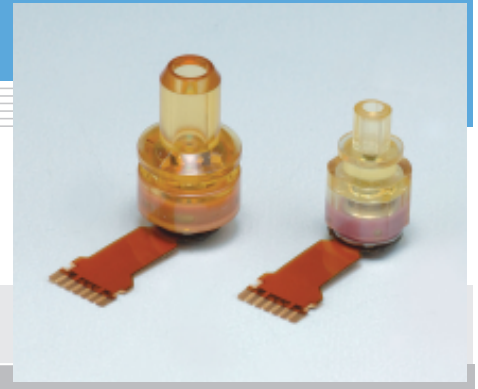


GaAs PIN photodiode with preamp G10447-51/-54

ROSA type, 850 nm, 10 Gbps



Features

- $\phi 1.25$ mm (-54)/ $\phi 2.5$ mm (-51) sleeve type ROSA (Receiver Optical Sub-Assembly)
- High-speed response: 10 Gbps
- Low power supply voltage: $V_{cc}=V_{pd}=3.3$ V
- Differential output
- Sensitivity: +2 to -13.5 dBm Typ. (Extinction ratio=3.0 dB)
- Trans-impedance: 6 k Ω Typ. (single-ended)
- Large area ($\phi 0.06$ mm) for multi-mode optical fibers

Applications

- 10 gigabit ethernet
- Optical fiber communications

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Supply voltage	V _{cc}	-0.5 Min., +3.7 Max.	V
Reverse voltage (photodiode)	V _R	7	V
Operating temperature *1	T _{opr}	-20 to +85	°C
Storage temperature *1	T _{stg}	-40 to +85	°C

*1: No condensation

■ Recommended operating conditions

Parameter	Symbol	Value	Unit
Case temperature *1	T _c	-20 to 85	°C
Supply voltage	V _{cc}	3.05 to 3.53	V
Reverse voltage (photodiode)	V _{pd}	3.05 to 5.0	V
Spectral response range	λ	830 to 870	nm
Load resistance *2	R _L	50	Ω
Bit rate	-	9 to 10.3	Gbps
Bit pattern	-	NRZ, Mark ratio=1/2	-

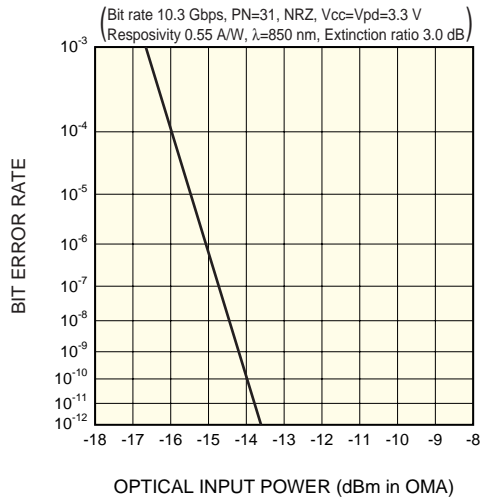
*2: Capacitive coupling

■ Electrical and optical characteristics ("■ Recommended operating conditions", unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Responsivity	R		0.4	0.55	-	A/W	
Supply current	I _{cc}	Dark state, R _L = ∞	-	32	45	mA	
Cut-off frequency	f _c	-3 dB	6.0	8.0	12.3	GHz	
Low cut-off frequency	f _{c-L}	-3 dB	-	10	50	kHz	
Trans-impedance *3	T _z	R _L =50 Ω , f=100 MHz	4	6	-	k Ω	
Stressed receivable sensitivity (OMA)	SRS	PN=31, BER=10 ⁻¹² Extinction ratio=3 dB λ =850 nm, VECP=3.5 dB	-	-12	-	dBm	
Minimum receivable sensitivity (OMA)	P _{min} (OMA)	PN=31 BER=10 ⁻¹²	-	-13.5	-12	dBm	
Maximum receivable sensitivity (Average)	P _{max}						Extinction ratio=3 dB
Output amplitude	V _{omax}	Differential	300	450	650	mV _{pp}	
Dark current	I _D	Dark state V _{pd} =3.3 V	-	T _c =25 °C	0.02	1	nA
					-	-	
Optical return loss	ORL		12	14	-	dB	
Output resistance	R _{out}		-	60	-	Ω	

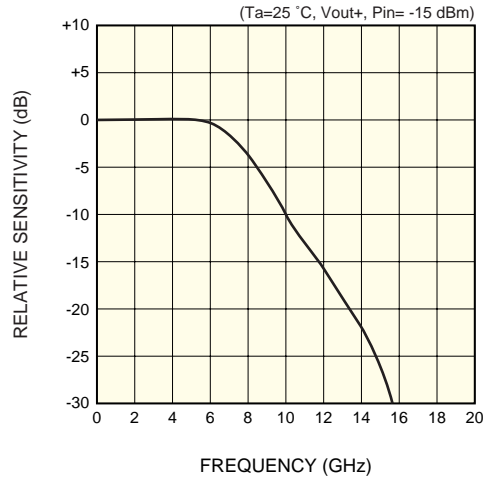
*3: Single-ended (V_{out}+) measurement

Bit error rate



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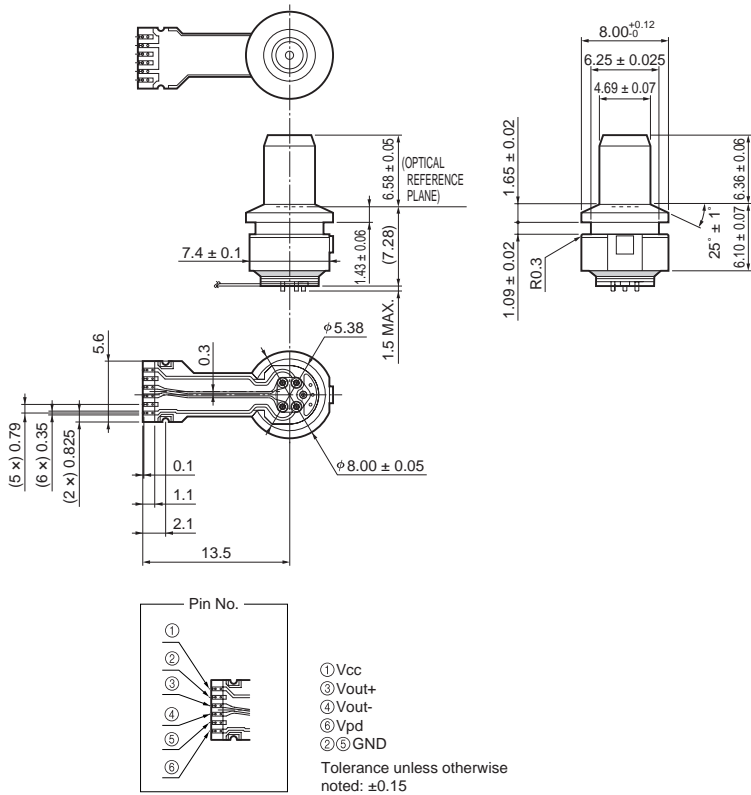
Frequency response



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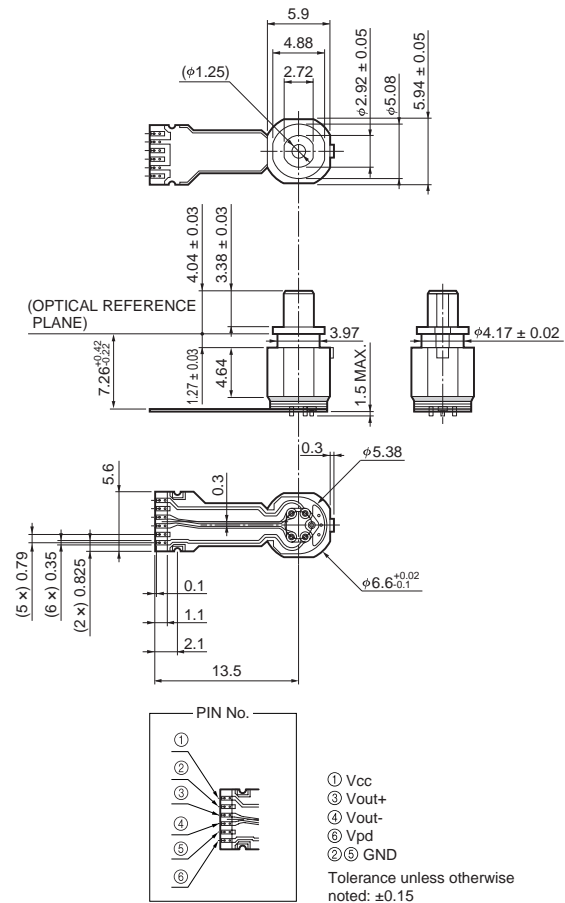
Dimensional outlines (unit: mm)

G10447-51



KGPD0029EA

G10447-54



Note: LC connector with lead pin terminal (-14) is available.

KIRDA0192EB

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