

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-115

## Thermopile Infrared (IR) Sensor



Thermometrics Thermopile Infrared (IR) Sensors are used for non-contact surface temperature measurement. The ZTP-115 Model consists of thermo-elements, flat IR filter, and a thermistor for temperature compensation in a hermetically-sealed small-size package. Various filters are also available to maximize performance in specific applications.

### Applications

- Patient monitoring
- Ear & Tympanic thermometers
- Occupancy detection
- HVAC
- Appliance

### Features

- Non-contact measurement
- Wider surface area measurement
- Small-size sensor package
- Included ambient temperature (thermistor) sensor for compensation
- High sensitivity
- Fast response time
- Low cost
- RoHS compliant

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Advanced Sensors

# Specifications

## Thermopile Chip

Parameter	Limits			Units	Condition
	Min	Typ	Max		
Chip Size	1.8 x 1.8			mm <sup>2</sup>	
Diaphragm Size	1.0 x 1.0			mm <sup>2</sup>	
Active Area	0.5 x 0.5			mm <sup>2</sup>	
Internal Resistance	35	50	65	kΩ	25°C
Resistance T.C	0.15			%/°C	
Responsivity	42	60	78	V/W	500K, 1 Hz
Responsivity T.C	-0.10			%/°C	
Noise Voltage	30			nV rms	R.M.S., 25°C
NEP	0.50			nW/Hz <sup>1/2</sup>	500K, 1 Hz
Detectivity	1.00 E08			cmHz <sup>1/2</sup> /W	500K, 1 Hz
Time Constant	20			ms	

## Thermistor Resistance (R-T Table)

T ambient (°C)	Rmin (kΩ)	Rcent (kΩ)	Rmax (kΩ)
-40	267	284.7	303.2
-35	197.2	209.6	222.5
-30	147.1	155.9	165
-25	110.8	117.1	123.6
-20	84.16	88.68	93.35
-15	64.46	67.73	71.11
-10	49.74	52.13	54.59
-5	38.65	40.41	42.21
0	30.24	31.54	32.86
5	23.81	24.77	25.75
10	18.86	19.58	20.3
15	15.03	15.56	16.1
20	12.04	12.44	12.84
25	9.7	10	10.3
30	7.823	8.082	8.342
35	6.342	6.566	6.791
40	5.168	5.361	5.557
45	4.233	4.4	4.569
50	3.484	3.629	3.776
55	2.882	3.007	3.135
60	2.396	2.504	2.615
65	2.0009	2.095	2.192
70	1.679	1.7612	1.8458
75	1.4153	1.4871	1.5612
80	1.1984	1.261	1.3264
85	1.0193	1.0745	1.1317
90	0.8707	0.9193	0.9697
95	0.7469	0.7898	0.8344
100	0.6433	0.6812	0.7208
105	0.5562	0.5899	0.625

## Thermistor for Temperature Compensation

Parameter	Limits			Units	Condition
	Min	Typ	Max		
Resistance	9.7	10	10.3	kΩ	Tol. :3%, @25°C
Beta - Value	3930	3970	4010	K	Tol. :1%, Defined at 25°C/85°C

## Absolute Maximum Ratings

### Operating Temperature

-20°C ~ 100°C

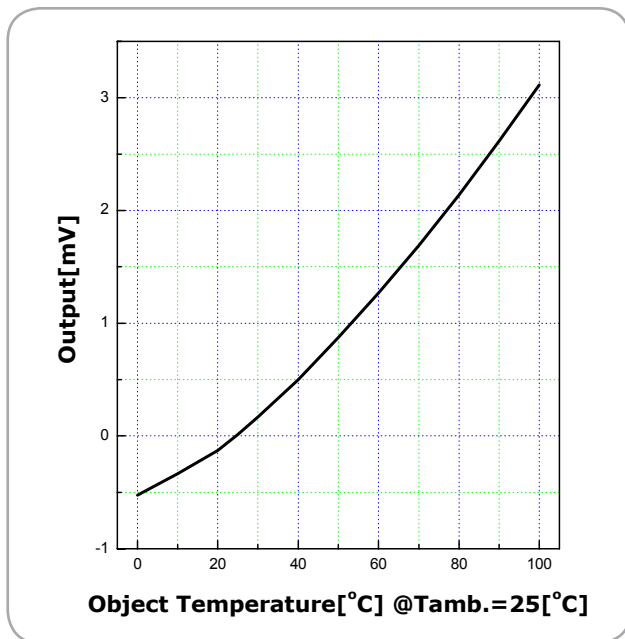
### Storage Temperature

-40°C ~ 120°C

## Ordering Information

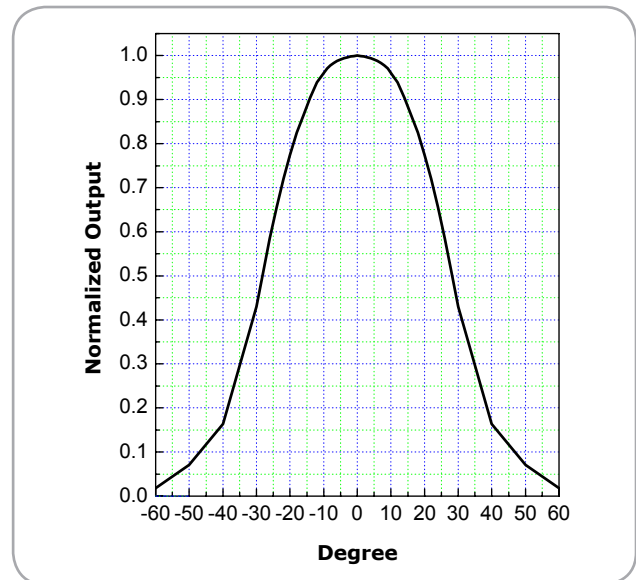
Lead Length (mm)	Part No.
3.0	ZTP-115
6.7	ZTP-115L1
13.2	ZTP-115L

## Sensitivity

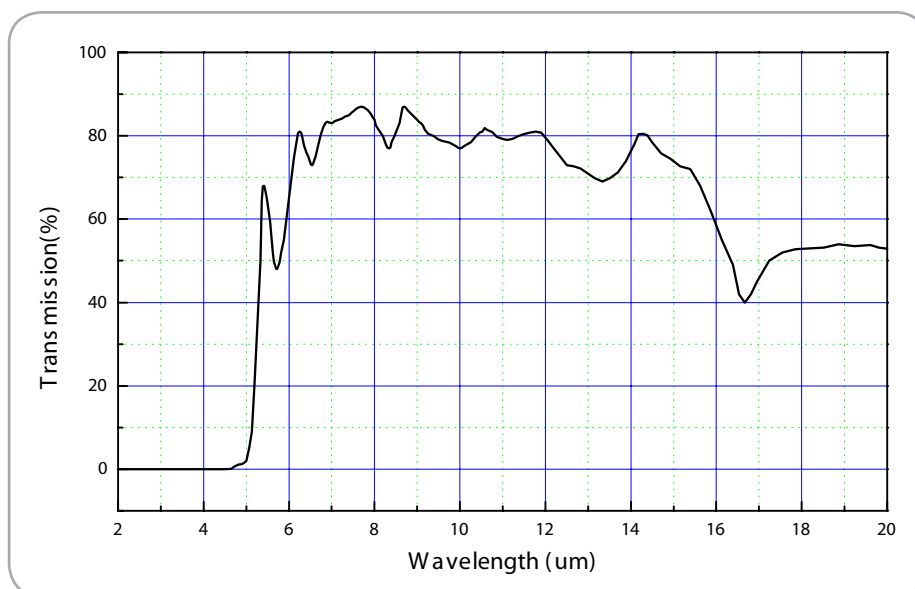


## Field of View

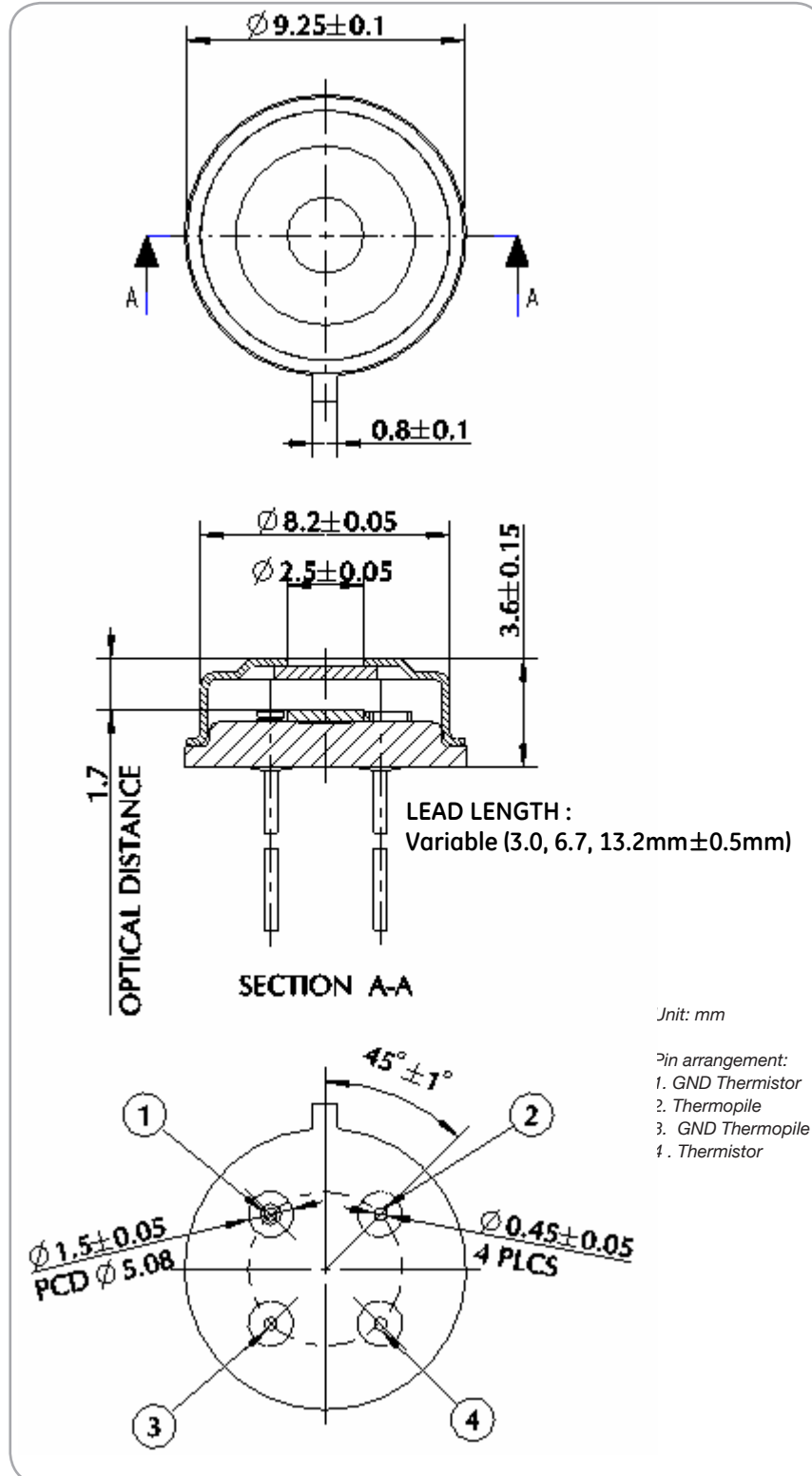
Parameter	Limits		Units	Condition
	Min	Typ		
Field of View	50	55	60	50% of Maximum Output



## Filter Transmission Data



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



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