Oil Resistant, Chemical Resistant, Low-hardness Thermal Interface Pads

TC-FORS-2-40 Series

The TC-FORS-2-40 Series is a line of low-hardness thermal interface pads that can stand up to exposure to oils and acidic and alkaline fluids with no significant loss of thermal conductivity.

1 Features

**Oil resistance**: Products retain thermal conductivity even when used in proximity to engine oil.

**Chemical resistance**: Products retain thermal conductivity even when used in proximity to acidic and alkaline fluids.

**Long-term reliability**: Products provide long-term, consistent performance in temperatures ranging from −40°C up to 180°C.

2 Applications

For drawing heat away from electronic components used in automobiles and industrial machinery.

3 General properties

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Method</th>
<th>Grade</th>
<th>TC-100FORS-2-40</th>
<th>TC-200FORS-2-40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
<td>Reddish brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td></td>
<td>Single layer sheet (Double-sided adhesive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness (mm)</td>
<td></td>
<td>1.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Density at 23°C (g/cm³)</td>
<td>JIS K 6249</td>
<td>3.2</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>Hardness (Asker C)</td>
<td>JIS K 6249</td>
<td>40</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Continuous Use Temp. (°C)</td>
<td>JIS K 6249</td>
<td>−40 to 180</td>
<td>−40 to 180</td>
<td></td>
</tr>
<tr>
<td>Volume Resistivity (TΩ·m)</td>
<td>JIS K 6249</td>
<td>9.9 × 10¹¹</td>
<td>9.9 × 10¹¹</td>
<td></td>
</tr>
<tr>
<td>Dielectric Breakdown Voltage (kV) in oil</td>
<td>JIS K 6249</td>
<td>19</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Dielectric Strength (kV)</td>
<td>JIS C 2110</td>
<td>16</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Thermal Conductivity (W/m·K)</td>
<td>ISO 22007-2</td>
<td>1.9</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Thermal Resistance (50°C/100 psi)</td>
<td>ASTM D5470</td>
<td>2.77</td>
<td>3.50</td>
<td></td>
</tr>
<tr>
<td>Flame Retardance (UL94)</td>
<td></td>
<td>V-0 equivalent</td>
<td>V-0 equivalent</td>
<td></td>
</tr>
<tr>
<td>Low-molecular-weight Siloxane Content (ΣD3-10 ppm)</td>
<td>Shin-Etsu Method®</td>
<td>&lt; 10</td>
<td>&lt; 10</td>
<td></td>
</tr>
</tbody>
</table>

* Acetone extraction method.
* Not specified values.

Other thickness, please talk to our sales department.
**Handling precautions**

1) Products should be stored in a dry place out of direct sunlight.
2) Avoid contact with residual solvents or oils as they may deteriorate the properties of the product.
3) For better results, the substrate surface should be cleaned and dried to remove any dirt, moisture or oils before application.
4) Prior to using the product with a thermal interface grease, test a sample with a small amount to determine compatibility.
5) Keep out of reach of children.
6) Please read the Safety Data Sheets (SDS) before use. SDS can be obtained from our Sales Department.

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**Pressure and Thickness**

![Graph showing Pressure and Thickness comparison between TC-100FORS-2-40 and TC-200FORS-2-40](image)

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**Pressure and Thermal Resistance**

![Graph showing Pressure and Thermal Resistance comparison between TC-100FORS-2-40 and TC-200FORS-2-40](image)

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**ATF Compatibility Test**

**Test Method:** Physical properties were measured after immersing samples in automatic transmission fluid for a specified period at 150°C.

**Sample:** TC-200FORS-2-40

**Test Results**

<table>
<thead>
<tr>
<th>Immersion Time</th>
<th>h</th>
<th>0</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density at 23°C</td>
<td>cm³</td>
<td>3.18</td>
<td>3.26</td>
</tr>
<tr>
<td>Hardness Asker C</td>
<td></td>
<td>38</td>
<td>59</td>
</tr>
<tr>
<td>Thickness mm</td>
<td></td>
<td>2.00</td>
<td>2.01</td>
</tr>
<tr>
<td>Dielectric Breakdown Voltage In oil kV</td>
<td></td>
<td>28.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Thermal Conductivity W/m·K</td>
<td></td>
<td>1.94</td>
<td>1.95</td>
</tr>
</tbody>
</table>

These products are not suitable for use with all solvents. (Not specified values)

Be sure to test to check compatibility with particular oils and fluids before use.

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**Appearance of typical silicone thermal conductive soft pad after 500 hrs aging in 150°C ATF**

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