ZTP-135SR
Thermometrics
Thermopile IR Sensor

This thermopile sensor is used for non-contact surface temperature measuring. The ZTP-135SR model consists of thermo-elements, flat IR filter, a thermistor for temperature compensation in a hermetically-sealed TO-46(18) package. There is also a variety of filters available to help maximize performance in specific applications.

Applications

• Ear thermometers

• Non-contact thermometers

• Appliances

• Electronics

Features

• Small-size sensor (TO-46 package)

• Included ambient temperature (thermistor) sensor for compensation

• High sensitivity

• Fast response time

• Low cost
**Thermopile Chip**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limits</th>
<th>Units</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip Size</td>
<td>Min</td>
<td>Typ</td>
<td>Max</td>
</tr>
<tr>
<td>Diaphragm Size</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Active Area</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Internal Resistance</td>
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<tr>
<td>Resistance T.C.</td>
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<tr>
<td>Responsivity</td>
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<tr>
<td>Responsivity T.C.</td>
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<tr>
<td>Noise Voltage</td>
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<tr>
<td>NEP</td>
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<tr>
<td>Detectivity</td>
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<td></td>
<td></td>
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<tr>
<td>Time Constant</td>
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</tbody>
</table>

**Thermistor**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limits</th>
<th>Units</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance</td>
<td>Min</td>
<td>Typ</td>
<td>Max</td>
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<tr>
<td>Beta - Value</td>
<td>3920</td>
<td>3960</td>
<td>4000</td>
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</table>

**Absolute Maximum Ratings**

**Operating Temperature**
-20°C ~ 100°C

**Storage Temperature**
-40°C ~ 120°C

**Filter Transmission Data**
**Typical Characteristic Data**

**Sensitivity**

![Graph showing sensitivity vs. object temperature](image)

**Field of View**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limits</th>
<th>Units</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field of View</td>
<td>Min 80</td>
<td>Typ 85</td>
<td>Max 90</td>
</tr>
<tr>
<td></td>
<td>Degree</td>
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<td>50% of Maximum</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Output</td>
</tr>
</tbody>
</table>

![Graph showing normalized output vs. degree](image)

**Outline of Sensor Package and Pin Arrangement**

![Diagram showing sensor package and pin arrangement](image)

**ZTP-135SR dimensions**

- Ø 0.18 in (4.7 mm) ±0.1
- 0.04 in (1 mm) ±0.1
- 0.09 in (2.4 mm) ±0.1
- Ø 0.21 in (5.4 mm) ±0.1
- 0.04 in (1.13 mm) Optical distance
- 0.11 in (2.9 mm) ±0.1
- 0.52 in (13.5 mm) ±0.5
- 0.1 in (2.6 mm) ±0.1
- 0.02 in (0.55 mm) ±0.1
- 45° ±0.2°

- 4 places Ø 0.04 in (0.45 mm) ±0.05
- PCD Ø 0.1 in (2.54 mm) ±0.1

**Legend**

- TOP VIEW
- SECTION A-A
- BOTTOM VIEW
- Thermopile
- Thermistor
- GND
- 45° ±0.2°
- Ø 0.04 in (1 mm) ±0.1