Highly Functional Silicone for Automotive

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

Highly Reliable Silicone Rubbers
• Highly Transparent Materials for Head Lamp Lenses
• Waterproof Sealants, Various Sealing Materials
• Resin and Metal Composite Parts
• Anti-vibration Parts

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

<table>
<thead>
<tr>
<th>Applications</th>
<th>Product classification</th>
<th>Product name</th>
<th>Features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat dissipation of the reactor of the PCU</td>
<td>Liquid rubber</td>
<td>KE-1867</td>
<td>Thermal conductivity 2.2 W/m·K, UL-V0 certified, adhesion</td>
</tr>
<tr>
<td></td>
<td>KE-1897S-A/B</td>
<td>KE-1899-A/B</td>
<td>Thermal conductivity 2.1 W/m·K, UL-V0 equivalent, flowability, potting</td>
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<tr>
<td></td>
<td>KE-1899-A/B</td>
<td></td>
<td>Thermal conductivity 2.9 W/m·K, UL-V0 certified, flowability, potting</td>
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<tr>
<td>Gap filler</td>
<td>SDP series</td>
<td></td>
<td>Thermal conductivity 1.0 W/m·K to 9.5 W/m·K, misalignment resistance, long-term reliability</td>
</tr>
<tr>
<td></td>
<td>CLG series</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal interface insulating silicone rubber sheets</td>
<td>TC-TA series</td>
<td>TC-CA series</td>
<td>Thermal conductivity 1.0 W/m·K to 8.0 W/m·K, high strength</td>
</tr>
<tr>
<td>Thermal interface silicone soft pads</td>
<td>TC-CA series</td>
<td>TC-CA series</td>
<td>Thermal conductivity 1.8 W/m·K to 5.2 W/m·K, tolerance-absorbing</td>
</tr>
<tr>
<td></td>
<td>TC-PEN series</td>
<td></td>
<td>Thermal conductivity 3.2 W/m·K to 5.2 W/m·K, weight reduction</td>
</tr>
<tr>
<td></td>
<td>TC-UP8 series</td>
<td>TC-UP8 series</td>
<td>Thermal conductivity 8.0 W/m·K, tolerance-absorbing</td>
</tr>
<tr>
<td>Thermal softening sheets phase change materials</td>
<td>PCS series</td>
<td></td>
<td>Thermal conductivity 1.7 W/m·K to 3.0 W/m·K, thermal softening</td>
</tr>
</tbody>
</table>

ECU

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<tr>
<td>Case sealant</td>
<td>Liquid rubber</td>
<td>KE-4930-G</td>
<td>One-component moisture curing</td>
</tr>
<tr>
<td></td>
<td>KE-1875</td>
<td>KE-1189-A/B</td>
<td>One-component heat curing</td>
</tr>
<tr>
<td></td>
<td>M-BARRIER-02</td>
<td></td>
<td>Two-component room temperature curing</td>
</tr>
<tr>
<td>Substrate coating</td>
<td>M-BARRIER-02</td>
<td></td>
<td>One-component heat curing, sulfurization countermeasures</td>
</tr>
<tr>
<td></td>
<td>MR-COAT series</td>
<td></td>
<td>Solvent type, high hardness</td>
</tr>
<tr>
<td></td>
<td>MR-COAT series</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>KUV-3433-UV</td>
<td></td>
<td>Solvent-free, UV curing</td>
</tr>
<tr>
<td></td>
<td>KUV-3433-UV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>Gap filler</td>
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<td>Thermal interface silicone soft pads</td>
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### Power Devices

#### Epoxy Resin Parts

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<th>Features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxy resin delamination countermeasures</td>
<td>Polymide silicone</td>
<td>SMP-5008PGMEA</td>
<td>Curable at 150°C, excellent adhesion to epoxy resin, low elasticity</td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>Thermal Interface Insulating silicone rubber sheets</td>
<td>TC-TA series</td>
<td>Thermal conductivity 1.0 W/m·K to 8.0 W/m·K, high strength</td>
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### IGBT Modules

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

#### Image Sensor

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<th>Applications</th>
<th>Product classification</th>
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<th>Features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Die bonding material</td>
<td>Gel</td>
<td>KER-4410</td>
<td>Low cure shrinkage, UV activated curing</td>
</tr>
<tr>
<td>Glass sealant and die bonding materials</td>
<td>Liquid rubber</td>
<td>KER-6020-F2</td>
<td>Heat curing, excellent low temperature characteristics</td>
</tr>
<tr>
<td>Glass sealant</td>
<td>Liquid rubber</td>
<td>KER-4304-3UV</td>
<td>UV curing</td>
</tr>
</tbody>
</table>

#### Pressure Sensor

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<th>Product name</th>
<th>Features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor element protection</td>
<td>Gel</td>
<td>KER-6201, FE-73-BK</td>
<td>Imparting cold and oil resistance</td>
</tr>
<tr>
<td>Die bonding material</td>
<td>Liquid rubber</td>
<td>FER-3850-D1, KER-6020-F2</td>
<td>Cold resistance, oil resistance, precision coating is possible</td>
</tr>
</tbody>
</table>

### Display

#### LOCA

<table>
<thead>
<tr>
<th>Applications</th>
<th>Product classification</th>
<th>Product name</th>
<th>Features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCA*</td>
<td>Gel</td>
<td>X-32-3855</td>
<td>UV activated curing, one-component type, low discoloration due to heat</td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>Thermal Interface Silicone Soft Pads</td>
<td>TC-CA series</td>
<td>Thermal conductivity 1.8 W/m·K to 5.2 W/m·K, tolerance-absorbing</td>
</tr>
</tbody>
</table>

* LOCA = Liquid 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 for LIMS

- Combined with high transparency, high heat resistance, flexibility, weather resistance and high strength
- Highly designable, 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

Waterproof Seals for Wiring Harnesses and Various Seals
KE-2017 series, KE-2019 series
Liquid Silicone Rubber for Secondary Vulcanization-free LIMS

- Reduces the amount of low-molecular-weight siloxane that can cause electrical contact failures.
- No secondary vulcanization is required, and the production process can be shortened.
- Die fouling during molding is improved, and the number of die cleaning times is 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 for LIMS

- It has high adhesion to various resins (i.e. polycarbonate, nylon, and PBT), and metals (i.e. SUS and iron) with no primer. And it 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

- It has stable and excellent anti-vibration characteristics in a wide temperature range from low temperature to high temperature, which is difficult to realize by 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 comfortable ride
# Highly Functional Silicone for Resins

## Weather Strips
- **KM-9749, X-52-1133**
  - **Silicone Emulsion**
  - **Features and Benefits**: Imparting slip properties, water-based product

## Window Frames (Weather Strips), Interior Materials (Dashboards) and Glass Channels
- **X-22-2101, X-25-5010**
  - **Master Batch**
  - **Features and Benefits**: Improvement of wear resistance, reduction of squeaking noise, and imparting weatherability

## Damper Material for Cup Holder and Storage Box
- **KF-96H series**
  - **Dimethyl Silicone Fluid**
  - **Features and Benefits**: Stable damper function

## Urethane Synthetic Leather Sheet
- **KF-6001 series, X-22-176 series**
  - **Carbinol-modified Silicone Fluid**
  - **Features and Benefits**: Improvement of texture, imparting weatherability, etc.
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