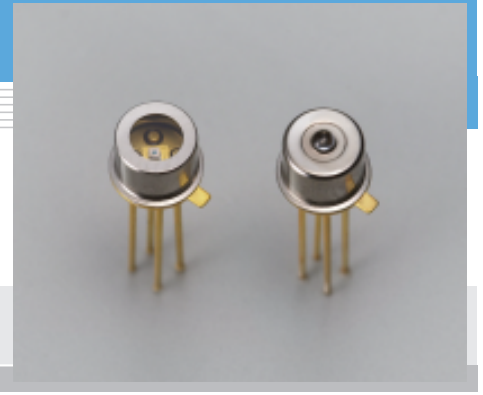


GaAs PIN photodiode with preamp G9803/G9842 series

TO-46 package, 0.85 μm , 1.25, 2.5 Gbps



G9803/G9842 series are 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
- Sensitivity:
 - 26 to 0 dBm (G9803 series)
 - 24 to 0 dBm (G9842 series)

Applications

- Optical fiber communications
- IEEE1394
- Fiber channel
- Gigabit Ethernet

General ratings / Absolute maximum ratings

Parameter	Symbol	G9803	G9803-02	G9842	G9842-02	Unit
Window	-	flat	lens	flat	lens	-
Active area	-	$\phi 0.08$				mm
Supply voltage	Vcc	-0.5, +5.0				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	G9803 series			G9842 series			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Photo sensitivity	S	Pin= -20 dBm *2, *3	1.2	1.7	-	0.7	1.0	-	V/mW
Supply current	Icc	Dark state, $R_L=\infty$	-	45	60	-	45	60	mA
Output bias voltage	Vo	Dark state, $R_L=\infty$	-	3.0	-	-	3.0	-	V
Cut-off frequency	fc	Pin= -20 dBm, -3 dB *2	0.85	1	-	1.7	2.1	-	GHz
low cut-off frequency	fc-L	Pin= -20 dBm, -3 dB	-	3.5	-	-	3.0	-	kHz
Noise equivalent power	NEP	Dark state, *2, *3, *4	-	250	400	-	440	710	nWrms
Minimum receivable sensitivity	Pmin	PRBS=2 ²³ -1, BER=10 ⁻¹⁰ Extinction ratio=10 dB, *5	-	-26	-24	-	-24	-22	dBm
Maximum receivable sensitivity	Pmax		0	-	-	0	-	-	
Output impedance	Rout		40	50	60	40	50	60	Ω

*2: Output: capacitive coupling

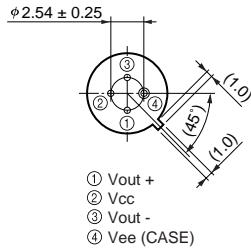
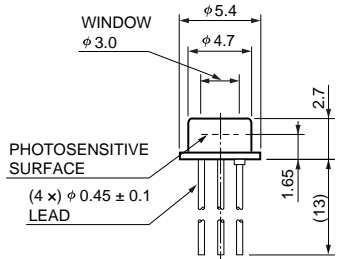
*3: Single-ended (Vout+) measurement

*4: to 938 MHz (G9803 series), to 1875 MHz (G9842 series)

*5: 1.25 Gbps (G9803 series), 2.5 Gbps (G9842 series)

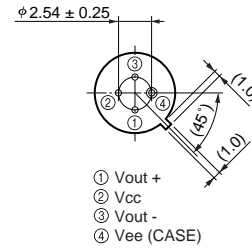
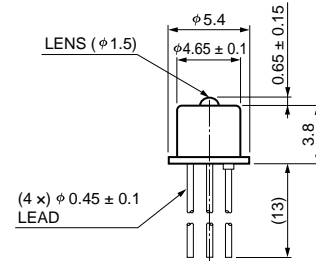
■ Dimensional outlines (unit: mm)

G9803, G9842



KGPD A0026EA

G9803-02, G9842-02



KGPD A0027EA