Highly Functional Silicone for Automotive

Shin-Etsu Silicone

Silicone for EV

- Thermal Interface materials
- Case Sealants
- Substrate Coating Materials
- Epoxy Resin Delamination Countermeasure Materials
- Die Bonding Material for Sensors
- Sensor Element Protective Materials
- Insulating Protective Materials
- LOCA
- OCA

Highly Reliable Silicone Rubbers

- Highly Transparent Materials for Head Lamp Lenses
- Waterproof Sealants, Various Sealing Materials
- Resin and Metal Composite Parts
- Anti-vibration Parts
- General Automotive Parts
  Energy-saving materials for manufacturing and reduced molding costs
- Gaskets, Hoses, Electrical Wire Coating Materials
- Fuel Cell Stack Cell Seal
- Battery Fire Prevention Materials, Gaskets, Wire Coating Materials
- Various Flame Retardant Materials
- High Voltage Cable Coating

Highly Functional Silicone for Resins

- Weather Strips
- Urethane Synthetic Leather Sheet
- Dashboard, Glass Channel
- Damper Material for Cup Holder and Storage Box

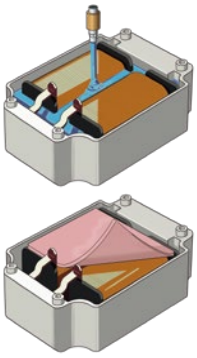
Silicone for EV

Shin-Etsu Silicone offers products that help increase the reliability of EVs in three areas: Electrification Solutions, Power Devices, and Sensing Infortainment.

Electrification Solutions

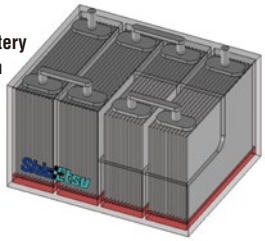
PCU/Lithium Ion Batteries

Heat dissipation of the reactor of the PCU

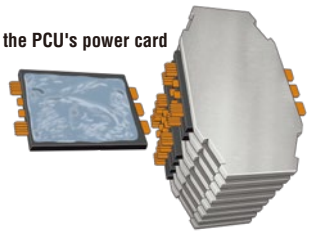


Applications	Product classification	Product name	Features and benefits
Heat dissipation	Liquid rubber	**KE-1867**	Thermal conductivity 2.2 W/m·K, UL94 V-0 certified, adhesion
		KE-1897S-A/B	Thermal conductivity 2.1 W/m·K, UL94 V-0 equivalent, flowability, potting
		KE-1899-A/B	Thermal conductivity 2.9 W/m·K, UL94 V-0 certified, flowability, potting
	Gap filler	**SDP series**	Thermal conductivity 1.0 W/m·K to 9.5 W/m·K, misalignment resistance, long-term reliability
		CLG series	
	Thermal interface insulating silicone rubber sheets	**TC-TA series**	Thermal conductivity 1.0 W/m·K to 8.0 W/m·K, high strength
	Thermal interface silicone soft pads	**TC-CA series**	Thermal conductivity 1.8 W/m·K to 5.2 W/m·K, tolerance-absorbing
		TC-PEN series	Thermal conductivity 3.2 W/m·K to 5.2 W/m·K, weight reduction
		TC-UP8 series	Thermal conductivity 8.0 W/m·K~, tolerance-absorbing
	Thermal softening sheets phase change materials	**PCS series**	Thermal conductivity 1.7 W/m·K to 3.0 W/m·K, thermal softening

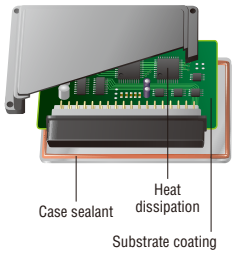
Lithium-ion battery heat dissipation



Heat dissipation of the PCU's power card



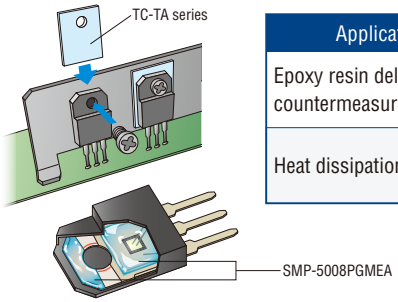
ECU



Applications	Product classification	Product name	Features and benefits
Case sealant	Liquid rubber	**KE-4930-G**	One-component moisture curing
		KE-1875	One-component heat curing
		KE-1189-A/B	Two-component room temperature curing
		M-BARRIER-02	One-component heat curing, sulfurization countermeasures
		X-32-4003	One-component heat curing, antistatic (50-200Ω-cm), high elongation 600% <
Substrate coating		**MR-COAT series**	Solvent type, high hardness
		KUV-3433-UV	Solvent-free, UV curing
		M-BARRIER-01	Sulfurization countermeasures
Heat dissipation	Gap filler	**SDP series**	Thermal conductivity 1.0 W/m·K to 9.5 W/m·K
	Thermal interface insulating silicone rubber sheets	**TC-TA series**	Thermal conductivity 1.0 W/m·K to 8.0 W/m·K, high strength
	Thermal interface silicone soft pads	**TC-CA series**	Thermal conductivity 1.8 W/m·K to 5.2 W/m·K, tolerance-absorbing

Power Devices

Epoxy Resin Parts



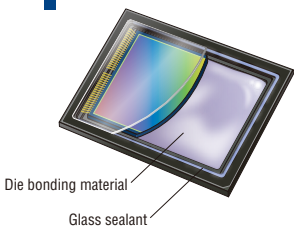
Applications	Product classification	Product name	Features and benefits
Epoxy resin delamination countermeasures	Polyimide silicone	**SMP-5008PGMEA**	Curable at 150°C, excellent adhesion to epoxy resin, low elasticity
Heat dissipation	Thermal Interface Insulating silicone rubber sheets	**TC-TA series**	Thermal conductivity 1.0 W/m·K to 8.0 W/m·K, high strength

IGBT Modules

Applications	Product classification	Product name	Features and benefits
Insulation protection	Gel	**KE-1066-A/B**	Heat resistance, cold resistance, and adhesion
Heat dissipation	Thermal interface oil compounds	**G-777**	Thermal conductivity 3.3 W/m·K, offering a balance of workability, heat resistance and thermal conductivity
	Thermal Interface Insulating silicone rubber sheets	**TC-TA series**	Thermal conductivity 1.0 W/m·K to 8.0 W/m·K, high strength

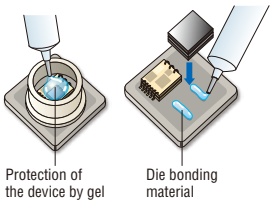
Sensing Infortainment

3D Sensor



Applications	Product classification	Product name	Features and benefits
Die-bonding material	Liquid rubber	**KER-4410**	Low cure shrinkage / UV activated cure
Glass sealing Die-bonding material		**KER-6020-F2**	Heat curing / Excellent low temperature properties
		KER-4304-3UV	UV curing
		X-32-3965BK	Heat curing, black color
Optical adhesives		**X-32-4105-2UV**	UV curing, high refractive index

Pressure Sensor



Applications	Product classification	Product name	Features and benefits
Sensor element protection	Gel	**KER-6201, FE-73-BK**	Imparting cold and oil resistance
Die bonding material	Liquid rubber	**FER-3850-D1, KER-6020-F2**	Cold resistance, oil resistance, precision coating is possible.

Display

Applications	Product classification	Product name	Features and benefits
LOCA*	Gel	**X-32-3855**	UV activated cure, one-component type, less discoloration due to heat
OCA**	Sheet	**X-32-4036**	Silicone type OCA
Heat dissipation	Thermal interface silicone soft pads	**TC-CA series**	Thermal conductivity 1.8 W/m·K to 5.2 W/m·K, tolerance absorption

* LOCA = Liquid Optical Clear Adhesive
** OCA = Optical Clear Adhesive

Excellent Characteristics Achieve Improved Reliability of Automotive Parts

Highly Reliable Silicone Rubbers

Highly Transparent Materials for Head Lamp Lenses

KE-2061 series, KE-2062 series, X-34-4368-A/B

Highly Transparent Liquid Silicone Rubber (LIMS)

Features and Benefits

- Combined with high transparency, high heat resistance, flexibility and weather resistance
- Design frexibility: Highly transparent parts with complex shapes that are difficult for polycarbonate, acrylic resin, glass, etc. can be molded
- Ideal for lenses for LED lights such as automotive headlights
- Fully automated molding is possible, resulting in excellent productivity.

Waterproof Seals for Wiring Harnesses and Various Seals

KE-2017 series, KE-2019 series

Low-volatile Liquid Silicone Rubber Eliminates Need to Post-cure

Features and Benefits

- Reduces the amount of low-molecular-weight siloxane that can cause electrical contact failures.
- No post-cure is required, and the production process can be streamlined.
- Die fouling and die cleaning are reduced.
- Lineup of oil-bleed type ideal for waterproof seal of wiring harness and low compression-set type ideal for various seals

Resin Composite Parts and Metal Composite Parts

KE-2097 series, KE-2098 series

Self-adhesive Liquid Silicone Rubber (LIMS)

Features and Benefits

- Strong adhesion to various resins (i.e. polycarbonate, nylon, and PBT), and metals (i.e. SUS and iron) with no primer. Can be integrally molded with these substrates.
- Cost reduction by shortening the production process is possible.
- Environmentally friendly as there is no need for primers
- KE-2097 series is a FDA certified product.

Various anti-vibration components (i.e. powertrain support mounts)

KE-X01EM-U series, KE-55X0-U series

Millable Silicone Rubber for Anti-vibration

Features and Benefits

- Stable and excellent anti-vibration characteristics in a wide temperature range, which is difficult to achieve with organic rubber.
- Lineup of low dynamic magnification type with low frequency dependence of elastic modulus E' and high damping type with large loss factor
- Absorbing and shutting off vibrations from power trains and other devices transmitted to the vehicle body, realizing a quieter, more comfortable ride.

General Automotive Parts

KNP Series No Post-cure Silicone Rubber Compounds (HCR)

Features and Benefits

- The amount of low molecular weight (LMW) siloxane has been significantly reduced, and improved energy efficiency and reduced greenhouse gas emissions are achieved without the need for post-cure.
- Eliminating the post-cure process contributes to improved productivity and cost reduction.

Gaskets, Hoses, Electrical Wire Coating Materials

KE-186-U Highly Cold-resistant Millable Silicone Rubber (HCR)
X-30-3888-U Highly Heat-resistant Millable Silicone Rubber (HCR)

Features and Benefits

- Even at low temperatures of -100°C and high temperatures of 300°C, there is little change in physical properties and it is hard to deteriorate.
- Compared to general organic rubber, it has excellent cold and heat resistance, so it can be used in extreme temperature environments.

Fuel Cell Stack Cell Seal

X-34-1649-A/B Liquid Silicone Rubber for Cell Seals in Fuel Cell Vehicles (LIMS)

Features and Benefits

- Low compression-set provides excellent sealing properties.
- Significantly improved acid resistance through unique technology
- Compared to EPDM, it has excellent moldability and heat resistance. These properties contribute to reducing molding costs and are compatible with high cell operating temperatures.

Battery Fire Prevention Materials, Gaskets, Wire Coating Materials

KE-1735-U Fire-resistant, Low Smoke and Flame-retardant Millable Silicone Rubber (HCR)

Features and Benefits

- High Oxygen Index: Even when exposed to high temperatures, it loses little weight and sinters as hard as ceramic with almost no deformation.
- The amount of smoke generated during combustion is extremely small, and the combustion gases are extremely low in toxicity.
- Fireproof standard EN-45545-2 (R1/R7) certified product

Various Flame Retardant Materials

KE-5612E-U Flame Retardant Millable Silicone Rubber (HCR)

Features and Benefits

- Flame retardant, UL94 V-0 certified product

Flame retardant test
Left: Silicone rubber / Right: Organic rubber

High Voltage Cable Coating

KE-5641-U (High Voltage Type) / KE-5643-U (Flame-retardant Type)

High Voltage Resistant Millable Silicone Rubber (HCR)

Features and Benefits

- High dielectric breakdown strength ensures insulation performance even when the cable coating layer is thin.
- Improves cable flexibility and enables smaller diameters and lighter weight
- The dielectric breakdown strength of the high voltage type KE-5641-U is 40 kV/mm. (54% improvement over our previous model)
- The flame-retardant type KE-5643-U has flame retardancy equivalent to UL94 V-1, and its dielectric breakdown strength is 37 kV/mm (42% improvement over our previous model).

For Comfortable Driving by Enhancing the Function of the Resin

Highly Functional Silicone for Resins

Window Frames (Weather Strips), Interior Materials (Dashboards) and Glass Channels

Used as Resin Hybridization Material

X-22-2101, X-25-5010

Master Batch

Features and Benefits: Improvement of wear resistance, reduction of squeaking noise, and imparting weatherability

Weather Strips

Used as Coating Agent

KM-9749, X-52-1133

Silicone Emulsion

Features and Benefits: Imparting slip properties, water-based product

Damper Material for Cup Holder and Storage Box

Used as Damper Material

KF-96H series

Dimethyl Silicone Fluid

Features and Benefits: Stable damper function

Urethane Synthetic Leather Sheet

Used as Resin Hybridization Material

KF-6001 series, X-22-176 series

Carbinol-modified Silicone Fluid

Features and Benefits: Improvement of texture, imparting weatherability, etc.

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The Development and Manufacture of Shin-Etsu Silicones are based on the following registered international quality and environmental management standards.

Gunma Complex	ISO 9001 (JCQA-0004)	ISO 14001 (JCQA-E-0002)
Naoetsu Plant	ISO 9001 (JCQA-0018)	ISO 14001 (JCQA-E-0064)
Takefu Plant	ISO 9001 (JQA-0479)	ISO 14001 (JQA-EM0298)

https://www.shinetsusilicone-global.com/

This is an edited version of the product data released on Jan. 2025.