



SPEED SPREAD Electronic Materials Co., Ltd.

APPLICATION FOR POWER SEMICONDUCTOR

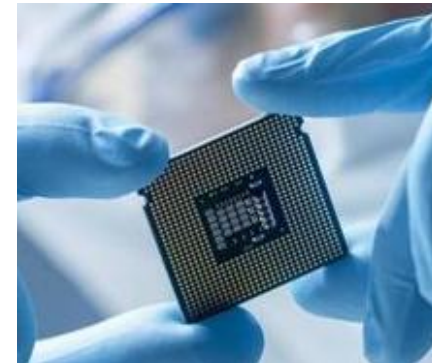
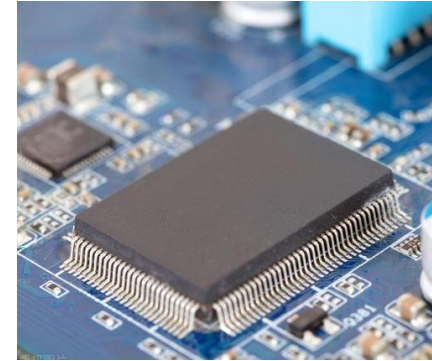


COMPANY PROFILE

The company is located in Qiaotou Town, Dongguan City, Guangdong Province, China and has 10000 square courtyard in the workshop, obtain qualification certificates: ISO9001, ISO140001, IATF16949, UL, high-tech enterprises. We have a professional R&D team to meet the diverse needs of customers, as well as professional instruments including materials/thermal/electrical properties/reliability testing equipments to ensure product quality.

Power Semiconductors Introduction

Characteristic	Semiconductor	Power Semiconductor
Working Conditions	Low Voltage , Low Current	High Voltage , High Current
Design Goal	High Computing Speed High Integration	Low Conduction Loss, High Voltage Resistance, High Temperature Resistance
Wastage	Switch Wastage	Conduction Wastage Switching Wastage
Heat Dissipation Requirements	Lower	Extremely High (Requiring Thermal Insulation Pad)
Typical Applications	Mobile Phones, Computers, Communication Chips	Electric Vehicles, Photovoltaic Inverters, Industrial Motors



Power Semiconductor Application Scenario



Photovoltaic



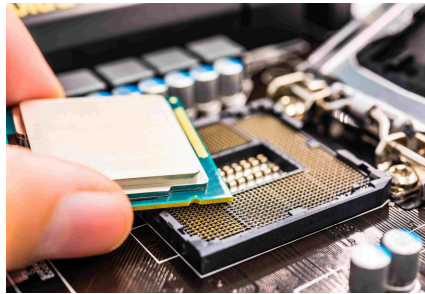
Power Grid



Energy Battery



Radiator



Chipset



LED Floodlight

Power Semiconductor Application Scenario



Photovoltaic



Thermal Insulation Grease



Power Grid



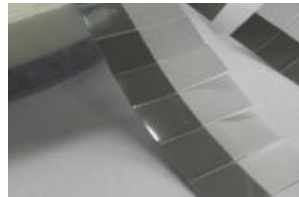
Carbon Fiber Materials



Energy Battery



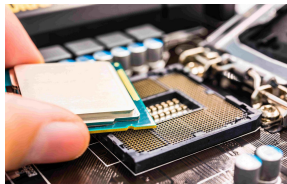
Thermal Conductive Phase Change Material



Power Semiconductor Application Scenario



Radiator



Chipset



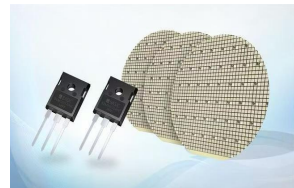
LED Floodlight



Thermal Insulation Pad



Thermal Insulation Pad



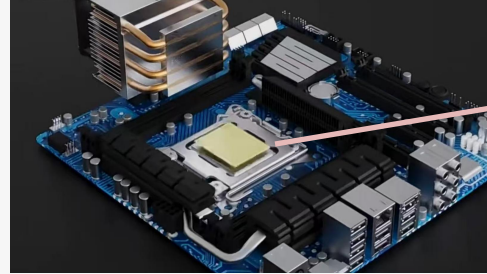
Thermal Paste



Power Semiconductor vs Thermal Silicone Materials

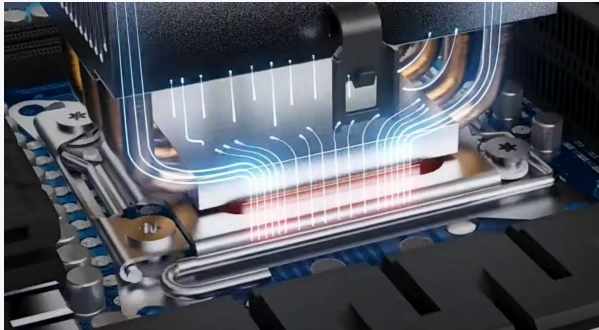


Power Semiconductor



Thermal Insulation Pad

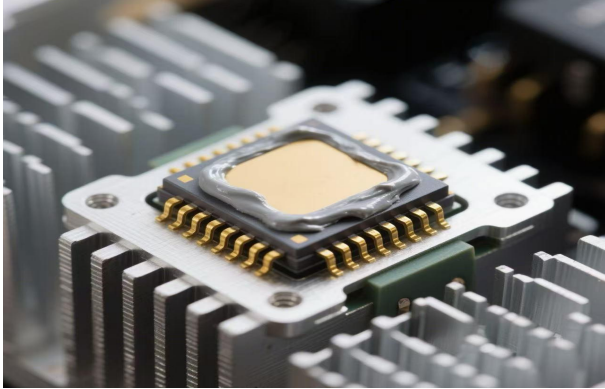
Heat conducting silicone gel sheet can be applied between semiconductor and radiator or shell



Excellent thermal conductivity, effectively reduce the interfacial thermal resistance



Thermal Paste (SC-TG)



Thermal Paste	
Feature	Fill small gaps, Soft and Easy to apply, Thermal Conductivity of 1~6 W/m·K
Advantage	Convenient Construction, Low Cost, Suitable for Interface Filling
Application	Small Power Devices or temporary solutions

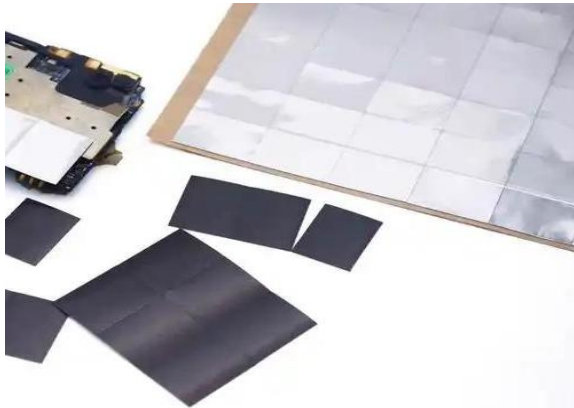
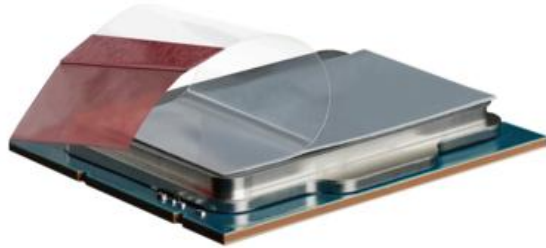
Thermal Insulation Pad (SC-TP)



Thermal Insulation Pad

Feature	Good Insulation Properties, Pre formed soft gasket with a Thermal Conductivity of 1~15 W/m·K
Advantage	No need for curing, Anti vibration, Suitable for irregular surfaces
Application	Low to medium power devices or scenarios that require insulation

Phase Change Material (SC-TFC)



Phase Change Material	
Feature	Solid state at room temperature, Melting and filling gaps at high temperature, Thermal Conductivity of 1~8 W/m·K
Advantage	Combining the advantages of silicone Thermal Grease and Thermal Insulation Pad
Application	High reliability requirements

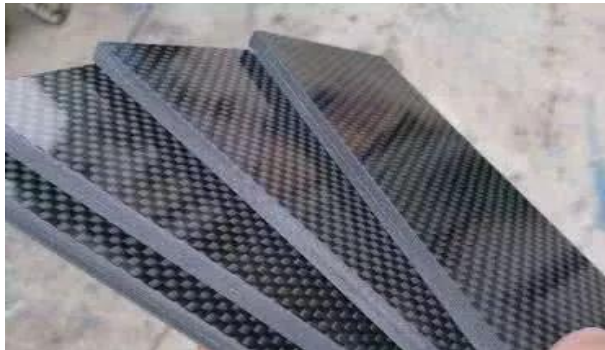
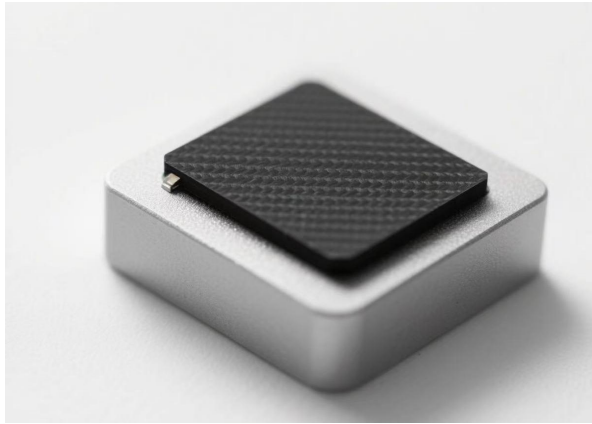
Thermal Insulation Grease (SC-TIS)



Thermal Insulation Grease

Feature	Electrical insulation, Thermal Conductivity, Chemical Stability Thermal Conductivity of $1\sim 3\text{W/m}\cdot\text{K}$
Advantage	Reliability Improvement, Heat Dissipation Optimization, Lightweight Design
Application	New Energy Vehicles, Wind Power Converters, Industrial Drives

Carbon Fiber Materials (SC-TCF)



Carbon Fiber Materials

Feature	High Thermal Conductivity, High Temperature Resistance, Low Density Thermal Conductivity of $1\sim 35\text{W/m}\cdot\text{K}$
Advantage	Excellent flexibility and adhesion, Weather resistance and stability, Easy installation
Application	IGBT/SiC Module Heat Dissipation, High-Frequency Communication Equipment (5G Base Station), Industrial Frequency Converter

Thank You!

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