

TR7F55S

Descriptions

The TR7F55S is a thermopile temperature sensor based on MEMS (Micro-Electro Mechanical Systems) technology. This thermopile detector consists of thermopile MEMS chip, an F5.5 infrared band pass filter, a NTC thermistor for temperature compensation and a small-size TO-46 Package.

Features

- Non-contact surface temperature measuring
- TO housing with an F5.5 infrared filter
- Using NTC thermistor for ambient temperature compensation
- Suitable for human body temperature detecting
- Suitable for Industrial temperature measurement
- Fast response time
- High sensitivity

Applications

- Non-contact infrared thermometer
- Microwave oven
- Automatic induction equipment
- Heating, Ventilation and Air Conditioning(HVAC)
- Appliance

Thermopile Parameter

<i>Parameter</i>	<i>Condition</i>	<i>Specification</i>	<i>Unit</i>		
Responsivity	Black body=500K, 1HZ @temp=25℃	60	V/W		
Detectivity	Black body=500K, 1HZ @temp=25℃	1. 21E08	cm • Hz ^{1/2} /W		
NEP	Black body=500K, 1HZ @temp=25℃	0. 59	nW • Hz ^{1/2}		
Voltage Response	Black body=500K, 1HZ @temp=25℃	29	V • mm ² /W		
Field of View(FOV)	Degree at 50% signal level	102	°		
TC of Thermopile		-0. 11	%/℃		
Time Constant		16	ms		
Operating Temp		-40~120	℃		
Storage Temp		-40~120	℃		
<i>Parameter</i>	<i>Condition</i>	<i>Specification</i>			<i>Unit</i>
		<i>Min.</i>	<i>Typ.</i>	<i>Max.</i>	
Thermopile Res	@temp=25℃	65	75	85	k Ω
Noise Voltage	@temp=25℃	33	35	37	nV/Hz ^{1/2}

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Thermistor for Temperature Compensation

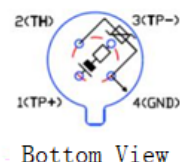
Thermistor Resistance	+3% tolerance, @temp=25°C	100	k Ω
TC of Thermistor(B)	$\pm 1\%$ tolerance, Defined at 25/50°C	3950	k

NTC Temperature VS Resistance Table

Temp.(°C)	Rmin(k Ω)	Rtyp(k Ω)	Rmax(k Ω)	Temp.(°C)	Rmin(k Ω)	Rtyp(k Ω)	Rmax(k Ω)
120	3.523	3.753	3.995	30	77.949	80.534	83.131
110	4.671	4.963	5.267	25	97.000	100.000	103.001
100	6.275	6.647	7.034	20	120.819	124.832	128.863
90	8.546	9.024	9.522	10	191.179	198.447	205.806
80	11.812	12.433	13.076	0	311.198	324.623	338.322
70	16.576	17.391	18.229	-10	524.122	549.618	575.836
60	23.673	24.749	25.850	-20	912.905	962.695	1014.286
50	34.450	35.882	37.339	-30	1644.113	1744.117	1848.539
40	51.246	53.166	55.108	-40	3073.524	3281.143	3499.634

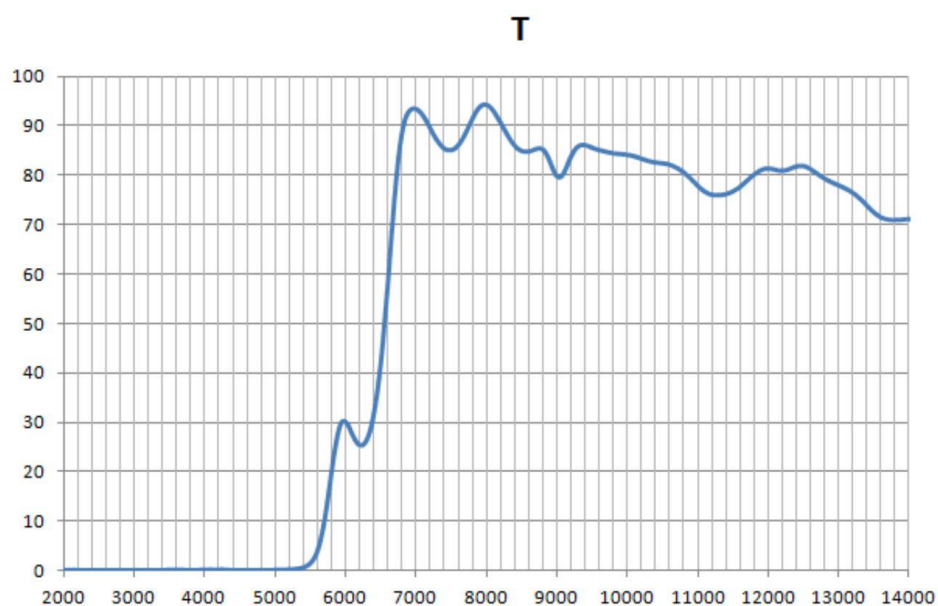
Pin Names and Description

PIN	Function	Description
1	TP+	Thermopile Output DC Voltage+ pin
2	TH	Ambient Temperature Compensation/ Resistance+ pin.
3	TP-	Thermopile Output DC Voltage-pin
4	GND	Ambient Temperature Compensation/Resistance-pin and GND.

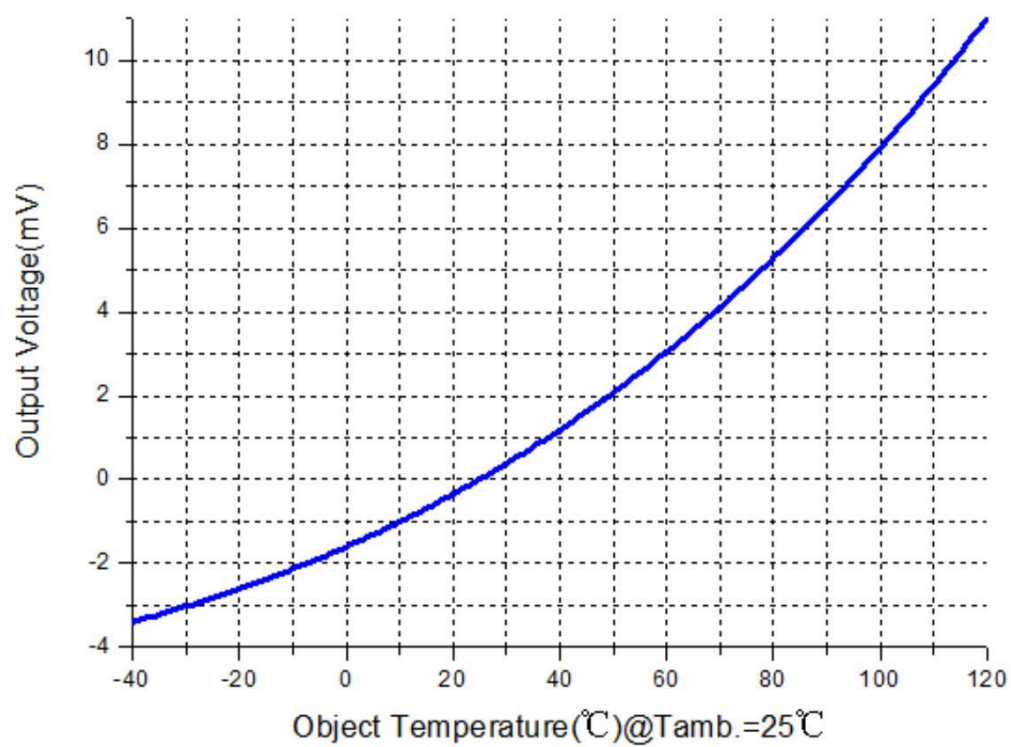


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Filter Transmission Curve



Sensitivity Output Curve



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Outline of Sensor Package

