

Thermopile detectors



T11361 series

High-sensitivity thermopile detectors with thermistor For gas density measurements

The T11361 series is a family of thermopile detectors equipped with an internal thermistor for compensating for output variations caused by changes in the ambient temperature. The T11361-01 is suited for gas density measurements or the like. It uses a TO-18 package with a window having high transmittance in the 3 to 5 μm spectral band. By attaching an external band-pass filter to the thermopile detector, customers can apply it to various types of gas density measurements. The T11361-05 employs a 4.3 μm band-pass filter and is suitable for CO₂ density measurements.

Features

- Spectral response: 3 to 5 μm (T11361-01), 4.3 μm (T11361-05)
- TO-18 package
- High sensitivity
- Built-in thermistor

Applications

- Gas density measurement and the like (T11361-01)
- CO₂ density measurement (T11361-05)

Absolute maximum ratings

Parameter	Symbol	T11361-01	T11361-05	Unit
Operating temperature	T _{opr}	-30 to +85	-10 to +80	°C
Storage temperature	T _{stg}	-40 to +100	-20 to +85	°C
Thermistor power dissipation	P _{th}	0.2		mW

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

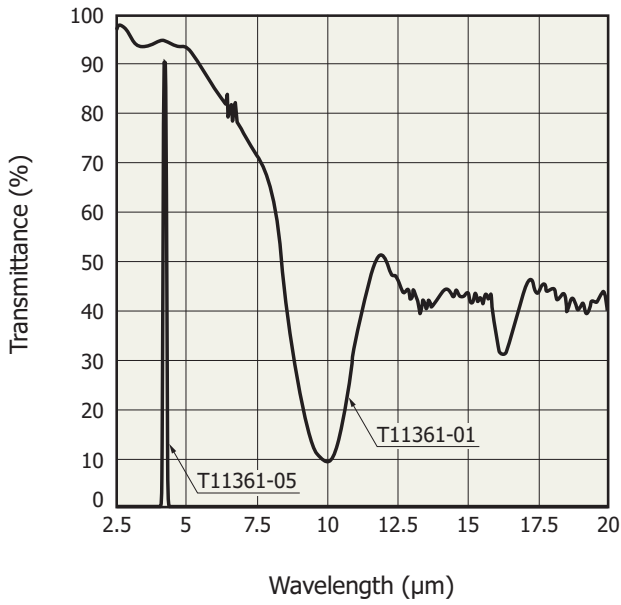
Structure

Parameter	Symbol	Condition	T11361-01	T11361-05	Unit
Photosensitive area	A		1.2 × 1.2		mm
Package	-		TO-18		-
Window material	-		AR coating Si with 3 to 5 μm high-transmittance	4.3 μm band-pass filter	-

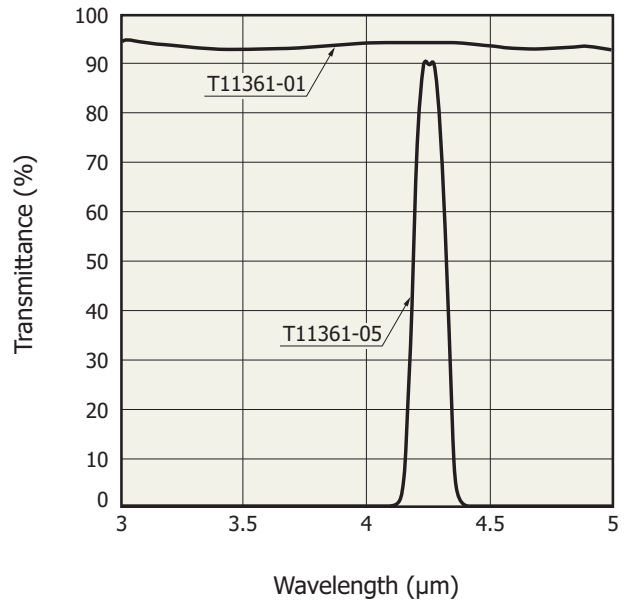
Electrical and optical characteristics (T_a=25 °C)

Parameter	Symbol	Condition	T11361-01			T11361-05			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response	λ		-	3 to 5	-	-	4.3	-	μm
Photosensitivity	S	1 Hz, 500 K	40	50	60	40	50	60	V/W
Element resistance	R _e		100	125	150	100	125	150	k Ω
Noise voltage	V _n	Johnson noise	-	45	50	-	45	50	nV/Hz ^{1/2}
Noise equivalent power	NEP		-	0.9	1.3	-	0.9	1.3	nW/Hz ^{1/2}
Detectivity	D*		0.9 × 10 ⁸	1.3 × 10 ⁸	-	0.9 × 10 ⁸	1.3 × 10 ⁸	-	cm·Hz ^{1/2} /W
Rise time	t _r	0 to 63%	-	20	30	-	20	30	ms
Temperature coefficient of element resistance	TCR		-	±0.1	-	-	±0.1	-	%/°C
Field of view	FOV	Photosensitivity 50%	-	90	-	-	90	-	degrees
Thermistor resistance	R _{th}		9	10	11	9	10	11	k Ω
Constant B	B	25/75 °C	3800	3900	4000	3800	3900	4000	K

Spectral transmittance of window material (typical example)

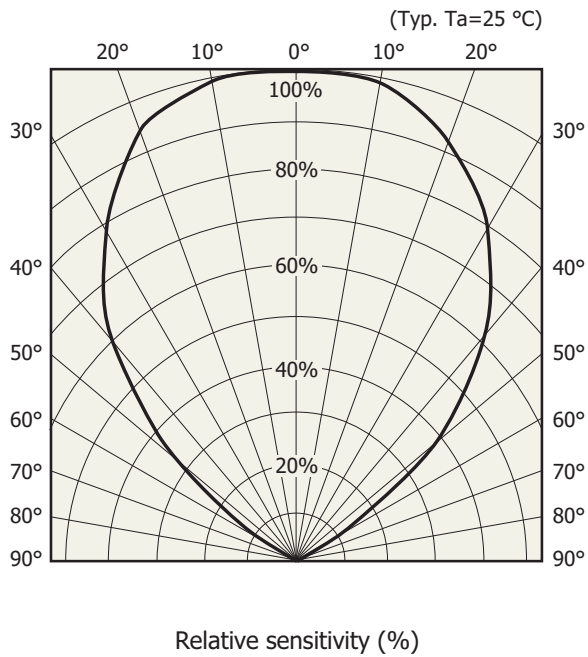


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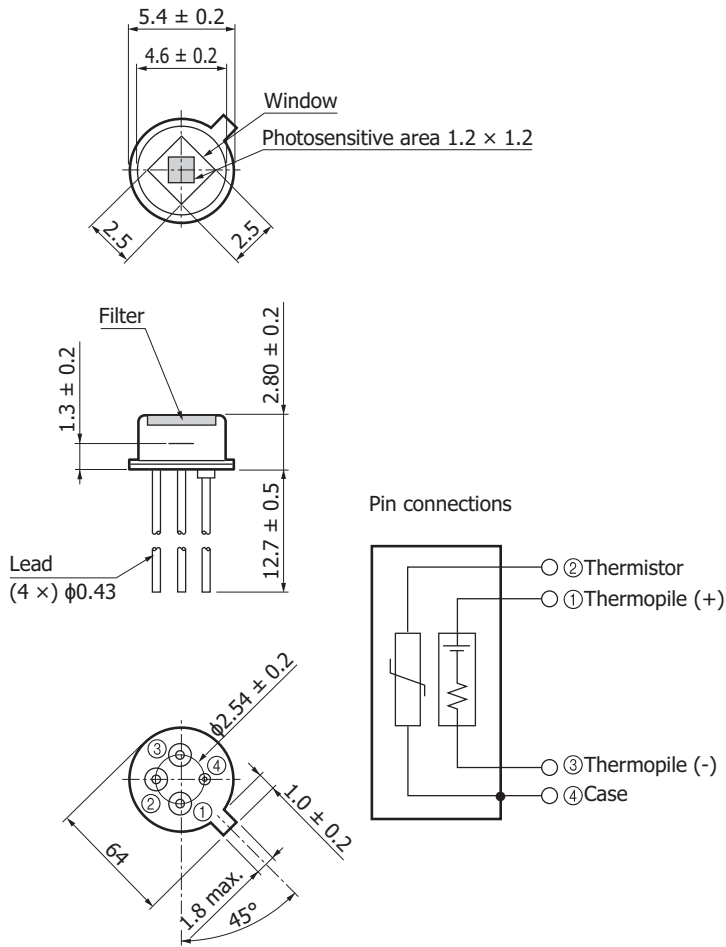
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Directivity



KIRDB0451EA

Dimensional outline (unit: mm)



K1RDA0240EA

■ Precautions (T11361-05)

The T11361-05 band-pass filter has a second order transmission at 10 μm or higher. If this causes an unwanted effect, install a sapphire glass or the like in front of the light input window to cut the long wavelengths.

■ Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Disclaimer
- Metal, ceramic, plastic package products

Information described in this material is current as of August 2018.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.

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