



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-135L

## Thermopile IR Sensor



This thermopile sensor is used for non-contact surface temperature measuring. The ZTP-135L model consists of thermo-elements, flat IR filter, a thermistor for temperature compensation and a hermetically-sealed small-size package. There is also a variety of filters 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

**Amphenol**  
**Advanced Sensors**

# Specifications

## Thermopile Chip

Parameter	Limits			Units	Condition
	Min	Typ	Max		
Chip Size		1.8 × 1.8		mm <sup>2</sup>	
Diaphragm Size		1.4 × 1.4		mm <sup>2</sup>	
Active Area		0.7 × 0.7		mm <sup>2</sup>	
Internal Resistance	42	60	78	kΩ	25°C
Resistance T.C			0.12	%/°C	
Responsivity	42	58	78	V/W	500K, 1 Hz
Responsivity T.C		-0.10		%/°C	
Noise Voltage		32		nV rms	R.M.S., 25°C
NEP		0.55		nW/Hz <sup>1/2</sup>	500K, 1 Hz
Detectivity		1.27 E08		cmHz <sup>1/2</sup> /W	500K, 1 Hz
Time Constant		25		ms	

## Thermistor Resistance (R-T Table)

T ambient (° C)	Rmin (kΩ)	Rcent (kΩ)	Rmax (kΩ)
-20	840.0	875.5	911.6
-15	657.2	684.0	711.4
-10	512.6	532.9	553.5
-5	399.8	415.1	430.6
0	312.2	323.8	335.5
5	244.7	253.4	262.2
10	192.6	199.2	205.9
15	152.3	157.4	162.5
20	121.2	125.1	129.0
25	97.00	100.0	103.0
30	77.95	80.44	82.95
35	63.03	65.12	67.21
40	51.27	53.03	54.79
45	41.96	43.44	44.93
50	34.54	35.79	37.05
55	28.58	29.64	30.72
60	23.77	24.68	25.60
65	19.87	20.64	21.43
70	16.68	17.35	18.02
75	14.06	14.64	15.22
80	11.90	12.40	12.90
85	10.11	10.54	10.98
90	8.619	8.994	9.376
95	7.373	7.699	8.032
100	6.327	6.611	6.903

## Thermistor for Temperature Compensation

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

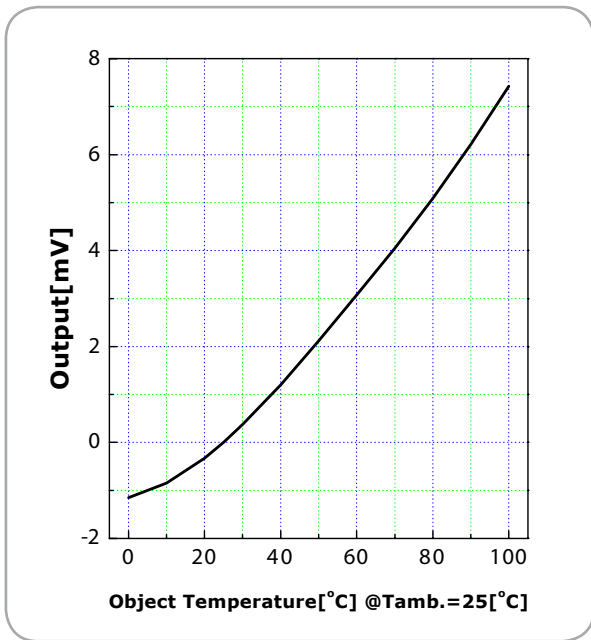
### Operating Temperature

-20°C ~ 100°C

### Storage Temperature

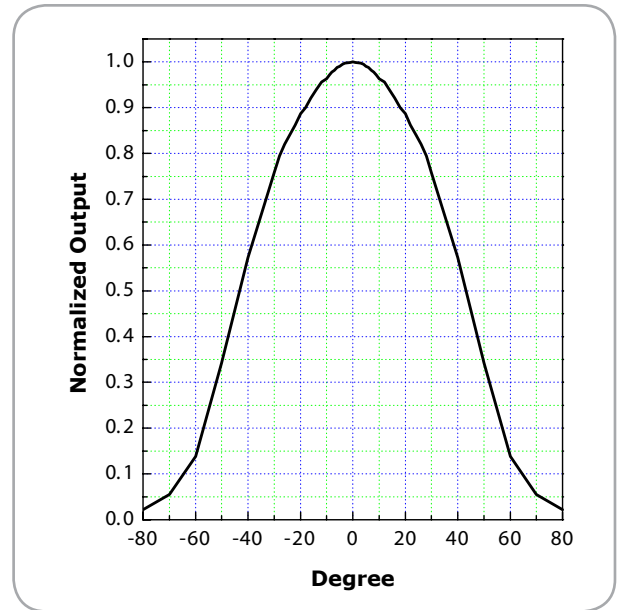
-40°C ~ 120°C

## Sensitivity

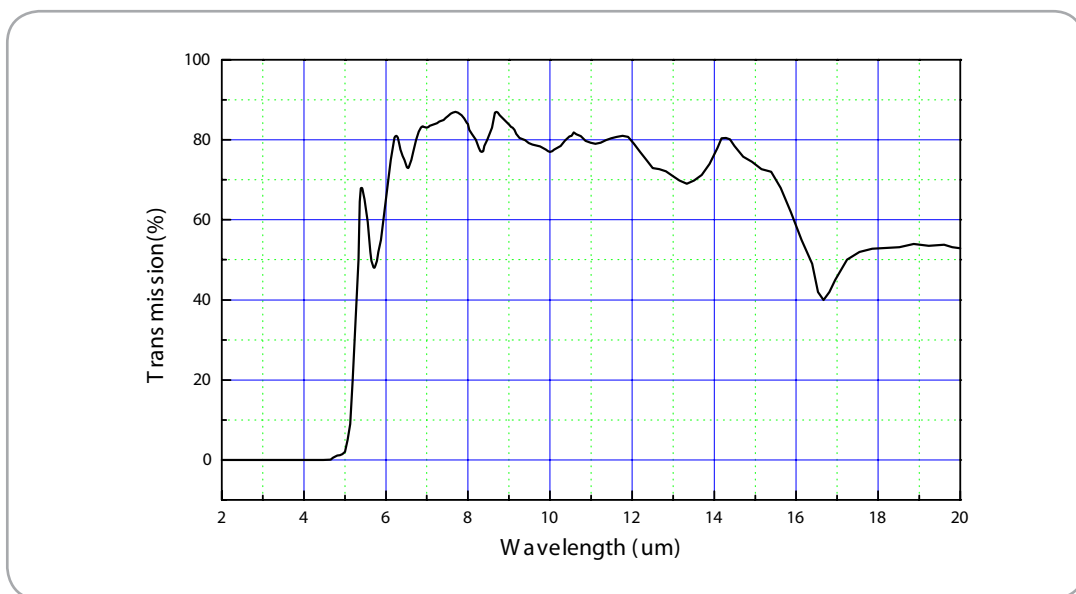


## Field of View

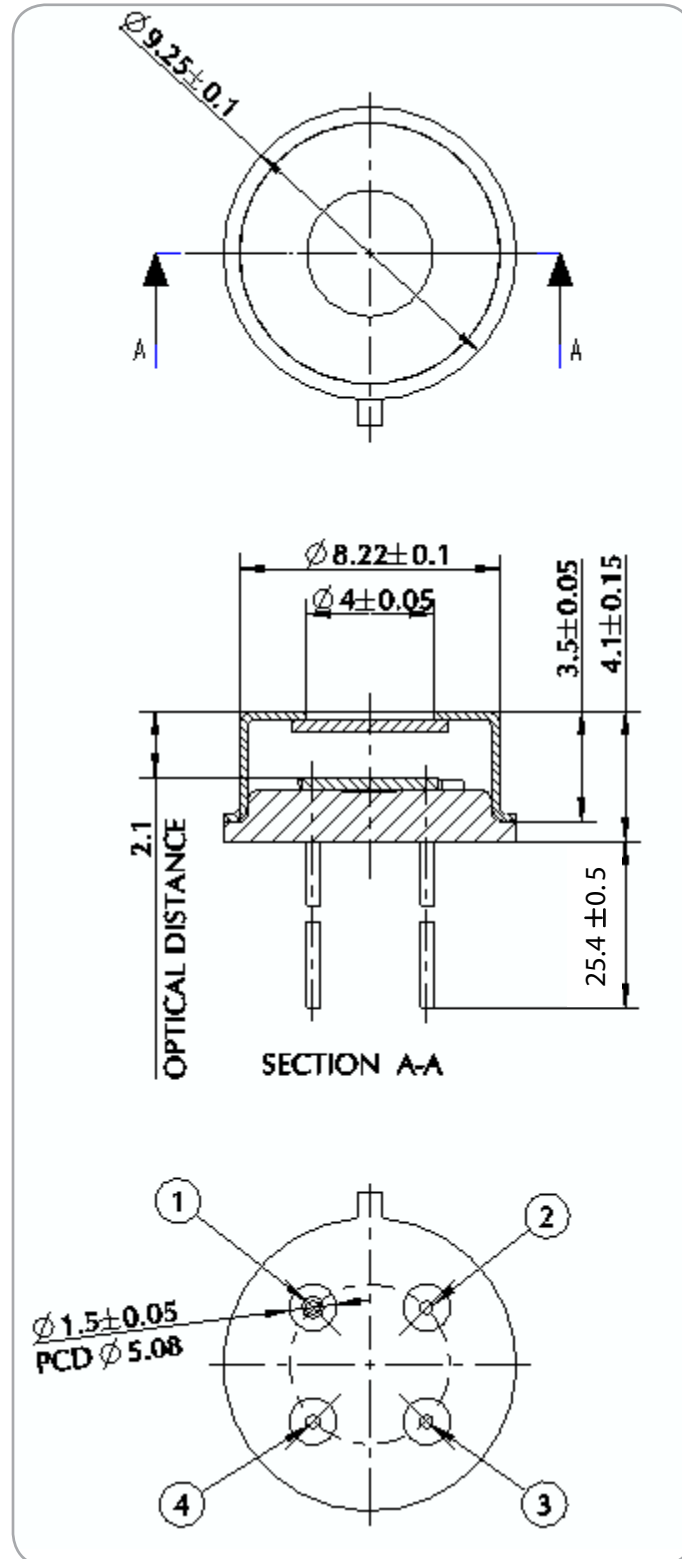
Parameter	Limits			Units	Condition
	Min	Typ	Max		
Field of View	81	86	91	Degree	50% of Maximum Output



## Filter Transmission Data



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



Unit: mm

- Pin arrangement:
1. GND Thermistor
  2. Thermopile
  3. Thermistor
  4. GND Thermopile