

# Thermopile detector



T15770

## High sensitivity, for flame detection

The T15770 is a high-sensitivity thermopile detector suitable for flame detection. Infrared energy generated from flame has spectral characteristics of peak wavelength 4.45  $\mu\text{m}$ . The light input window of the T15770 employs the band-pass filter which passes the light of this wavelength.

### Features

- Spectral response: 4.45  $\mu\text{m}$
- TO-18 package
- High sensitivity

### Applications

- Flame detection

### Absolute maximum ratings

Parameter	Symbol	Specification	Unit
Operating temperature	Topr	-30 to +85	$^{\circ}\text{C}$
Storage temperature	Tstg	-40 to +125	$^{\circ}\text{C}$

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.

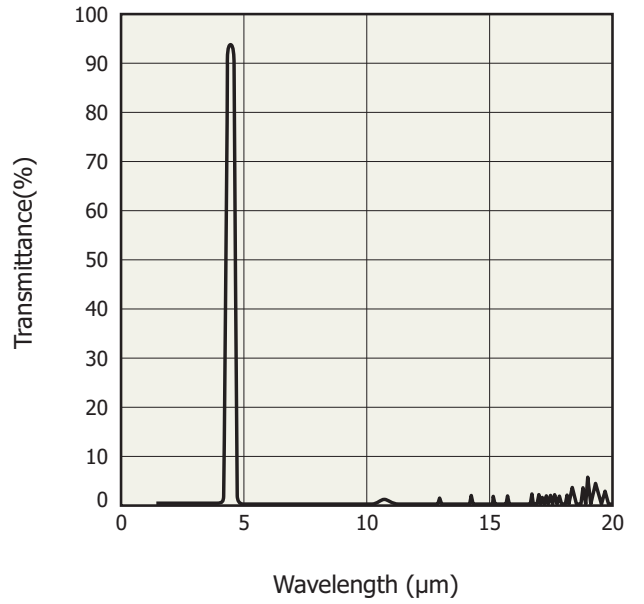
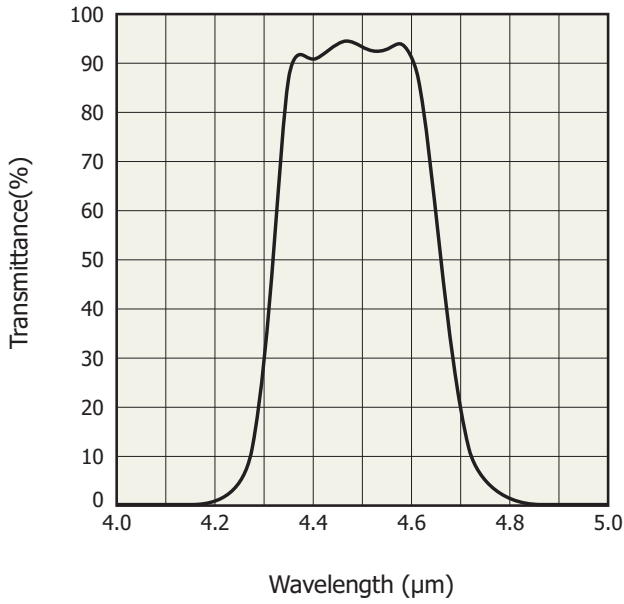
### Structure

Parameter	Symbol	Condition	Specification	Unit
Photosensitive area	A		1.2 × 1.2	mm
Package	-		TO-18	-
Window material	-		Si	-

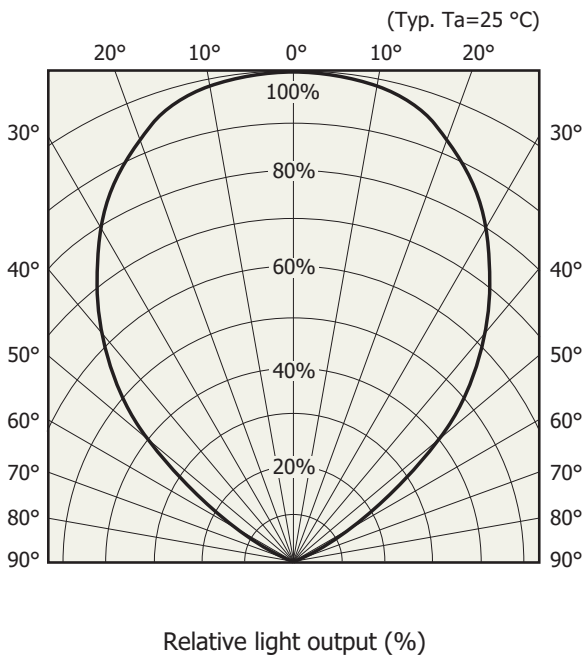
### Electrical and optical characteristics (Ta=25 $^{\circ}\text{C}$ )

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response	$\lambda$		-	4.45	-	$\mu\text{m}$
Photosensitivity	S	1 Hz, 500 K	40	50	60	V/W
Element resistance	Re		100	125	150	k $\Omega$
Noise voltage	Vn	Johnson noise	-	45	50	nV/Hz <sup>1/2</sup>
Noise equivalent power	NEP		-	0.9	1.3	nW/Hz <sup>1/2</sup>
Detectivity	D*		0.9 × 10 <sup>8</sup>	1.3 × 10 <sup>8</sup>	-	cm·Hz <sup>1/2</sup> /W
Rise time	tr	0 to 63%	-	20	30	ms
Temperature coefficient of element resistance	TCR		-	±0.1	-	%/ $^{\circ}\text{C}$
Field of view	FOV	Photosensitivity 50%	-	90	-	degrees

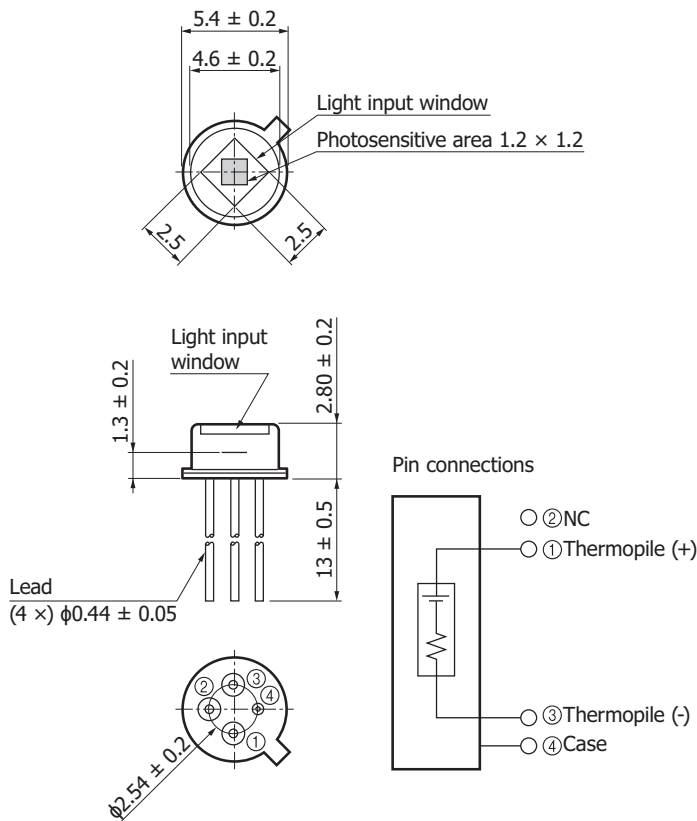
**Spectral transmittance characteristics of window material (typical example)**



**Directivity**



**Dimensional outline (unit: mm)**



KIRDA0278EA

**Precautions**

The T15770 band-pass filter has a second order transmission at wavelength  $10 \mu\text{m}$  or higher. If the effect of the second order transmission cannot be ignored, install a sapphire glass or the like in front of the light input window.

**Related information**

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

■ Precautions

- Disclaimer
- Metal, ceramic, plastic package products

The content of this document is current as of February 2021.

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.

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