

NEW

PHOTODIODE

InGaAs APD with preamp G10519-14

ROSA, 1.3/1.55 μm , 2.7 Gbps

Features

- High-speed response: 2.7 Gbps
- High sensitivity: 27 mV/ μW ($\lambda=1.55 \mu\text{m}$, $M=10$)
- Differential output
- Wide dynamic range: -5 to -33 dBm
- Optical return loss: 35 dB
- Isolation type: Housing and signal ground are electrically isolated.

Applications

- Optical fiber communications
- SDH STM-16 long Haul

Absolute maximum ratings

Parameter	Symbol	Value	Unit
Supply voltage	V _{cc}	-0.5 Min., +5 Max.	V
Reverse voltage (APD)	V _{R Max.}	0 to V _{BR}	V
Reverse current (APD)	I _R	2	mA
Forward current (APD)	I _F	0	mA
Operating temperature *1	T _{opr}	-20 to +75	°C
Storage temperature *1	T _{stg}	-40 to +85	°C

*1: No condensation

Electrical and optical characteristics

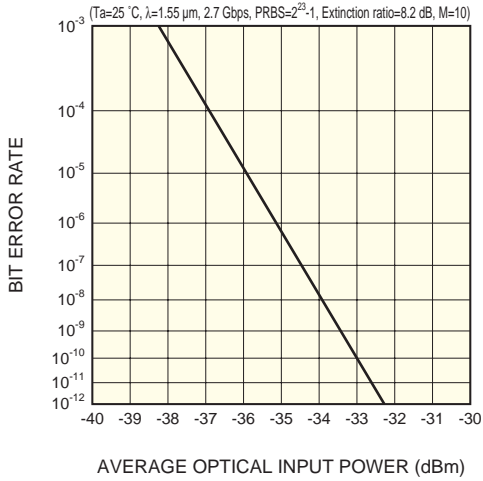
(T_a=25 °C, $\lambda=1.55 \mu\text{m}$, V_{cc}=3.3 V, V_{ee}=0 V, R_L=50 Ω *2, M=10, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Responsivity	R	M=1, Pin= -27 dBm, T _c =25 °C	0.8	0.9	-	A/W
Supply current	I _{cc}	Dark state, R _L = ∞	-	25	35	mA
Cut-off frequency	f _c	Pin= -27 dBm, -3 dB	1.7	2.0	-	GHz
Low cut-off frequency	f _{c-L}	Pin= -27 dBm, -3 dB	-	7	100	kHz
Trans-impedance *3	T _z	R _L =50 Ω , f=100 MHz	2	3	-	k Ω
Breakdown voltage	V _{BR}	I _D =100 μA , Dark state, T _c =25 °C	40	55	65	V
Temperature coefficient of V _{BR}	-	T _c = -20 °C to 75 °C	-	0.11	0.16	V/°C
Minimum receivable sensitivity	P _{min}	2.7 Gbps, NRZ, PRBS=2 ²³ -1 BER=10 ⁻¹⁰ ,	-	-33	-31	dBm
Maximum receivable sensitivity	P _{max}	Extinction ratio=8.2 dB V _R : the best voltage	-7	-5	-	
Dark current	I _D	Dark state, V _R =0.9 \times V _{BR} , T _c =25 °C	-	40	80	nA
Optical return loss	ORL	$\lambda=1.31/1.55 \mu\text{m}$	27	35	-	dB

*2: Output: capacitive coupling

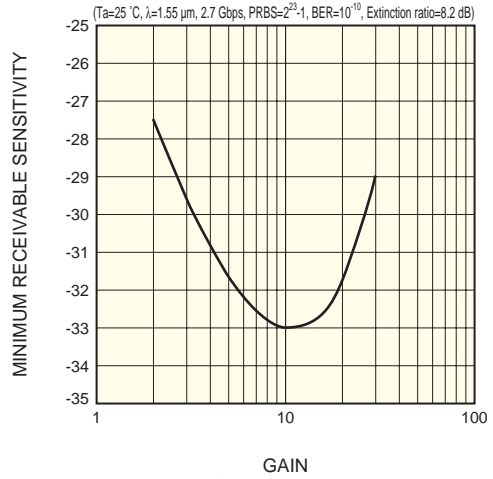
*3: Single-ended (V_{out+}) measurement

■ Bit error rate



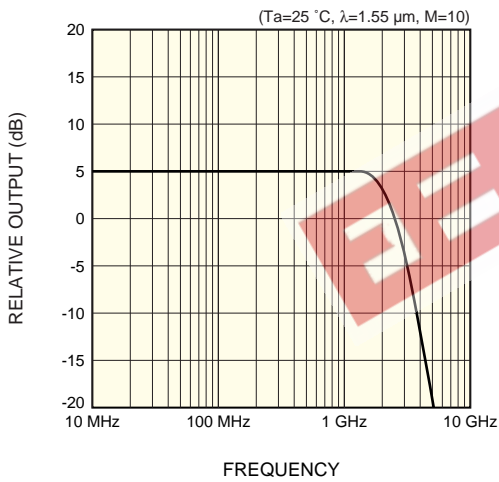
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■ Gain, ambient temperature vs. minimum receivable sensitivity



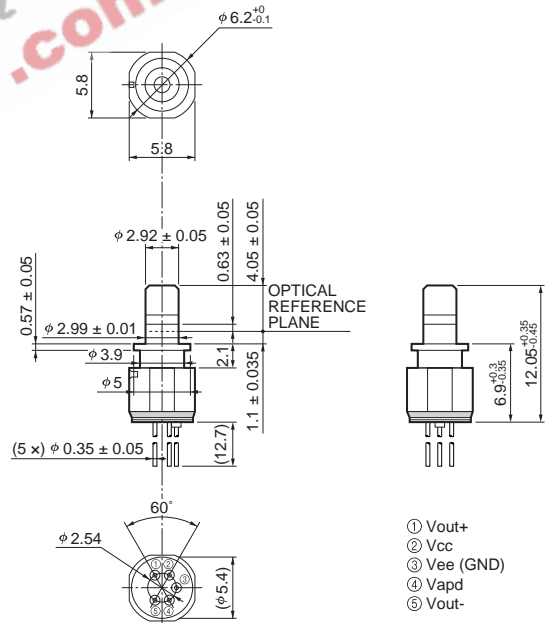
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■ Frequency characteristic



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■ Dimensional outline (unit: mm, unless otherwise noted: ± 0.1)



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