

InGaAs PIN photodiode with preamp

G9393-14

ROSA type, 1.3/1.55 μm , 10 Gbps



Features

- $\phi 1.25$ mm sleeve type ROSA (Receiver Optical Sub-Assembly)
- High-speed response: 10 Gbps
- Low power supply voltage: 3.3 V
- Differential output
- Sensitivity: +1 to -18 dBm Typ.
- Differential trans-impedance
- Optical return loss: 35 dB Typ.

Applications

- SDH/SONET
- Optical fiber communications

Absolute maximum ratings ($T_a=25^\circ\text{C}$)

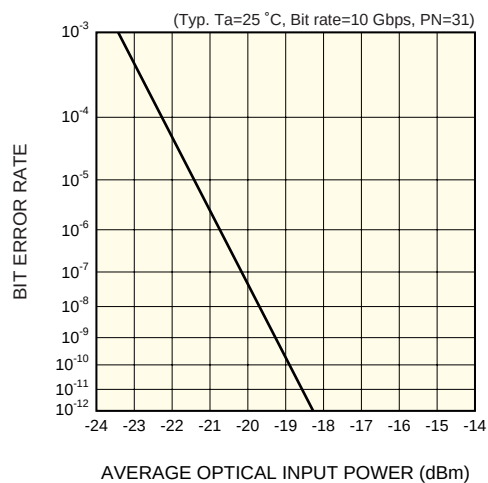
Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5, +4	V
Reverse voltage (photodiode)	V _R	10	V
Operating temperature	T _{opr}	0 to +70	$^\circ\text{C}$
Storage temperature	T _{stg}	-40 to +85	$^\circ\text{C}$

Electrical and optical characteristics ($T_a=25^\circ\text{C}$, Vcc=V_{pd}=3.3 V, V_{ee}=0 V, R_L=50 Ω , unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo sensitivity	S	$\lambda=1.31 \mu\text{m}$	0.70	0.80	-	A/W
		$\lambda=1.55 \mu\text{m}$	0.75	0.85	-	
Supply current	I _{cc}	Dark state, R _L = ∞	-	35	50	mA
Cut-off frequency	f _c	$\lambda=1.55 \mu\text{m}$, -3 dB	7.0	8.0	-	GHz
Low cut-off frequency	f _{c-L}	$\lambda=1.55 \mu\text{m}$, -3 dB	-	25	40	kHz
Noise equivalent power *	NEP	Dark state, DC to 10 GHz	-	1.5	-	μW_{rms}
Differential trans-impedance	T _z	f=100 MHz	4.0	5.5	-	k Ω
Minimum receivable sensitivity	P _{min}	10 Gbps, NRZ, $\lambda=1.55 \mu\text{m}$ PRBS=2 ³¹ -1, BER=10 ⁻¹²	-	-18	-	dBm
Maximum receivable sensitivity	P _{max}	Extinction ratio=13 dB	-	+1	-	dBm
Optical return loss	ORL	$\lambda=1.31 \mu\text{m}$	28	35	-	dB

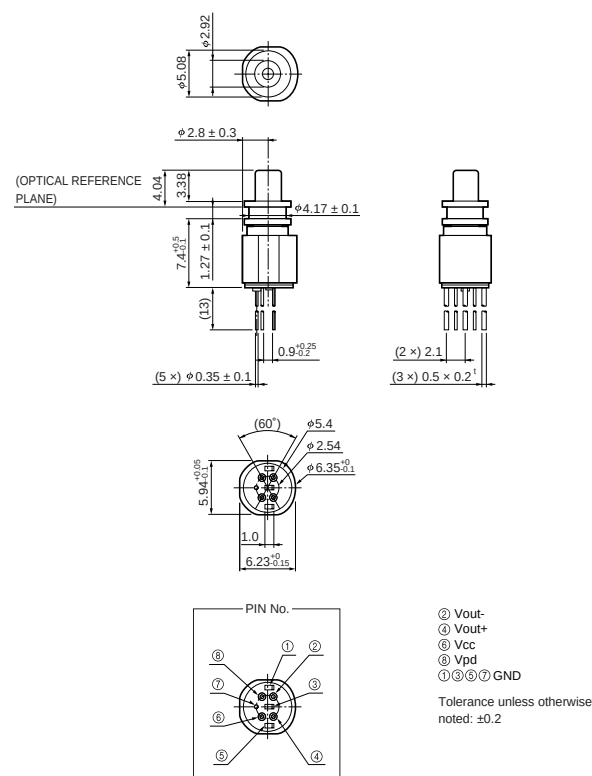
* Single-ended (V_{out}+) measurement

■ Bit error rate



KIRDB0310EA

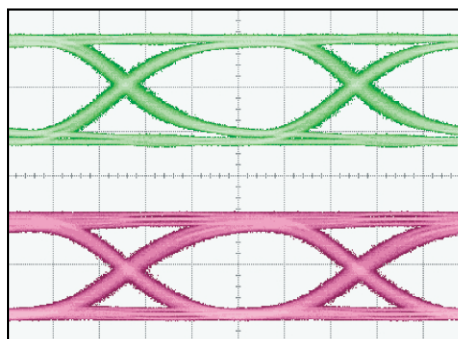
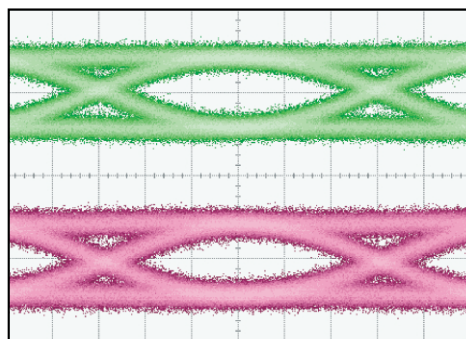
■ Dimensional outline (unit: mm)



KIRDA0177EA

■ Eye diagram

Bit rate=10 Gbps, PN=31, NRZ, $\lambda=1.55 \mu\text{m}$, Extinction ratio=13 dB, $V_{cc}=V_{pd}=3.3 \text{ V}$



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