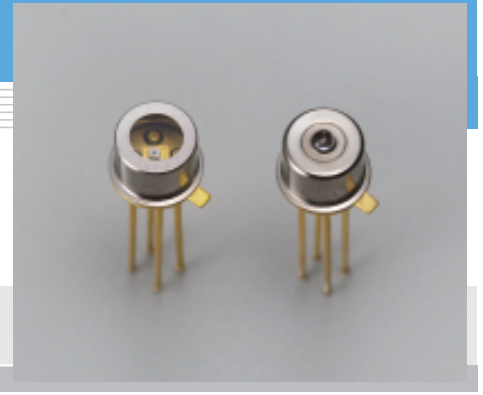


GaAs PIN photodiode with preamp G9842 series

TO-46 package, 0.85 μm , 2.5 Gbps



G9842 series is a family of high-speed receivers specifically developed for 0.85 μm band optical fiber communications. These devices incorporate a high-speed, high-sensitivity GaAs PIN photodiode integrated with a high-speed preamp, allowing easy connection to a latter-stage circuit. Lens window types are also available for efficient and easy coupling to an optical fiber.

Features

- High-speed response
- High gain with AGC (Auto Gain Control)
- Low power supply voltage: 3.3 V
- Differential output
- Wide dynamic range: -24 to 0 dBm

Applications

- Optical fiber communications
- Fiber channel
- Gigabit Ethernet

General ratings / Absolute maximum ratings

Parameter	Symbol	G9842	G9842-02	Unit
Window	-	flat	lens	-
Active area	-	$\phi 0.08$		mm
Supply voltage	Vcc	-0.5 Min., +5.0 Max.		V
Operating 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

(Typ. $T_a=25^{\circ}\text{C}$, $V_{cc}=3.3\text{ V}$, $V_{ee}=0\text{ V}$, $R_L=50\ \Omega$ *2, $\lambda=850\text{ nm}$, unless otherwise noted)

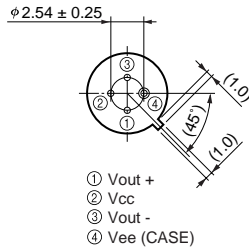
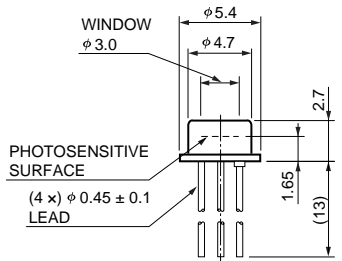
Parameter	Symbol	condition	Min.	Typ.	Max.	Unit
Photo sensitivity	S	Pin= -20 dBm *2, *3	0.7	1.0	-	V/mW
Supply current	Icc	Dark state, $R_L=\infty$	-	45	60	mA
Output bias voltage	Vo	Dark state, $R_L=\infty$	-	3.0	-	V
Cut-off frequency	fc	Pin= -20 dBm, -3 dB *2	1.7	2.1	-	GHz
low cut-off frequency	fc-L	Pin= -20 dBm, -3 dB	-	3.0	-	kHz
Noise equivalent power	NEP	Dark state fc-L to 1875 MHz *2, *3	-	440	710	nWrms
Minimum receivable sensitivity	Pmin	2.5 Gbps PRBS=2 ²³ -1, BER=10 ⁻¹⁰	-	-24	-22	dBm
Maximum receivable sensitivity	Pmax	Extinction ratio=10 dB	0	-	-	

*2: Output: capacitive coupling

*3: Single-ended (V_{out+}) measurement

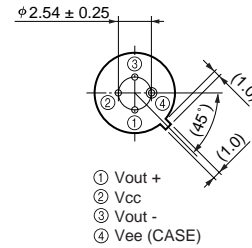
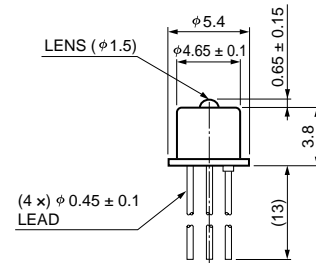
■ Dimensional outlines (unit: mm)

G9842



KGPD A0026EA

G9842-02



KGPD A0027EA