THERMOMETRICS
A COMMITMENT TO EXCELLENCE

# ZTP-135BS

## Thermometrics Thermopile IR Sensor



This thermopile sensor is used for non-contact surface temperature measuring. The ZTP-135BS model consists of thermo-elements, a flat IR filter, and 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

- Industrial IR thermometer
- Ear thermometers
- Non-contact thermometers

### Features

- Small-size sensor (TO-46 package)
- Included ambient temperature (thermistor) sensor for compensation
- Fast response time
- Low cost
- High sensitivity

**Amphenol**

**Advanced Sensors**

# Specifications

## Thermopile Chip

| Parameter | Limits | | | Units | Condition |
|---|---|---|---|---|---|
| | Min | Typ | Max | | |
| Chip Size | | 1.8 x 1.8 | | $mm^2$ | |
| Diaphragm Size | | 1.4 x 1.4 | | $mm^2$ | |
| Active Area | | 0.7 x 0.7 | | $mm^2$ | |
| Internal Resistance | 42 | 60 | 78 | kΩ | 25 °C |
| Resistance T.C. | | | 0.12 | %./ °C | |
| Responsivity | 38 | 54 | 70 | V/W | 500K, 1Hz |
| Responsivity T.C. | | -0.03 | | %./ °C | |
| Noise Voltage | | 32 | | nV rms | R.M.S., 25 °C |
| NEP | | 0.59 | | $nW/Hz^{1/2}$ | 500K, 1Hz |
| Detectivity | | 1.18 E08 | | $cmHz^{1/2}/W$ | 500K, 1Hz |
| Time Constant | | 25 | | ms | |

## Thermistor

| Parameter | Limits | | | Units | Condition |
|---|---|---|---|---|---|
| | Min | Typ | Max | | |
| Resistance | 97 | 100 | 103 | kΩ | Tol.:3%, @25 °C |
| Beta - Value | 3901 | 3940 | 3979 | K | Tol.:1%, Defined at @25 °C/50 °C |

## Absolute Maximum Ratings

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

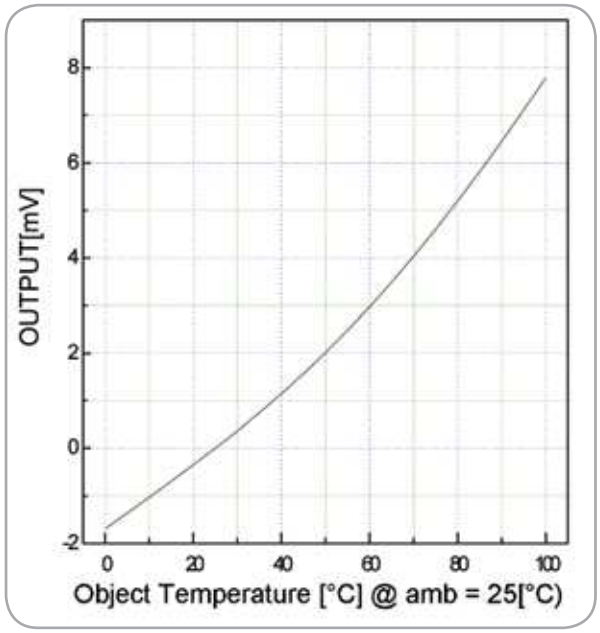
### Storage Temperature
-40°C ~ 120°C

## Thermistor Resistance (R-T Table)

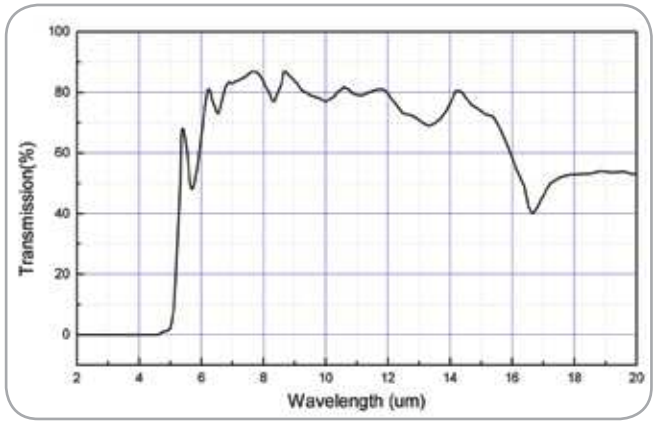
| Tamb (°C) | Rmin (kΩ | Rcent (kΩ) | Rmax (kΩ) |
|---|---|---|---|
| -20 | 893.6 | 931.5 | 970.3 |
| -15 | 677.5 | 705.3 | 733.6 |
| -10 | 518.0 | 538.5 | 559.4 |
| -5 | 399.2 | 414.5 | 430.0 |
| 0 | 310.1 | 321.5 | 333.1 |
| 5 | 242.5 | 251.2 | 259.9 |
| 10 | 191.0 | 197.6 | 204.2 |
| 15 | 151.5 | 156.5 | 161.6 |
| 20 | 120.8 | 124.7 | 128.6 |
| 25 | 97.00 | 100.0 | 103.0 |
| 30 | 78.14 | 80.65 | 83.15 |
| 35 | 63.30 | 65.40 | 67.50 |
| 40 | 51.56 | 53.32 | 55.09 |
| 45 | 42.21 | 43.69 | 45.19 |
| 50 | 34.72 | 35.98 | 37.25 |
| 55 | 28.70 | 29.77 | 30.85 |
| 60 | 23.83 | 24.74 | 25.66 |
| 65 | 19.88 | 20.66 | 21.44 |
| 70 | 16.65 | 17.32 | 17.99 |
| 75 | 14.00 | 14.58 | 15.16 |
| 80 | 11.82 | 12.32 | 12.82 |
| 85 | 10.022 | 10.45 | 10.88 |
| 90 | 8.526 | 8.896 | 9.275 |
| 95 | 7.278 | 7.601 | 7.930 |
| 100 | 6.235 | 6.516 | 6.804 |

# Typical ZTP-135BS Characteristic Data

## Sensitivity

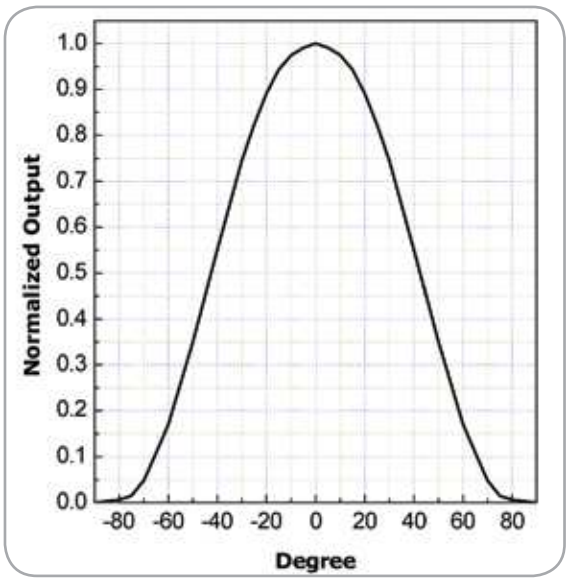



## Filter Transmission Data

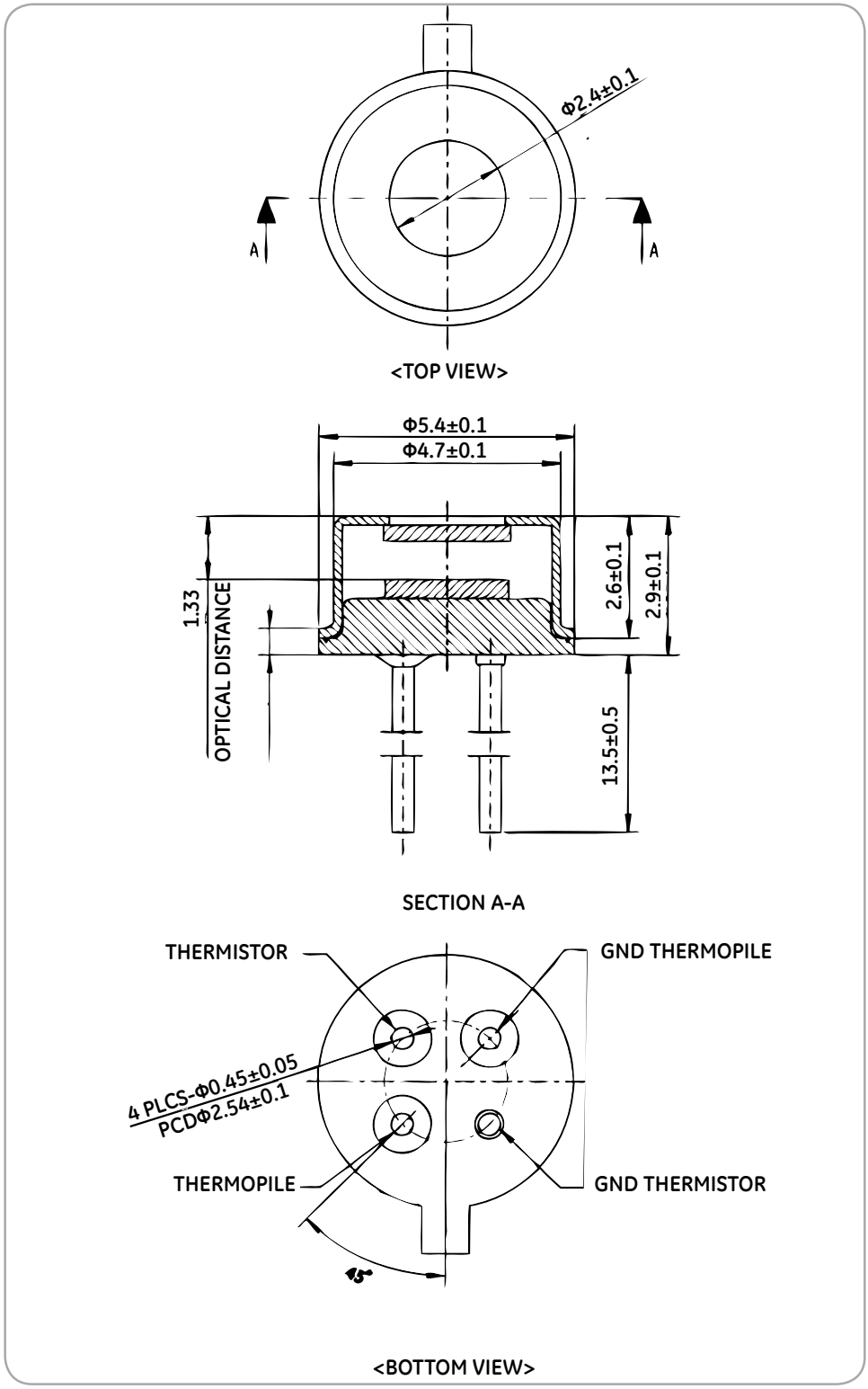



## Field of View

| Parameter | Limits | | | Units | Condition |
|---|---|---|---|---|---|
| | Min | Typ | Max | | |
| Field of View | 80 | 85 | 90 | Degree | 50% of Maximum Output |



# Outline of Sensor Package and Pin Arrangement (unit: mm)




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