

HCS C-Series

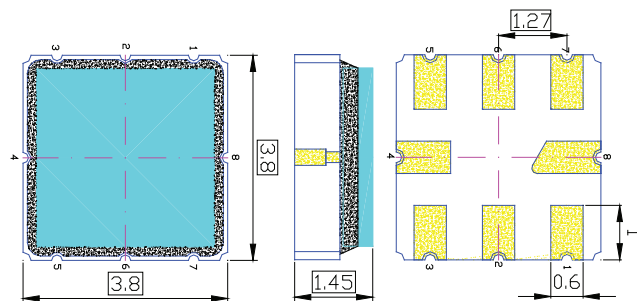
Single SMD Thermopile Sensor

The HCS C-Series provides a single thermopile sensor with application specific optical filter. It comes in a leadless ceramic package with a small footprint of $3.8 \times 3.8 \text{ mm}^2$ and a low thickness of 1.45mm. The device includes a selectable thermopile chip and an optional thermistor providing a temperature reference.

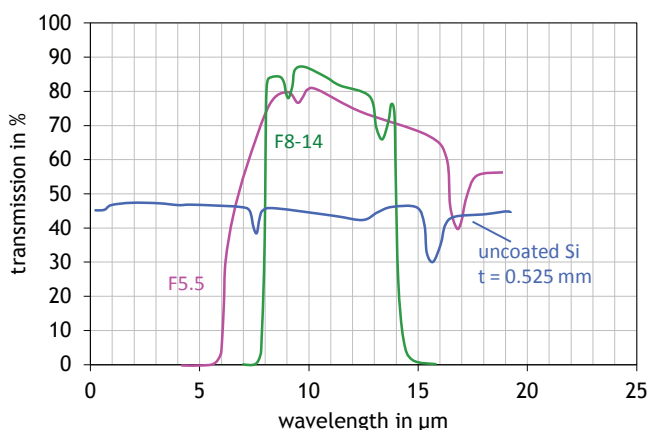
The sensor can be equipped with a large variety of optical filters depending on the targeted application. A broad band filter ensures a high signal for temperature measurements. A narrow band filter can be used for gas concentration measurements.

The module has a large operating range from -40°C to 120°C .

Dimensions



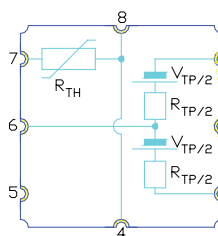
Filter Types for Temperature Measurements



Filter Types for Gas Analysis (General List)

Gas	CWL / nm	HPBW / nm	Filter
CH ₄	3300	160	F3.30/160
HC	3375	190	F3.375/190
CO ₂	4260	180	F4.26/180
CO ₂	4300	110	F4.30/110
CO ₂	4430	60	F4.43/60
CO	4640	180	F4.64/180
CO	4640	90	F4.64/90
N ₂ O	4530	85	F4.53/85
NO	5300	180	F5.30/180
(Reference)	3910	90	F3.91/90

PIN-Configuration



Pin No.	Symbol	Description
1	TP-	Thermopile minus
3	TP+	Thermopile plus
4/8	TH	Thermistor 1 (ground layer)
6	TPO	Thermopile central tapping
7	TH	Thermistor 2

Characteristics

	HCS C11	HCS C1c1	HCS C21	Unit
Element size	0.61 ²	0.76 ²	1.2 ²	mm ²
Voltage response ^{a)}	22	30	63	Vmm ² /W
Sensitivity ^{a)}	58	52	44	V/W
T/C of sensitivity ^{b)}	00.2	00.2	00.2	%/K
Resistance R _{TP} ^{b)}	86	75	84	kOhm
TC of resistance R _{TP} ^{b)}	0.02	0.02	0.02	%/K
Noise ^{b)}	38	35	37	nV / Hz ^{1/2}
Detectivity ^{a),b)}	0.9·10 ⁸	1.1·10 ⁸	1.4·10 ⁸	cm Hz ^{1/2} / W
Time constant	5	8	10	ms
Thermistor reference ^{b)}	100	100	100	kOhm
Temp. coeff. of thermistor ^{d)}	3940	3940	3940	K
Field of view	120			°
Operating temperature	-20 ... 120			°C
Storage temperature	-40 ... 120			°C

a) Without filter, T_{obj} = 100°C, DC

b) At T_{amb} = 25°C

c) 25°C, 50°C

Ordering Information

HCS	Heimann Ceramic Sensor
C	SMD package
1, 1c, 2	Thermopile chip
1, 0	1 = with thermistor, 0 = no thermistor
Fx	Application specific filter

E.g.: HCS C1c1 F5.5