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

Parameter	Limits			Units	Condition
	Min	Typ	Max		
Chip Size		1.8 × 1.8		mm^2	
Diaphragm Size		1.4 × 1.4		mm^2	
Active Area		0.7 × 0.7		mm^2	
Internal Resistance	42	60	81	kΩ	25 °C
Resistance T.C.		0.12		%./ °C	
Responsivity	43	62	81	V/W	500K, 1Hz
Responsivity T.C.		-0.10		%./ °C	
Noise Voltage		32		nV rms	R.M.S., 25 °C
NEP		0.51		nW/Hz$^{1/2}$	500K, 1Hz
Detectivity		1.35 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	3920	3960	4000	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	909.1	947.9	987.3
-15	687.7	715.9	744.7
-10	524.5	545.4	566.5
-5	403.3	418.8	434.5
0	312.6	324.1	335.8
5	244.0	252.7	261.5
10	191.8	198.5	205.1
15	151.9	156.9	162.0
20	121.0	124.9	128.8
25	97.00	100.0	103.0
30	78.05	80.55	83.06
35	63.16	65.25	67.36
40	51.39	53.15	54.91
45	42.03	43.51	45.00
50	34.54	35.79	37.05
55	28.52	29.58	30.65
65	19.70	20.47	21.25
70	16.48	17.14	17.81
75	13.83	14.40	14.98
80	11.66	12.15	12.65
85	9.867	10.29	10.72
90	8.380	8.745	9.118
95	7.143	7.460	7.785
100	6.111	6.388	6.670

Filter Transmission Data
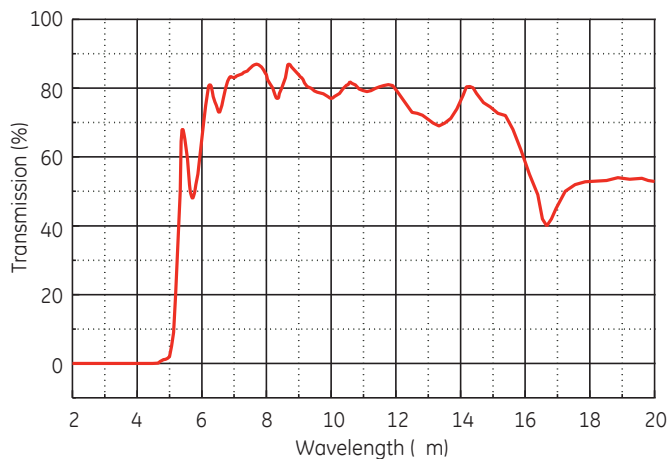
Typical Characteristic Data

Sensitivity
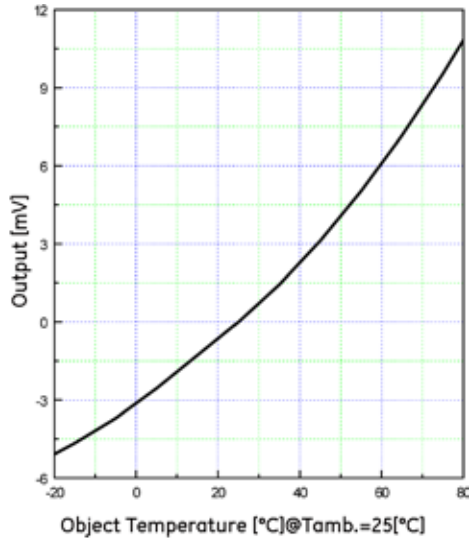
Field of View

Parameter	Limits			Units	Condition
	Min	Typ	Max		
Field of View	80	85	90	Degree	50% of Maximum Output
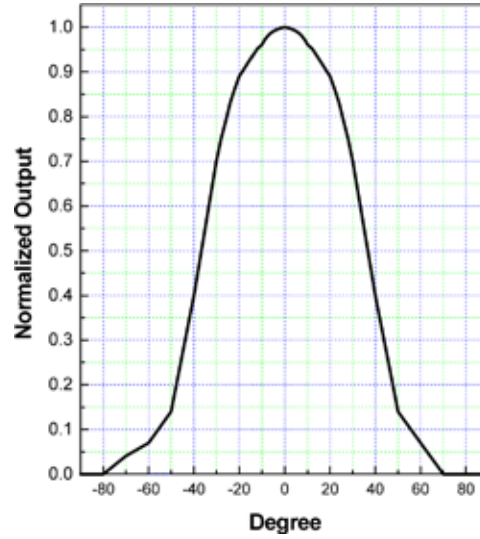
Outline of Sensor Package and Pin Arrangement

Ø 0.18 in (4.7 mm) ±0.1

0.1 in (2.6 mm) ±0.1

0.11 in (2.9 mm) ±0.1

0.52 in (13.5 mm) ±0.5

0.04 in (1 mm) ±0.1

0.04 in (1 mm) ±0.1

0.02 in (0.55 mm) ±0.1

0.04 in (1.13 mm) Optical distance

Ø 0.09 in (2.4 mm) ±0.1

Ø 0.21 in (5.4 mm) ±0.1

Thermopile

Thermistor

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

45° ±0.2°

GND Thermopile

GND Thermistor

TOP VIEW

SECTION A-A

BOTTOM VIEW
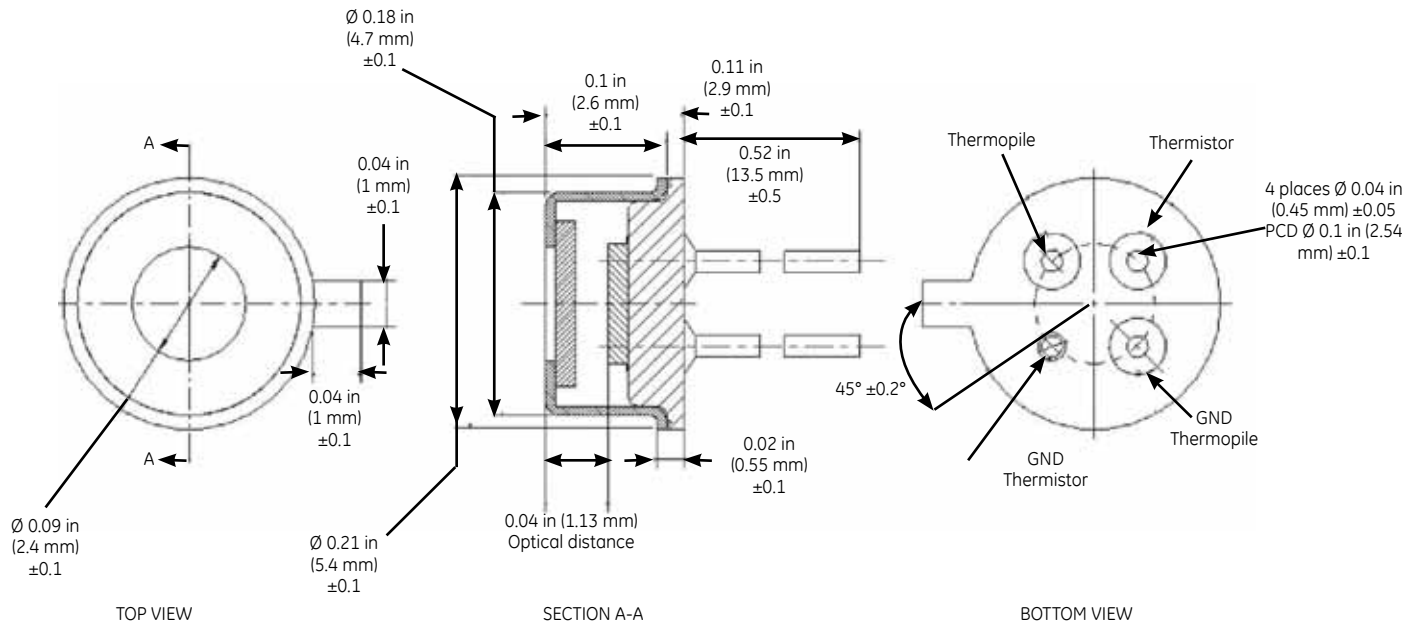
ZTP-135SR dimensions

www.ge-mcs.com

920-159C