Descriptions

The CGQ0228 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

Parameter	Condition	Specification	Unit
Active Area	membrane area	1(1*1)	mm^2
Responsivity	Black body=500K,1HZ @temp=25℃	80	V/W
DC Output	Black body=310K,1HZ @temp=25℃	0.9	mV
TC of Thermopile		-0.1	%/℃
Time Constant		16	ms
Operating Temp		-40~120	℃
Storage Temp		-40~120	℃

Parameter	Condition	Specification			Unit
		Min.	Typ.	Max.	
Thermopile Res	@temp=25℃	60	75	90	kΩ
Noise Voltage	@temp=25℃	31	32	35	$nV/Hz^{1/2}$

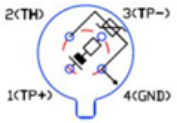
Thermistor for Temperature Compensation			
Thermistor Resistance	±1% tolerance, @temp=25℃	100	kΩ
TC of Thermistor(B)	±1% tolerance, Defined at 25/50℃	3950	k

NTC Temperature VS Resistance Table

Temp.(℃)	Rmin(kΩ)	Rtyp(kΩ)	Rmax(kΩ)	Temp.(℃)	Rmin(kΩ)	Rtyp(kΩ)	Rmax(kΩ)
120	3.5701	3.7268	3.8900	30	79.5492	80.5274	81.5085
110	4.7378	4.9319	5.1334	25	99.000	100.000	101.000
100	6.3686	6.6101	6.8601	20	123.447	124.9734	126.504
90	8.6794	8.9809	9.2920	10	195.852	199.2007	202.581
80	12.0053	12.3825	12.7703	0	319.936	327.0195	334.226
70	16.8735	17.3452	17.8282	-10	539.822	554.7016	569.925
60	24.1304	24.7171	25.3157	-20	944.287	975.8038	1008.27
50	34.1631	35.8842	36.6164	-30	1719.78	1787.9797	1858.69
40	52.3000	53.1635	54.0350	-40	3277.95	3429.7449	3589.18

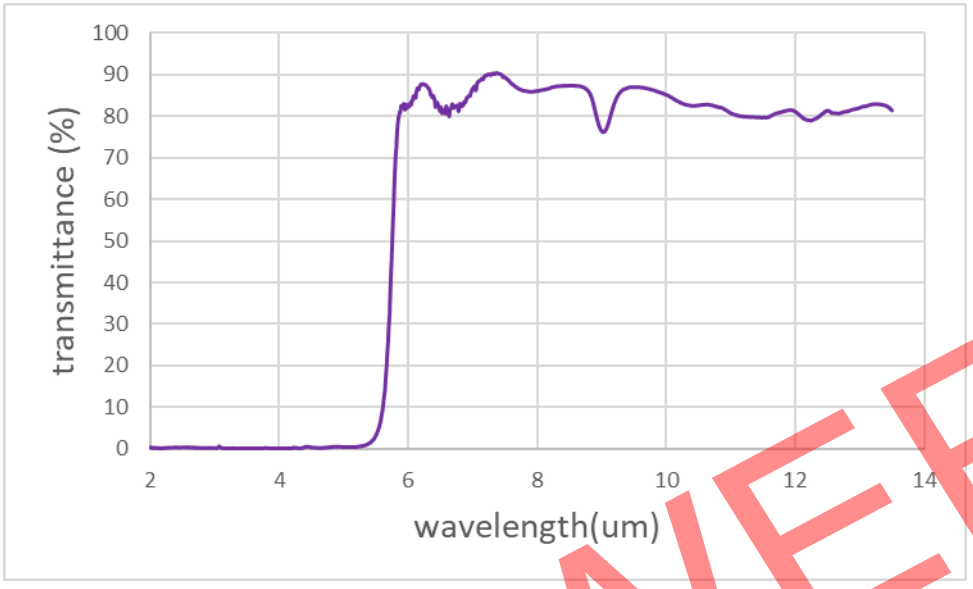
Pin Names and Description

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.

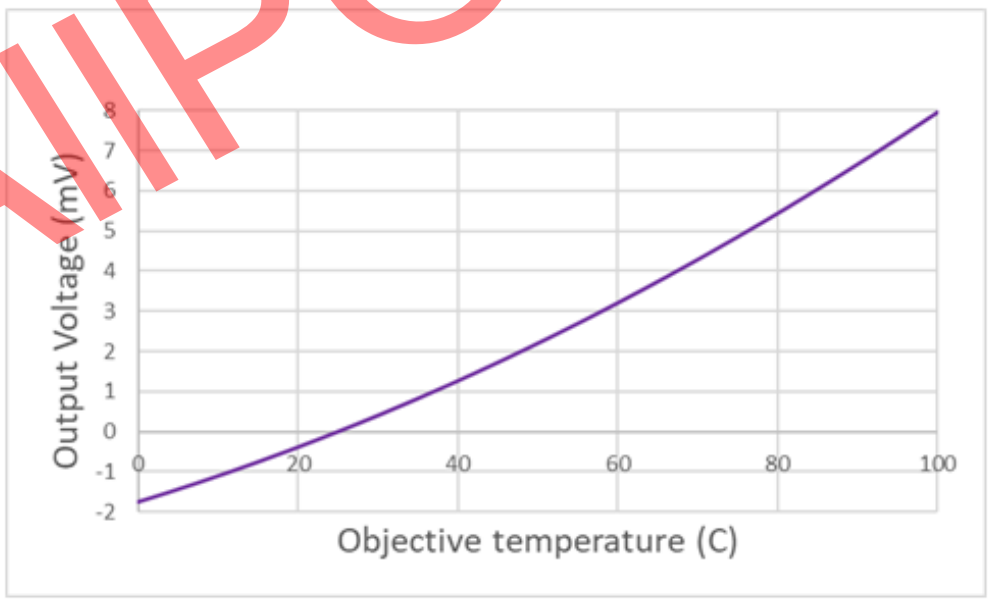


Bottom View

Transmission Curve



Output Curve



Outline of Sensor Package