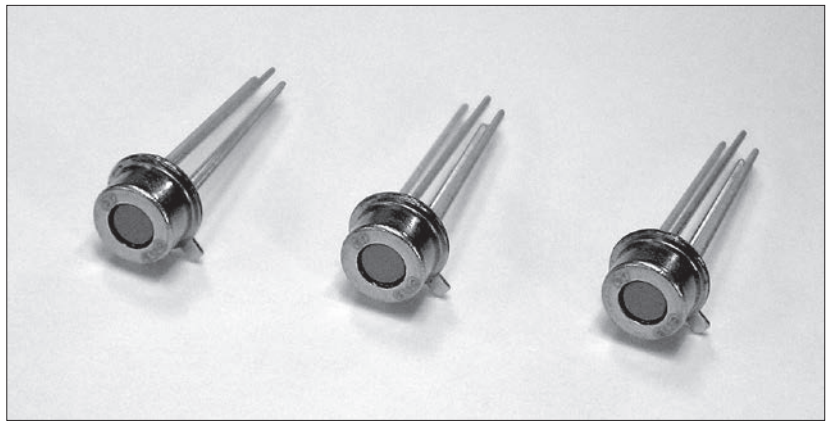
THERMOPILE

Thermopiles use the same principle as thermocouples for IR temperature sensing.
By using a SEMITEC original silicon-micromachining semiconductor process we have achieved higher output, faster response speed and a lower price.

Applications

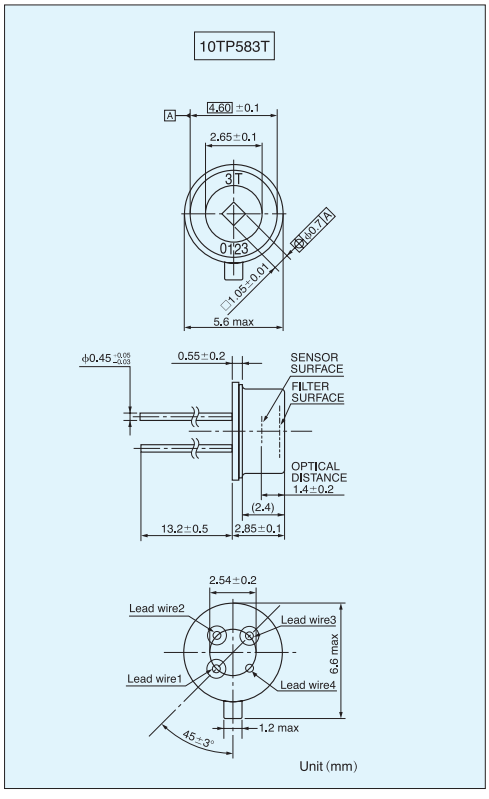
Ear thermometers, IR thermometers, microwave ovens and others



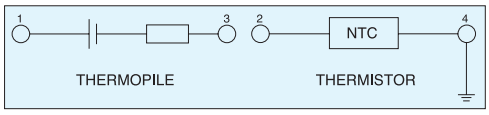
Part number

Part No.	Type	Thermistor
10TP583T	TO18	Built-in

Dimensions



Circuit layout



Ratings

Parameters	Value	Unit	Conditions
	10TP583T		
Sensitive area	1.05×1.05	mm^2	Size of Absorbing Film
*1 Responsivity	15±30%	V/ W	
*1 Output Voltage	200±30%	μV	
*2 Output Voltage	1.00±30%	mV	
*1 Temperature Coefficient of Responsivity	0.02±0.02	% / °C	Reference
Thermopile Resistance	65±30%	kΩ	
Temperature Coefficient of Thermopile Resistance	±0.1	% / °C	
Johnson Noise Voltage	33	nV/ $\sqrt{Hz}$	Johnson Noise r.m.s.,298K 1Hz Typical
*1 S/N Ratio	75.7	dB	Output Voltage/Johnson Noise, Typical
*1 Noise Equivalent Power	2.2	nW/ $Hz^{1/2}$	Typical
*1 Specific Detectivity	4.7×10^{7}	cm•$Hz^{1/2}$/ w	Typical
Time Constant	15	ms	Typical
Operating Temperature range	−20～+100	°C	
Strage Temperature range	−40～+100	°C	
Filter Range	Cut on 5	μm	Standard
Field of View	±50	deg.	Incident Angle to Achieve 50% Responsivity
Insulation Resistance	≧500	MΩ	Application of DC25V
Sealing	≦1×10^{-9}	Pa•m^3/ s	
*3 Thermistor Resistance Value	100±3%	kΩ	Rated Zero-power Resistance Value at 25°C
*3 Thermistor B-Value	3435±0.7%	K	
*3 Thermistor Rated Power	0.5	mW	at 25°C

*1 Test Conditions
Black Body Furnace : 500K
Sensor - Blackbody Distance : 100mm
Sensor Temperature : 298K
Aperture Size : φ12.7mm

*2 Test Conditions
Black Body Furnace : 310K
Sensor Temperature : 298K