

T H E R M O M E T R I C S  
A C O M M I T M E N T T O E X C E L L E N C E

# ZTP-148SRC1

## Thermopile Infrared (IR) Sensor



Thermometrics Thermopile Infrared (IR) Sensors are used for non-contact surface, temperature measurement. The ZTP-148SRC1 Model consists of thermo-elements, flat infrared filter and thermistor for temperature compensation, all in one hermetically-sealed TO-46 (18) sensor package. There are a variety of filters available to maximize performance in specific applications.

### Applications

- Ear thermometers
- Forehead thermometers
- Surface temperature measurement of the human body

### Features

- Compact design
- High sensitivity
- Fast response time
- Low cost
- Included ambient temperature (thermistor) sensor

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# ZTP-148SRC1 Specifications

## Thermopile Chip

Parameter	Limits			Unit	Condition
	Min	Typ	Max		
Chip Size		1.8 X 1.8		mm <sup>2</sup>	
Diaphragm		1.0 x 1.0		mm	
Active Area		0.7 X 0.7		mm <sup>2</sup>	Absorber area
Internal Resistance	60	85	110	kΩ	@25°C
Resistance T.C.			0.12	%/°C	
Responsivity		54		V/W	500K, 1Hz,
Responsivity T.C.		-0.07		%/°C	
Noise Voltage		37		nW/Hz <sup>1/2</sup>	R.M.S, 25°C
NEP		0.69		nW/Hz <sup>1/2</sup>	
Detectivity		1.02		cmHz <sup>1/2/W</sup>	
Time Constant		32		ms	

## NTC Thermistor for Temperature Compensation

Parameter	Limits			Unit	Condition
	Min	Typ	Max		
Resistance		100		kΩ	Tol.: ±3% @ 25°C
Beta – Value		3950		K	Tol.: ±% @ 25°C/50°C

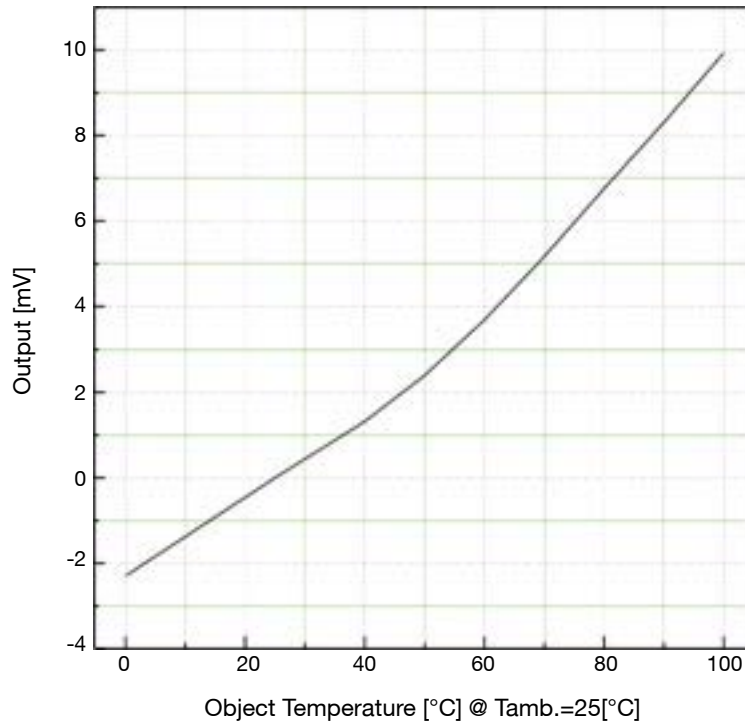
## Absolute Maximum Ratings

- Operating Temperature : -20°C ~ 100°C
- Storage Temperature : -40°C ~ 120°C

# ZTP-148SRC1 Specifications (Cont.)

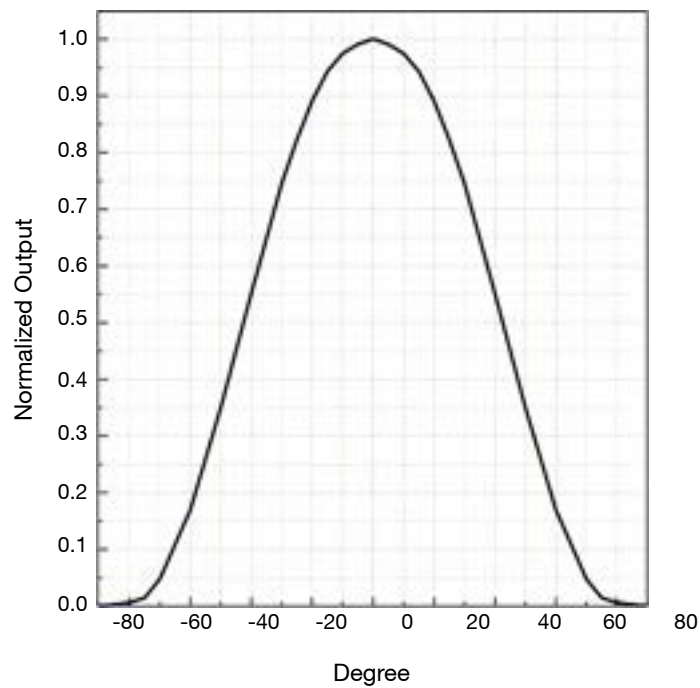
## Typical Characteristic Data

### Sensitivity



### Field of View

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

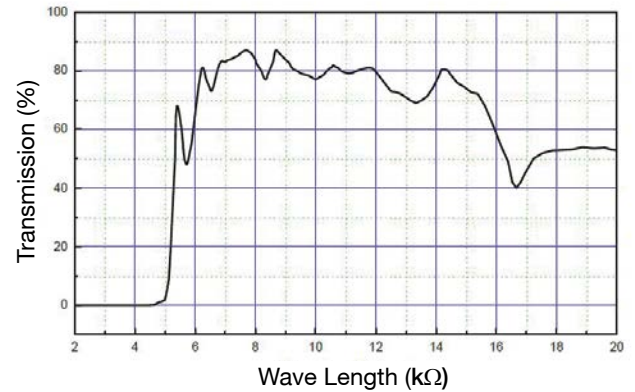


# ZTP-148SRC1 Specifications (Cont.)

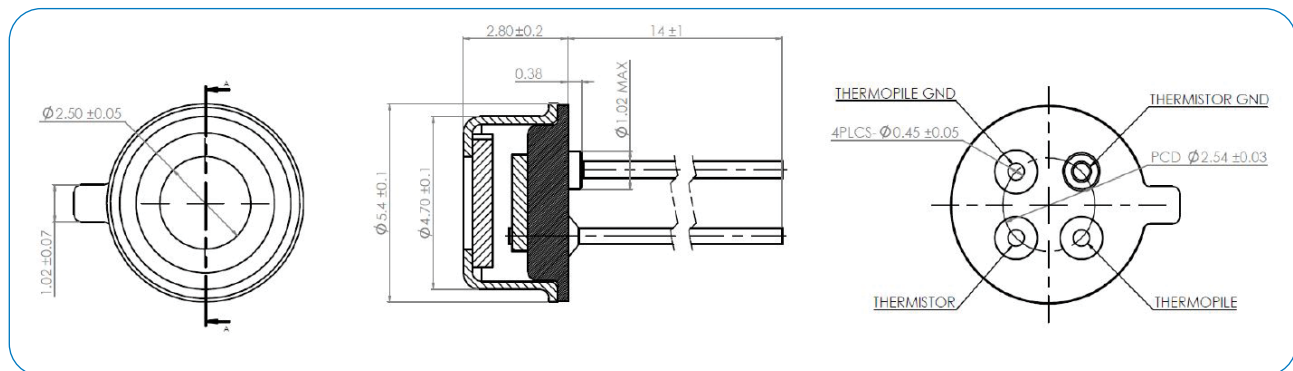
## Thermistor Resistance

Temperature (°C)	Minimum Resistance (kΩ)	Typical Resistance (kΩ)	Maximum Resistance (kΩ)
-20	925.2	975.8	1028.2
-15	696.2	732.2	769.3
-10	528.9	554.7	581.2
-5	405.5	424.1	443.2
0	313.5	327.0	340.8
5	244.3	254.2	264.3
10	191.9	199.2	206.6
15	151.8	157.2	162.7
20	121.0	125.0	129.0
25	97.0	100.0	103.0
30	77.9	80.5	83.1
35	63.0	65.2	67.5
40	51.2	53.2	55.1
45	41.9	43.6	45.2
50	34.5	35.9	37.3
55	28.5	29.7	31.0
60	23.6	24.7	25.8
65	19.7	20.7	21.6
70	16.5	17.3	18.2
75	13.9	14.6	15.4
80	11.8	12.4	13.0
85	10.0	10.5	11.1
90	8.5	9.0	9.5
95	7.3	7.7	8.1
100	6.2	6.6	7.0

## Transmission Data of Filter



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



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