

InGaAs PIN photodiode with preamp G10478 series

Pigtail type, 1.3/1.55 μm , 1.25 Gbps



G10478 series is a family of high-speed receivers specifically developed for 1.3/1.55 μm band optical fiber communications. These devices incorporate a high-speed, high-sensitivity InGaAs PIN photodiode and a high-speed preamp integrated in a pigtail module.

Features

- High-speed response
- High gain with AGC (Auto Gain Control)
- Low power supply voltage: 3.3 V
- Differential output
- Wide dynamic range: -28 to -1.5 dBm

Applications

- Optical fiber communications
- Fiber channel
- Gigabit Ethernet

■ Absolute maximum ratings

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5 Min., +3.8 Max.	V
Operation temperature *1	Topr	-40 to +85	$^{\circ}\text{C}$
Storage temperature *1	Tstg	-40 to +85	$^{\circ}\text{C}$

*1: No condensation

■ Electrical and optical characteristics

($T_a=25^{\circ}\text{C}$, $V_{cc}=3.3\text{ V}$, $V_{ee}=0\text{ V}$, $R_L=50\ \Omega$ *2, $\lambda=1.31\ \mu\text{m}$, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo sensitivity	S	Pin= -22 dBm *2, *3	2.3	3.0	-	V/mW
Supply current	Icc	Dark state, $R_L=\infty$	-	20	25	mA
Output bias voltage	Vo	Dark state, $R_L=\infty$	-	2.1	-	V
Cut-off frequency	fc	Pin= -22 dBm, -3 dB *2	0.8	1	-	GHz
Low cut-off frequency	fc-L	Pin= -22 dBm, -3 dB	-	0.3	1.0	kHz
Noise equivalent power	NEP	Dark state fc-L to 938 MHz *2, *3	-	150	240	nWrms
Minimum receivable sensitivity	Pmin	1.25 Gbps, PRBS=2 ²³ -1 BER=10 ⁻¹⁰	-	-28	-26	dBm
Maximum receivable sensitivity	Pmax	Extinction ratio 10 dB	-1.5	-	-	
Optical return loss	ORL	1.31/1.55 μm	27	35	-	dB

*2: Output: capacitive coupling

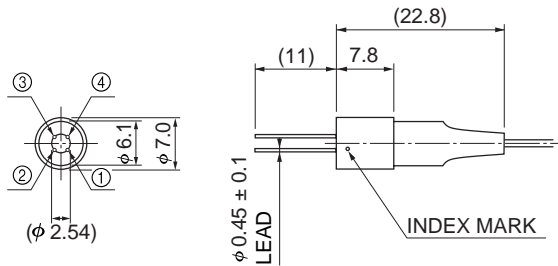
*3: Single-ended (Vout+) measurement

■ Package lineup

Structure	G10478-11	G10478-12
Mount type	Coaxial	
Fiber	SM (9.5/125) ϕ 0.9 mm, 1 m +20 cm/-0 cm	
Connector	SC	FC

■ Dimensional outlines (unit: mm, tolerance unless otherwise noted: ±0.2 mm)

Mount type



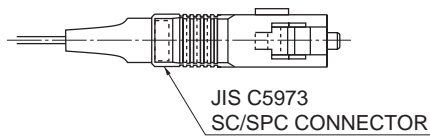
■ Pin connection

Pin No.	G10478 series
①	Vcc
②	Vout+
③	Vee
④	Vout-

KIRDA0099EA

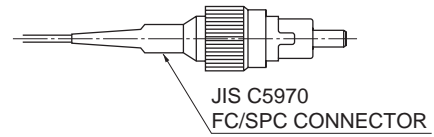
Connector

(1) SC



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(2) FC



KIRDA0103EA

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HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184, www.hamamatsu.com

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741