

THERMOPILE

OTP-N538U

Thermopile Sensor

OTP-N538U

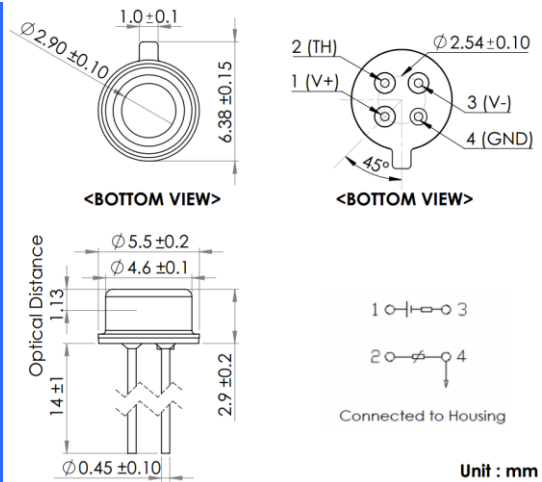
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The OTP-N538U is a thermopile sensor in classic TO-46 housing. The sensor is composed of 116 elements of thermocouple in series on a floating micro-membrane having an active area of diameter 545 μm . The thermopile sensor provides nearly Johnson-noise-limited performance, which can be calculated by its ohmic series resistance. A thermistor element, with a lead connected to ground, is also provided inside the TO package for ambient temperature reference.

- TO-46 metal housing with IR absorber coating inside
- Thermistor temperature reference included
- Low temperature coefficient of sensitivity
- Ideally suited for ear thermometers, miniature pyrometer.

Parameter	Typ	Unit	Conditions
Operating temperature	-20~100	$^{\circ}\text{C}$	
Storage temperature	-40~100	$^{\circ}\text{C}$	
Sensitivity	58	V/W	※1
TC of sensitivity	0.11 \pm 0.05	%/K	25 $^{\circ}\text{C}$
Thermopile voltage	1.3 \pm 0.4	mV	※1
Active area in diameter	545	μm	
Resistance of thermopile	50 \pm 15	K Ω	25 $^{\circ}\text{C}$
TC of resistance	0.09 \pm 0.05	%/K	25 $^{\circ}\text{C}$
Time constant	16	ms	
Noise voltage	29	nV/Hz ^{1/2}	r.m.s, 25 $^{\circ}\text{C}$
NEP	0.48	nW/Hz ^{1/2}	※1
Normalized detectivity (D*)	1.0*10 ⁸	cm*Hz ^{1/2} /W	※1
Thermistor resistance	100 \pm 5%	K Ω	25 $^{\circ}\text{C}$
β value	3964 \pm 0.5%	K	25 $^{\circ}\text{C}$ /100 $^{\circ}\text{C}$
Field of view	100	$^{\circ}$	@50% target signal
Cut on wavelength	5 \pm 0.3	μm	@25 $^{\circ}\text{C}$, 50% transmittance



※1 Test condition : Tb:50 $^{\circ}\text{C}$, Ta:25 $^{\circ}\text{C}$, 5-14 μm filter

