

Infrared detector modules with preamp



Metal dewar type

High sensitivity modules of easy-to-use

These devices combine a dewar type detector with a compatible preamplifier, and easily operate to detect infrared radiation simply by connecting to a DC power supply. InGaAs, InSb, and Type II superlattice detectors are provided as standard devices (liquid nitrogen cooling). Custom-designed devices with different active areas, FOV or amplifier gain, etc. are also available to meet your specific needs.

Features

- Compact integral detector unit
- Optimum connections between the detector element and preamplifier allow amplified signals to be easily obtained.

Required power supply specifications

- G7754 series, P7751 series: ± 15 V (± 12.0 to ± 17.5 V can also be used)
- Current capacity: 1.5 times or more of each module's maximum current consumption
- Ripple noise: 5 mVp-p or less
- Analog power supply only
- Recommended DC power supplies: PW18-3AD (TEXIO)
E3630A (Keysight Technologies)

Applications

- Infrared detection

Accessories

- Cable (for DC power supply):
2 m (connector installed at one end) **A4372-02**
- BNC-BNC coaxial cable (for signal output): 2 m
- Instruction manual

Specifications / Absolute maximum ratings

Type no.	Detector element	Photo-sensitive area (mm)	External power supply*1				Absolute maximum ratings		
			Supply voltage			Supply capacitance (mA)	External input voltage (V)	Operating temperature*2 Topr (°C)	Storage temperature*2 Tstg (°C)
			Min. (V)	Typ. (V)	Max. (V)				
G7754-01	InGaAs (G12183-010 chip)	$\phi 1$	± 12.0	± 15.0	± 17.5	± 23	± 18	0 to +40	-20 to +50
G7754-03	InGaAs (G12183-030 chip)	$\phi 3$							
P7751-01	InSb (P5968-060)	$\phi 0.6$							
P7751-02	InSb (P5968-200)	$\phi 2$	± 30						
C15780-401	Type II superlattice (P15409-901)	$\phi 0.1$	± 14.5	± 15.0	± 15.5	+45, -30			

*1: Use only an analog power supply.

*2: No dew condensation

When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristic and reliability.

Note: Cooling hold time: 12 hours or more (at the time of shipment)

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.

Electrical and optical characteristics (Typ. Ta=25 °C)

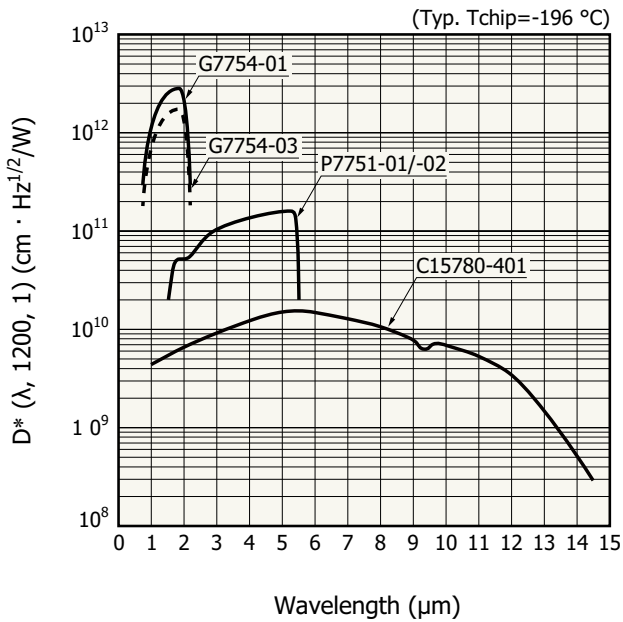
Type No.	Measurement condition	Peak sensitivity wavelength λ_p (μm)	Cutoff wavelength λ_c (μm)	Photo-sensitivity S $\lambda=\lambda_p$ *3 (V/W)	Noise equivalent power NEP $\lambda=\lambda_p$ (W/Hz ^{1/2})	Cutoff frequency fc (Hz)	Output impedance (Ω)	Maximum output voltage RL=1 k Ω (V)	Maximum current consumption*4 (mA)
	Element temperature Tchip (°C)								
G7754-01	-196	2.0	2.4	2×10^9	3×10^{-14}	2 to 500	50	± 10	± 15
G7754-03				5×10^8	1.5×10^{-13}	2 to 500		± 10	± 15
P7751-01*5		5.3	5.5	3×10^8	3×10^{-13}	5 to 10000		± 10	± 20
P7751-02*5				1.5×10^8	1×10^{-12}	5 to 12000		± 10	± 20
C15780-401*5		5.4	14.5	2×10^6	5.5×10^{-12}	7 to 100000		± 14	+30, -20

*3: f=100 Hz (G7754-01, G7754-03), f=1.2 kHz (P7751-01, P7751-02, C15780-401)

*4: Vs=±15 V

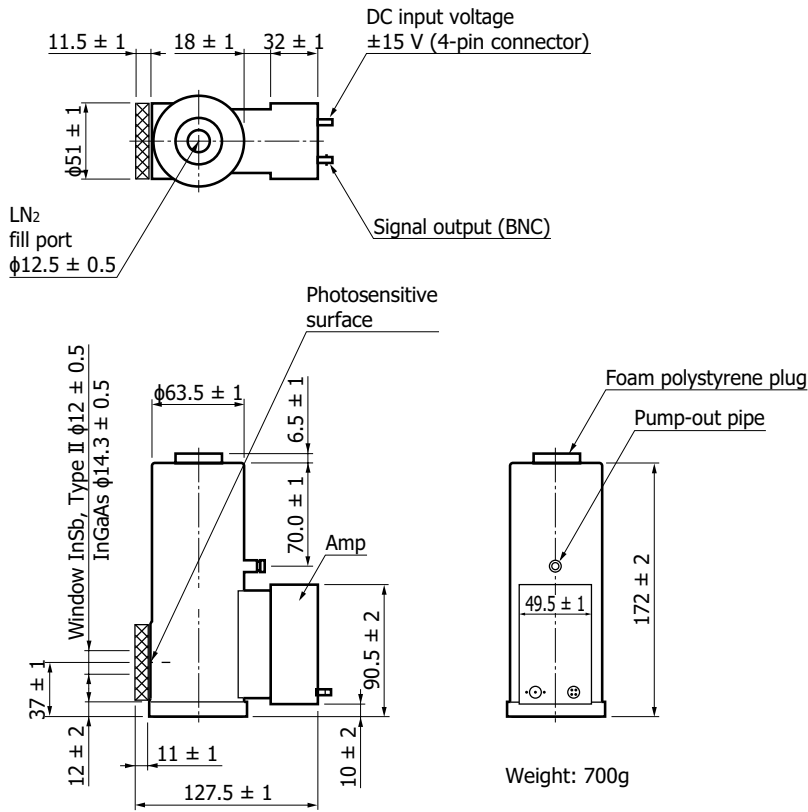
*5: FOV=60°

Spectral response



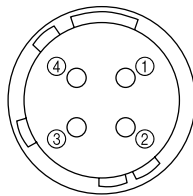
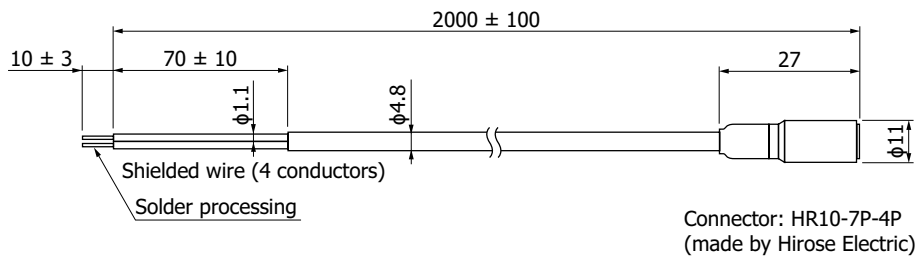
KIRD80076EJ

Dimensional outline (unit: mm)



KIRDA0010EE

Cable (for DC power supply) A4372-02



Pin no.	Pin connection	Lead color
①	-Vs	Blue
②	GND	Black/white/blue stranded wire
③	GND	
④	+Vs	White

Tolerance unless otherwise noted: ±1

KIRDA0196EB

⚠️ Precaution for use

- The detector should not be placed horizontally during use.
- Using these detectors in an environment subjected to vibration may cause microphonic noise. Take measures to prevent vibration as needed.

⚠️ Related information

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

■ Precautions

- Disclaimer
- Safety consideration
- Compound opto-semiconductors (photosensors, light emitters)

■ Technical note

- Compound semiconductor photosensors

Information described in this material is current as of July 2024.

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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