.0~6.0 W/m·k
- Extremely low thermal resistance, better heat transfer
- Thoroughly wet the contact surface to improve heat dissipation effect
- Safe and environmentally friendly, RoHS compliant

Application

- Computer processors CPUs
- Chips and chipsets
- Power supplies and UPS
- Graphics cards
- LCD and PDP flat panel displays
- Massive storage devices
- Computer cooling fans

Product Configuration & Storage

1 kg/can, 2 kg/can, 10 kg/drum; 30 cc syringe.

Store in a cool, dry place. Shelf life 12 months.

Color	White	Off-White	Grey	Grey	Grey	Grey
Thermal Conductivity	1.0±0.3	2.0±0.3	3.0±0.3	4.0±0.3	5.0±0.3	6.0±0.3
Evaporation	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Density g/cm	2.2	2.5	2.78	3.15	3.15	3.15
Thermal Impedance 50psi(℃-cm2/W)	0.256	0.212	0.221	0.256	0.08	0.08
Breakdown Voltage KV (>1mm)	5	5	5	5	5	5
Temperature Range ℃	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150

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SC-TIS

Thermal Insulation Grease

Introduction

TIS is a two-component, high thermal conductivity, room temperature curable, long working time, fire retardant silicone potting compound. It is particularly suitable for potting capacitors and small electronic devices. Its flexibility and elasticity enable it to provide a buffer for the coated material. The lower viscosity allows the thermally conductive potting compound to more fully cover the surface during the period, greatly improving the efficiency of heat conduction from the heating device or the entire PCB to the metal housing or diffusion plate, thereby improving the efficiency and service life of electronic components.

Property

- Good insulation
- Low viscosity, conducive to gas discharge
- Good solvent resistance and waterproof performance
- Excellent high and low temperature resistance

Application

- Power supply, connector, sensor, industrial control, transformer, coil, amplifier, high voltage package, relay, high current junction box, etc.
- Assembly of heat sink, potting of thermal sensor, potting of thermal conductive products
- Heat conduction between battery cell and cooling tube
- LED and power driver potting

Product name	SC-TIS15AB	SC-TIS20AB	SC-TIS30AB	SC-TIS40AB
Color	White	White	White	White
Thermal Conductivity W/m·K	1.2	2.0	3.0	4.0
Thickness mm	0.15 ~ 5	0.2 ~ 5	0.25 ~ 5	0.3 ~ 5
Hardness Shore A	40	40	50	50
Density g/cm^3	1.75	2.5	2.98	3.1
Breakdown Voltage KV (>1mm)	>6	>6	>5	>5
Dielectric Constant @1Mhz	5.3	7.0	7.3	7.5
Volume Resistivity Ω·cm	10^{12}	10^{13}	10^{13}	10^{13}
Temperature Range ℃	-40~150	-40~150	-40~150	-40~150
Flame Rating	94V-0	94V-0	94V-0	94V-0

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SC-TA

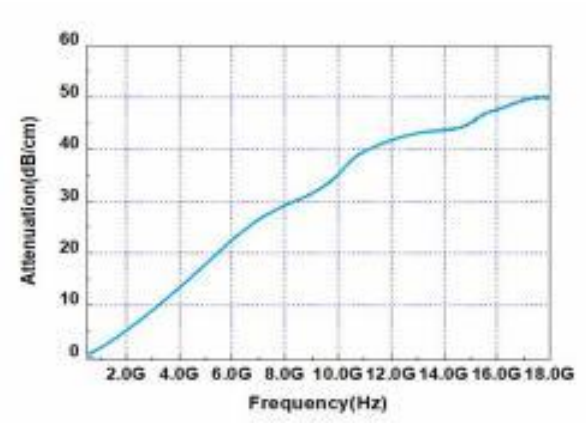
Thermal Conductive Wave Absorbing Material

Introduction

SC-TAxxx thermal conductive absorber patches have good thermal conductivity, can absorb electromagnetic waves, have shielding effect and insulation withstand voltage characteristics. Low interface thermal resistance can be achieved at relatively low pressure. Air can be effectively excluded to achieve a good filling effect. It can be directly applied between the heat sink and the metal shell to effectively export heat energy. At the same time, it has electromagnetic shielding and electromagnetic clutter absorption performance, providing a good solution for electronic products in thermal conductivity and electromagnetic shielding.

Property

- High thermal conductivity, low thermal resistance
- Good insulation and withstand voltage characteristics
- Excellent electromagnetic wave attenuation ability, good surface compatibility
- Good resilience, good self-adhesion
- High long-term reliability



Application

- 5G base stations
- UAV/drone
- Optical modules, amplifiers
- Laptops, routers, TVs
- Medical equipment, electronic diagnostic instruments

Characteristics	SC-TA300	Unit	Test Method
Color	Dark Grey	-	Visual
Thickness	0.5~3.0	mm	ASTM D374
Hardness	50	Shore 00	ASTM D2240
Density	3.1	g/cm^3	ASTM D792
Temperature Range	-45~150	℃	N/A
Attenuation Rate	30	dB/cm	@8Ghz
	45	dB/cm	@15Ghz
Breakdown Voltage	>6	kv	ASTM D149
Surface Resistance	10^{10}	Ω	ASTM D2574
Thermal Conductivity	3.0	W/mk	ASTM C518-98

SC-NTP

PMMA Thermal Pad Silicone-free oil

Introduction

NTP non-silicone thermal pads are acrylic materials with excellent properties of strong self-adhesion, no oil leakage and corrosion resistance. Different from conventional thermal pads, non-silicone thermal pads have excellent mechanical strength, toughness and wear resistance. They are suitable for use in special environments such as high-voltage and high-impact lithium batteries. In the use of lithium batteries, non-silicone thermal pads can effectively prevent the dissolution of electrolytes, so they are widely used in the lithium battery industry.

Property

- No oily stains, avoid oil pollution
- Unique properties of acrylic acid, strong adhesion, no need for adhesive
- Safe and environmentally friendly, RoHS compliant

Application

- Computer processors CPUs
- Chips and chipsets
- Power supplies and UPS
- Graphics cards
- LCD and PDP flat panel displays
- Massive storage devices
- Computer cooling fans

Product name	SC-NTP150	SC-NTP200	SC-NTP300	SC-NTP400	SC-NTP500	SC-NTP600
Color	White	White	White	White	White	White
Thermal ConductivityW/m·K	1.2	2.0	3.0	4.0	5.0	6.0
Thickness mm	0.15 ~ 5	0.2 ~ 5	0.25 ~ 5	0.3 ~ 5	0.5 ~ 5	0.5 ~ 5
Hardness Shore00	65	65	65	65	65	65
Density g/cm^3	1.75	2.5	2.98	3.1	3.2	3.26
Breakdown Voltage KV (>1mm)	>6	>6	>5	>5	>5	>5
Dielectric Constant @1Mhz	5.3	7.0	7.3	7.5	7.4	7.9
Volume Resistivity Ω·cm	10^{12}	10^{13}	10^{13}	10^{13}	10^{10}	10^{12}
Temperature Range ℃	-40~150	-40~150	-40~150	-40~150	-40~150	-40~1
Flame Retardant Grade	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0

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SC-CH

Thermal Ceramic Heatsink

Introduction

H.SAC ceramic material has the characteristics of good insulation, high thermal conductivity, high infrared radiation rate and low expansion coefficient. It can become a new material for heat dissipation of LED lighting and network communication products.
H.SAC can withstand large current, high voltage, leakage breakdown, no noise, and will not produce coupling parasitic capacitance with MOS and other power tubes, thus simplifying the filtering process; the required creepage distance is shorter than that required by the financial body, which further saves board space and is more conducive to engineers' design and electrical certification; H.SAC has multi-directional heat dissipation and is suitable for IC packaging with multi-directional heat dissipation;
H.SAC material is small in size, light in weight, does not occupy space, and is more conducive to the reasonable layout of product design;
H.SAC has good heat dissipation and heat transfer performance, which can effectively solve the heat dissipation problem of electronic products and power components and extend the service life of products.

Property

As a green and environmentally friendly material, the product is mainly used in LED lighting and related electronic industries. H.SAC ceramic products can effectively solve the thermal conductivity and heat dissipation problems in the electronics and optoelectronics industries, and provide technical support and breakthroughs for the innovation and development of electronic products.

Application

- Components: ICs, chipsets, CPU, MOS, SouthBridge
- LED: General (commercial) lighting heat sink
- TV: Thin LCD TV/Set-top box
- Network equipment: AP, Route, ADSL, Modern, S/W
- Information technology:M/B, NB, Video, Card
- Memory: DDR3-DIMM, SO-DIMM, SSD
- Power supply: Power module, Power transistor

Size

Product size: Various shapes

SC-CH

Thermal Ceramic Heatsink

Thermal Ceramic Heatsink			

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SC-CH

Thermal Ceramic Heatsink

Spec Items		Unit	Data	Test
Physical Properties	Density S.G.	g/cm^3	2.0 ±0.05	GB/T 3810.3-2006
	Porosity	%	30	GB/T 3810.3-2006
Mechanical Properties	Mohs Hardness	Mohs	5~6	DIN EN101-1992
	Flexural Strength	MPa	87.82	GB/T 14389-14390
	Thermal Conductivity	w/m-k	>9	HOT DISK
	Max. Operating Temp.	℃	< 700	
Chemical Composition	SiC	Purity	>99%	
Various certifications	Dielectric Strength (DC)	Voltage	6.96kV/mm	IEC 60243-2:2001 SGS
	Dielectric Strength (AC)	Voltage	4.87kV/mm	ASTM D149-09 Method A / SGS
	RoHS		PASS (Report No. : GC130301375-GZ)	SGS
	Drop Test		PASS (Report No. : GZRL2012081591)	Drop high 700mm on 30×30mm PCB / SGS

SC-STG/DTG

Thermal Conductive Gel

Introduction

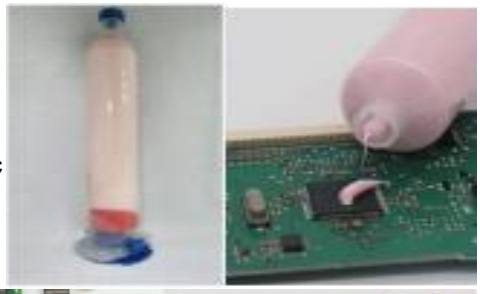
• SC-STG/DTG series thermal conductive gel is a paste-like gap-filling thermal conductive material. It is formed according to the shape of the structure; for uneven ceramic, radiator surface or irregular cavity, it has the best structural applicability and surface conformity of structural parts, and the gap is fully filled

• SC-STG/DTG series thermal conductive gel has good insulation and voltage resistance and thermal stability, and is safe and reliable to use

• SC-STG/DTG series thermal conductive gel can flow under pressure like silicone grease; it has high reliability under the action of thermal cycle and will not solidify

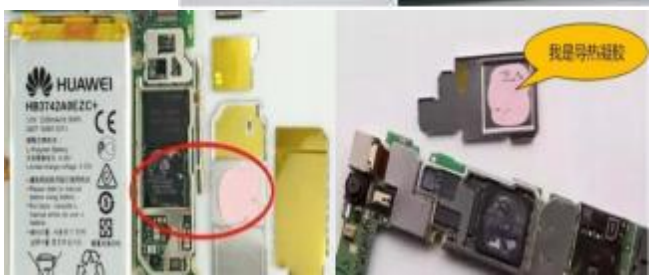
Property

- Single component use
- No curing, high reliability
- Good application effect in irregular structure gaps
- Good electrical insulation, meeting the needs of electronic devices
- Good mechanical properties and weather resistance



Application

- Communication equipment
- Storage equipment
- Mobile phones, smart watches
- Security equipment
- Network terminal
- LED lamps
- Power supply device



One-Component Thermally Conductive Gel (SC-STG) Performance			
Product Name	**SC-STG400**	**SC-STG600**	**SC-STG800**
Color	**Vermillion**	**Yellow**	**Yellow**
Thermal Conductivity (W/m·K)	**4.0±0.3**	**6.0±0.3**	**8.0±0.3**
Density (g/cm^3)	**3.0**	**3.2**	**3.3**
Extrusion Volume (g/min) 2.54mm syringe head, 90psi pressure (30cc can)	**30±5**	**20±5**	**20±5**
Breakdown Strength (kV/mm)	**>5**	**>5**	**>5**
Volume Resistivity (Ω·cm)	**9.5x 10^{13}**	**4x 10^{13}**	**4x 10^{13}**
Operating Temperature (F/℃)	**-40~150**	**-40~150**	**-40~150**
Shipping Method	**Syringe packaging (or canning) volume: 30cc /pc, 300cc /pc, 2600cc /pc**		
Shelf Life (@25±5℃, 70%RH)	**6 months**		

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SC-DTG
Thermal Conductive Gel

Two-Component Thermal Conductive Gel （SC-DTG） Performance				
	SC-DTG180		SC-DTG350	
Pre-mixing Performance	**A Group**	**B Group**	**A Group**	**B Group**
Color	**White**	**Yellow**	**White**	**Yellow**
Viscosity (mPa• s)	**250*10³**	**250*10³**	**200*10³**	**200*10³**
Density (g/cm³)	**2.65**	**2.65**	**2.75**	**2.75**
Mixing Ratio	**1:1**		**1:1**	
Post-mixing Performance				
Color	**Yellow**		**Yellow**	
Hardness （Shore OO）	**60(1:1after curing)**		**60(1:1 after curing)**	
Thermal Conductivity （W/mK）	**1.8**		**3.5**	
Breakdown Strength （KV/mm）	**>5**		**>5**	
Flame Retardant Grade	**UL94 V-0**		**UL94 V-0**	
Operating Temperature （℃）	**-40-150**		**-40-150**	
Full Curing Time				
25℃ （H）	**5**		**15**	
100℃(min)	**15**		**40**	

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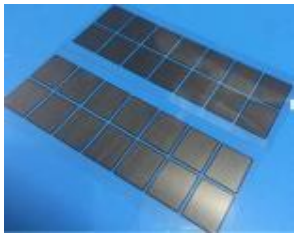
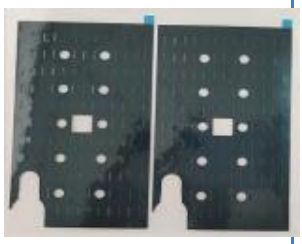
Precision Die - Cutting

Professional small hole combination die cutting line, products that meet multiple punching requirements

CNC proofing machine, no need to make molds, saving mold costs for customers



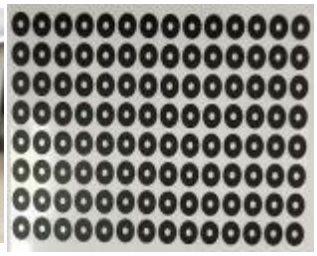
Graphite double edge die cutting



Graphite foam die cutting

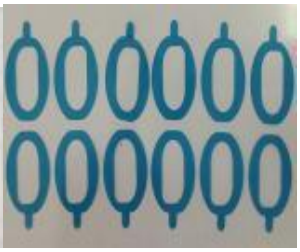
Copper foil and aluminum foil die cutting

Thermal pad die cutting

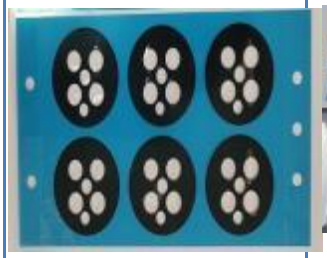


PC gasket die cutting

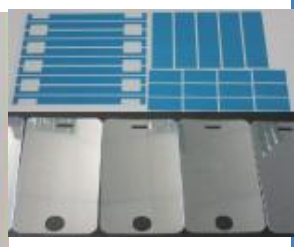
Insulation material die cutting



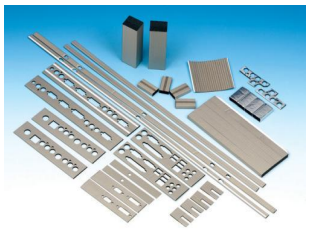
Double-sided adhesive die cutting



Camera backing adhesive die cutting



Protective film die cutting



Conductive foam

The above content and technical information are based on the experimental results of our company, but they are not used as legal interpretation or guarantee. Before use, users need to evaluate the application purpose and scope of the product.

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