

# 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:  $\pm 15$  V ( $\pm 12.0$  to  $\pm 17.5$  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)	Incident light level*2 (nW)	External input voltage (V)	Operating temperature*3 Topr (°C)	Storage temperature*3 Tstg (°C)
			Min. (V)	Typ. (V)	Max. (V)					
G7754-01	InGaAs (G12183-010 chip)	φ1	±12.0	±15.0	±17.5	±23	10	±18	0 to +40	-20 to +50
G7754-03	InGaAs (G12183-030 chip)	φ3					40			
P7751-01	InSb (P5968-060)	φ0.6				±30	60			
P7751-02	InSb (P5968-200)	φ2					0.1 μW			
C15780-401	Type II superlattice (P15409-901)	φ0.1	±14.5	±15.0	±15.5	+45, -30	14 μW			

\*1: Use only an analog power supply.

\*2: The value at which the output voltage of each module is maximized when light with the maximum sensitivity wavelength  $\lambda_p$  enters the device. This value does not cause immediate failure.

However, if light that destroys the device (1 W/mm<sup>2</sup> for all elements) enters the device, it may cause a drop in product quality.

\*3: 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)

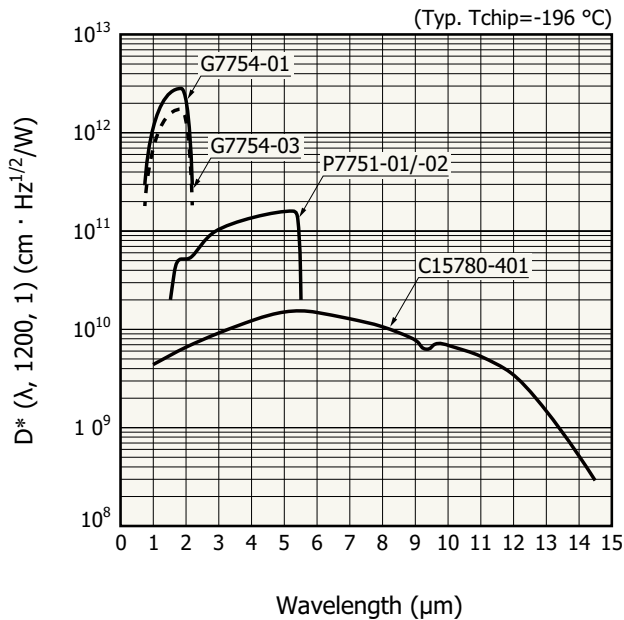
Type No.	Measurement condition Element temperature Tchip (°C)	Peak sensitivity wavelength $\lambda_p$ ( $\mu\text{m}$ )	Cutoff wavelength $\lambda_c$ ( $\mu\text{m}$ )	Photo-sensitivity S $\lambda=\lambda_p$ *4 (V/W)	Noise equivalent power NEP $\lambda=\lambda_p$ (W/Hz <sup>1/2</sup> )	Cutoff frequency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

\*4: f=100 Hz (G7754-01, G7754-03), f=1.2 kHz (P7751-01, P7751-02, C15780-401)

\*5: Vs=±15 V

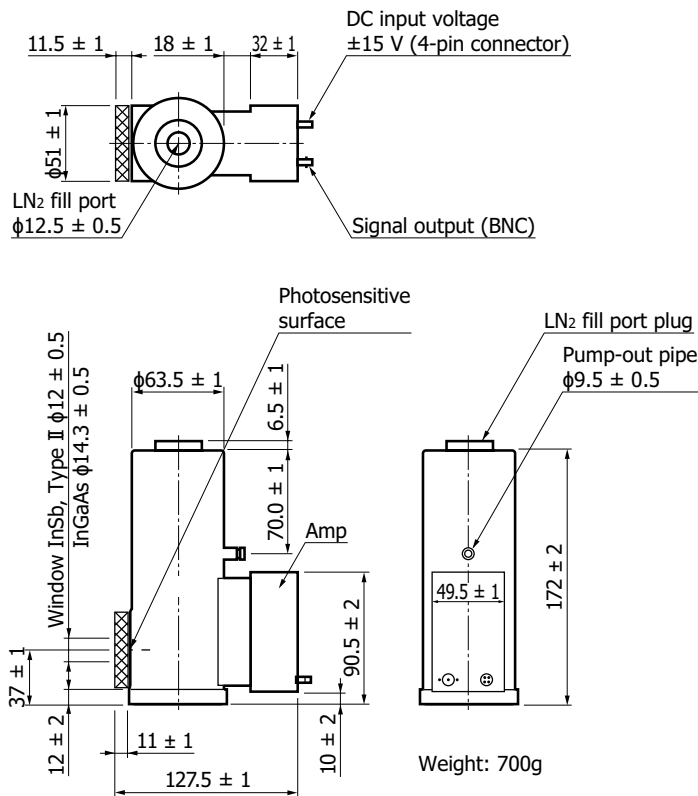
\*6: FOV=60°

### Spectral response



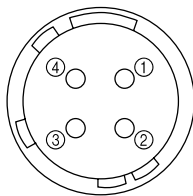
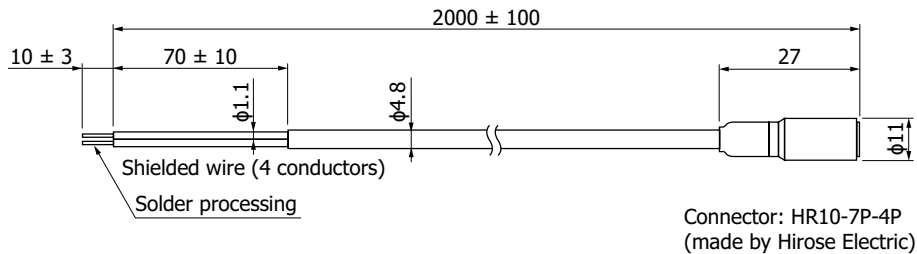
KIRD80076EJ

Dimensional outline (unit: mm)



KIRDA0010EF

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](http://www.hamamatsu.com/sp/ssd/doc_en.html)

### ■ Precautions

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

### ■ Catalogs

- Selection guide / Infrared detectors
- Technical note / Compound semiconductor photosensors

Information described in this material is current as of March 2025.

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