

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	Vcc	-0.5 Min., +5 Max.	V
Reverse voltage (APD)	VR Max.	0 to VBR	V
Reverse current (APD)	IR	2	mA
Forward current (APD)	IF	0	mA
Operating temperature *1	Topr	-20 to +75	$^{\circ}\text{C}$
Storage temperature *1	Tstg	-40 to +85	$^{\circ}\text{C}$

*1: No condensation

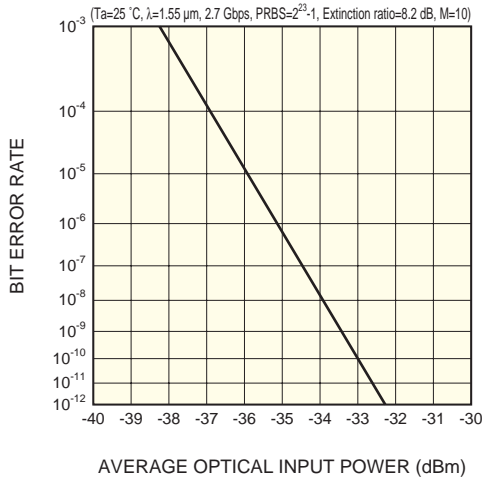
Electrical and optical characteristics(Ta=25 $^{\circ}\text{C}$, $\lambda=1.55 \mu\text{m}$, Vcc=3.3 V, Vee=0 V, RL=50 Ω *2, M=10, unless otherwise noted)

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

*2: Output: capacitive coupling

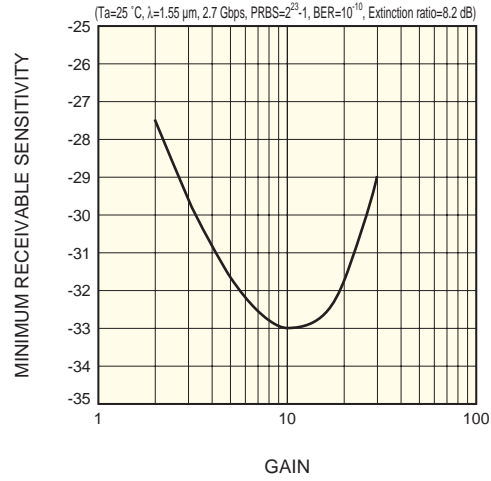
*3: Single-ended (Vout+) measurement

■ Bit error rate



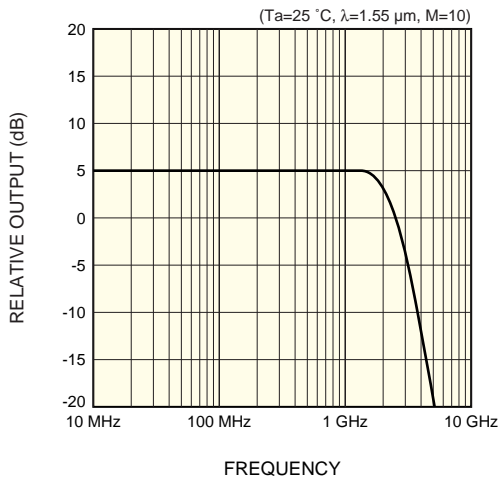
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■ Gain, ambient temperature vs. minimum receivable sensitivity



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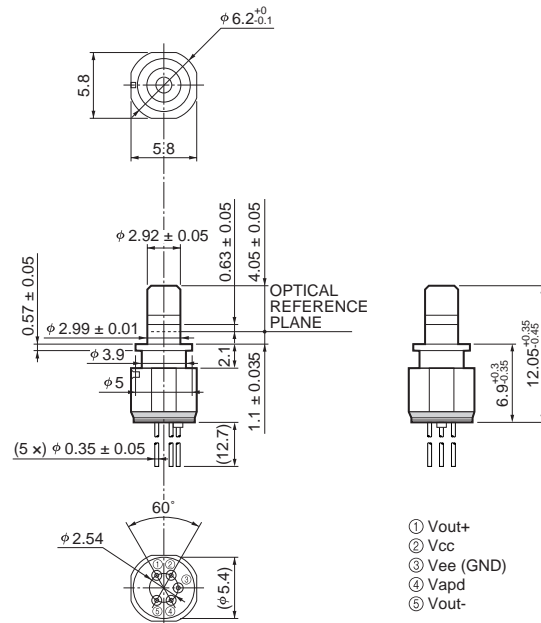
■ Frequency characteristic



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■ Dimensional outline

(unit: mm, unless otherwise noted: ± 0.1)



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