THERMAL SENSORS

SDT101 · SDT101S | Platinum Thin Film Thermal Sensors

Coating color: Ivory (SDT101A, SDT101SA), Transparent Brown (SDT101B)
Marking: Color code (SDT101A), No Marking (SDT101SA, SDT101B)

■ Features
- SDT101SA is a ultra-compact sensor element and offers 1kΩ.
- Simple structure for lead-forming.
- SDT101A and SDT101SA can be easily soldered.
- Ideal for low-directivity heat flow sensor elements.
- AEC-Q200 qualified (SDT101B 500Ω, SDT101SA)
- Products meet EU-RoHS requirements.

■ Applications
- Temperature compensation for load cells for Electronic Weighing Instruments.
- Detections of outer air and cooling water temperatures and filter clogging of Air Conditioning.
- Contact our sales representatives before you use the products for automotive.
- Cold point compensation and temperature detection probe of Thermocouple Temperature Controllers.
- Temperature compensations of various kinds of Measuring Instruments and Analyzers, Hot wires of Anemeters.

■ Type Designation
Example

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Operating Temperature</th>
<th>Reference Temperature</th>
<th>Terminal Surface Material</th>
<th>Taping</th>
<th>Packaging</th>
<th>Nominal Resistance</th>
<th>Resistance Tolerance (%)</th>
<th>T.C.R. Tolerance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDT101A</td>
<td>K:−55℃〜+150℃</td>
<td>X:0℃</td>
<td>C:SnCu (A, SA)</td>
<td>Nil:Bulk</td>
<td>Ni:Bulk</td>
<td>10:100Ω</td>
<td>F:±1.0%</td>
<td>D:±0.5%</td>
</tr>
<tr>
<td>SDT101SA</td>
<td>K:−55℃〜+150℃</td>
<td>X:0℃</td>
<td>H:Ni (B only)</td>
<td>R:REEL</td>
<td>R:REEL</td>
<td>500:500Ω</td>
<td>G:±2.0%</td>
<td>E:±0.5%</td>
</tr>
<tr>
<td>SDT101B</td>
<td>B:−55℃〜+300℃</td>
<td>X:0℃</td>
<td>T:52mm Taping</td>
<td>T26A</td>
<td>T26A</td>
<td>1:1000Ω</td>
<td>D:±2.0%</td>
<td>F:±1.0%</td>
</tr>
</tbody>
</table>

■ Precautions for Use
- It is difficult to solder SDT101B because of using heat-resistant leads. Make use of welding to connect the lead wires.
- When an operating current is 1mA or more, calculate a rise in temperature by self-heating to confirm an error.
- If SDT101, SDT101SA is used by being molded or placed in a metal protection tube filling with resin, the resistance value may occasionally vary slightly depending on the resin used.
- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect the moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. Please wash them to get rid of these ionic substances especially when using lead-free solder that may contain much of the said substances for improving a wetting characteristic. Using RMA solder or RMA flux, or well-washing is needed. Also, attaching ionic substances such as perspiration, salt etc. by storage environments or mounting conditions/environments negatively affects their moisture resistance, corrosion resistance etc. Please wash them to remove the ionic substances when they are polluted.
- When the components are polluted by ionic impurities like sodium(Na⁺), chlorine(Cl⁻) etc. included in perspiration and saliva, resistance may be changed. Avoid the pollution when storage, mounting and using. Consider not to remain ionic substances on the components. Wash by pure water etc. and dry them when you find pollution.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

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Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

### Resistance-Temperature Characteristic Table (Typical Value)

<table>
<thead>
<tr>
<th>Temperature (℃)</th>
<th>0</th>
<th>−10</th>
<th>−20</th>
<th>−30</th>
<th>−40</th>
<th>−50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance</td>
<td>29.7Ω</td>
<td>30.0Ω</td>
<td>30.4Ω</td>
<td>30.8Ω</td>
<td>31.2Ω</td>
<td>31.6Ω</td>
</tr>
<tr>
<td>T.C.R.</td>
<td>2.5%</td>
<td>2.6%</td>
<td>2.7%</td>
<td>2.8%</td>
<td>2.9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Moisture resistance</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Endurance at 70℃</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>High temperature exposure</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Shelf Life</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

**Note:**
- Desired temperature values are obtained by adding temperatures in the vertical and horizontal axes. When calculating a resistance value of 100℃, read the values in the column where 100℃ is in the vertical axis and 5℃ in the horizontal axis cross. The value will be 136.72Ω.
- The value for 500℃ at 0℃ will be the value obtained by multiplying resistance value in this table by 5. Similarly, the value for 5℃ at 0℃ will be the value obtained by dividing the resistance value by 10.