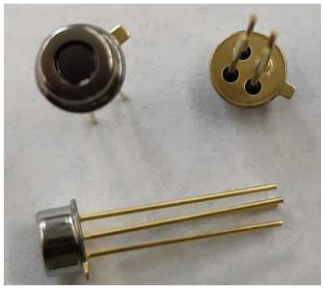
PRODUCT SPECIFICATIONS

T1SLM464

Cost Effective TO-Can Infrared Detector for NCID Applications



TO-46 Package

T-SMART's T1SLM464 is designed to be a cost-effective sensor solution for wide operating temperature, non-contact temperature measurements. Packaged in a TO-46 metal can, the sensor element is a MEMS based array of micro thermocouple elements. A high precision thermistor with tolerance of ±1% is integrated in the package as a temperature reference, allowing for accurate, reliable non-contact temperature measurement applications.

With proper radiometric calibration, T1SLM464 can be used for accurate temperature measurements where traditional contact-based temperature measurement is not feasible. These could be for measurements of moving parts or where the object temperature is too high and will cause damage to sensor package. T-SMART T1SLM464 package comes with a long pass IR filter, avoiding atmospheric water absorption of IR radiation at ~4.7µm.

Features	Benefits
TO-46 package	Small TO-Can package for optimal use of real estate
High precision thermistor	High precision temperature reference for accurate temperature measurement
Integrate long pass IR filter	Suitable for most generic non-contact temperature measurement applications avoiding atmospheric absorption of IR radiation
Built in temperature reference	Internally contained to the package for accurate temperature correlation to the temperature sensor.

Applications

- High performance non-contact temperature guns
- Forehead and ear infrared thermometer
- Temperature monitoring in manufacturing process control
- Home appliance temperature measurement
- Consumer electronics products
- Remote surfaces

Absolute Maximum Ratings

Symbol	Parameter	Min	Max	Unit
T_{op}	Operating Temperature Range	-20	120	°C
T_{st}	Storage Temperature Range	-40	150	°C

Technical Specifications

Symbol	Parameter	T2STLA016-X	Unit
DA	Die Area	1.6 x 1.6	mm^2
A	Active Area	1.125 x 1.125	mm^2
V_n	Noise Voltage Density (@25°C)	44.4	$nV/\sqrt{Hz}$
$\mathcal{R}_{500}$	Responsivity[1]	88±30%	V/W
R_{TP}	Resistance	120±20	kΩ
NEP	Noise Equivalent Power (@25°C)	0.27	nW/√Hz

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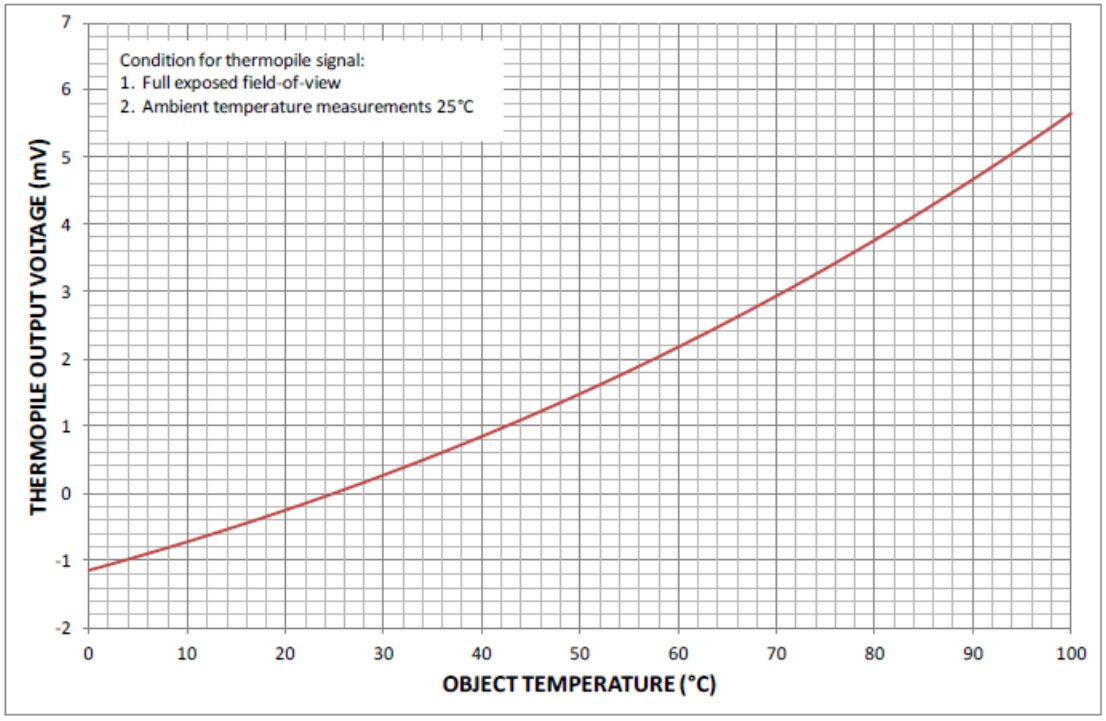
D*	Specific Detectivity	1.0	10^8 cmVHz/W
TCR	Temp coefficient of responsivity	0.1	%/°C
FOV	Field of View (typ)	100	deg
R_{pin}	Pin Insulation	⩾500	MΩ
R_{25}	Thermistor Resistance[2] @ zero power	100±2	kΩ
Beta	Thermistor Beta[3] Value	3950±1%	K

Notes:

1. 4Hz, T_{op} 25°C, T_{BB}=500K
2. T_{op} 25°C
3. Calculated with zero power resistance at 25°C and 50°C

Typical Characteristics

1. Output Voltage vs Measured Temperature (@ 25°C ambient)



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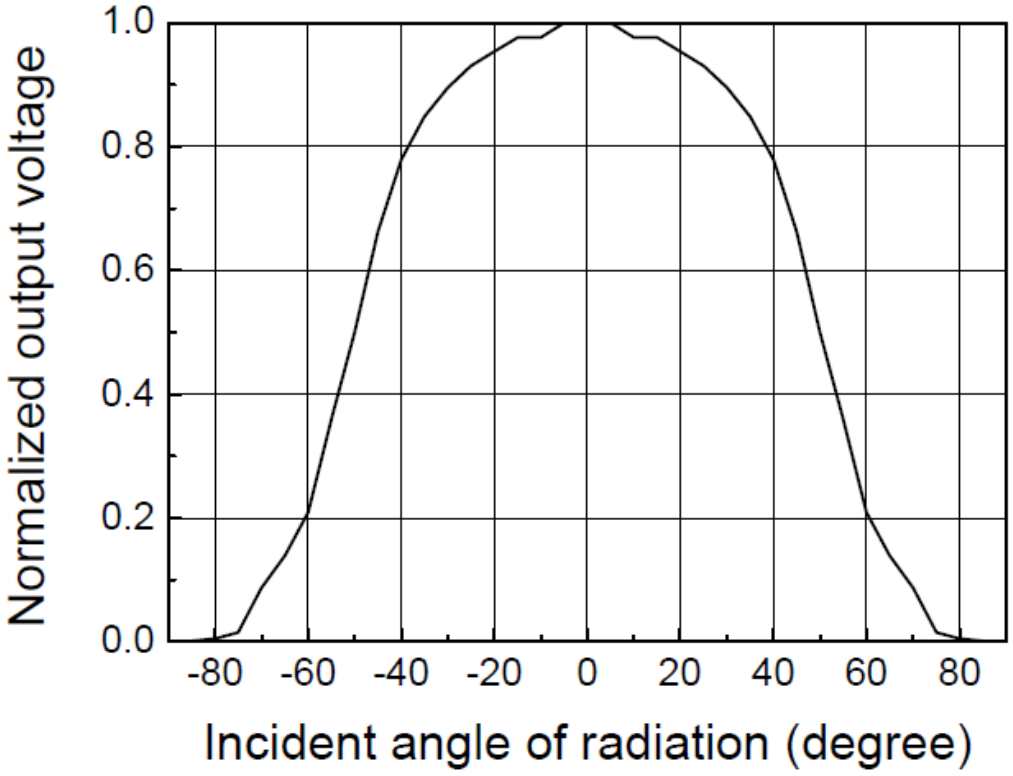
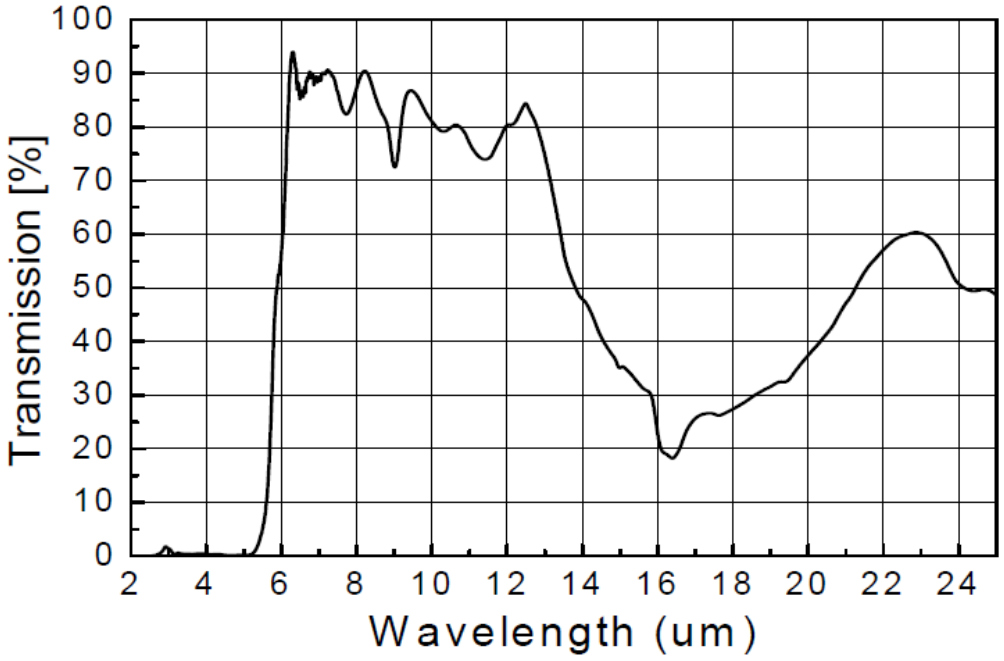
2. Field of View



3. Transmission Characteristics



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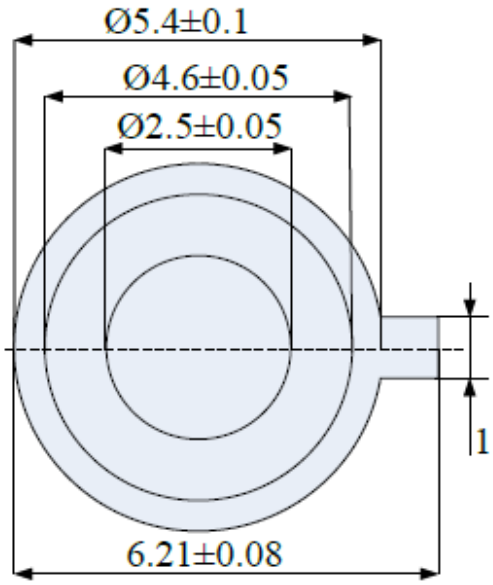
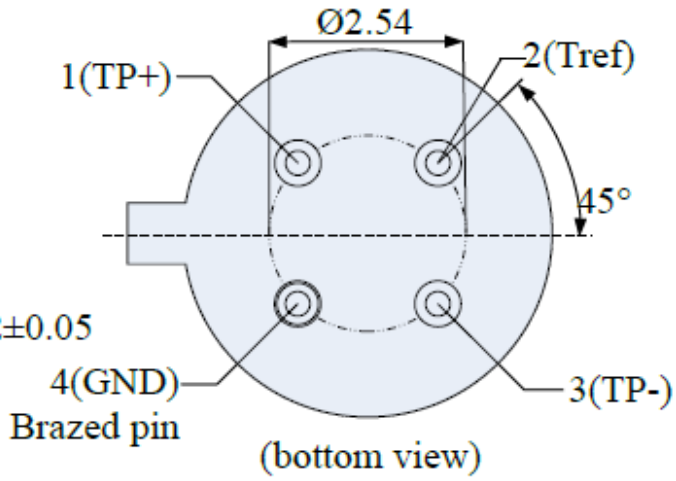
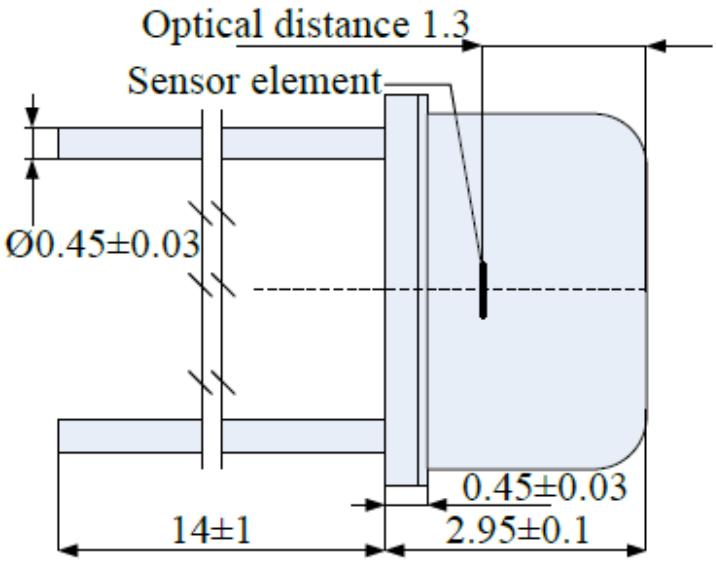
Mechanical Package Outline (mm)



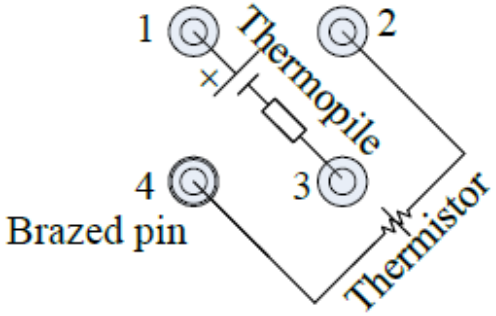
Top view



bottom view



cross section



Circuit

Pin Assignments

Pin	Function	Description
1	Thermopile +	Output DC Voltage + Pin
2	Thermistor	Ambient Temp Compensation
3	Thermopile -	Output DC Voltage - Pin
4	GND Thermistor	Ambient Temp Compensation Resistance Pin and GND

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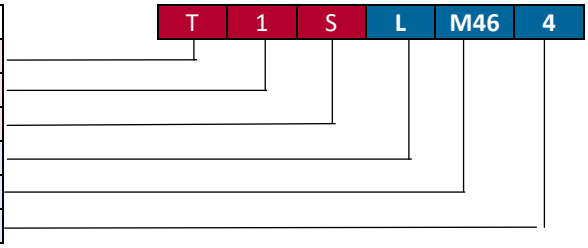
NTC Temperature VS Resistance Table

Temp(°C)	R_st (KΩ)
-20	975.80
-15	732.19
-10	554.70
-5	424.08
0	327.02
5	254.24
10	199.20
15	157.23
20	125.0
25	100.0
30	80.53
35	65.24
40	53.16
45	43.56
50	35.88
55	29.71
60	24.72
65	20.66
70	17.35
75	14.63
80	12.38
85	10.53
90	8.98
95	7.69
100	6.61
105	5.70

Naming Conventions

Ordering code:	
T	T-SMART
1	Thermopile 1.0
S	Single Element
L	Longpass filter, 5.5µm cuton
T	Package Type: M46
4	4-Pin package



	Product type		Package