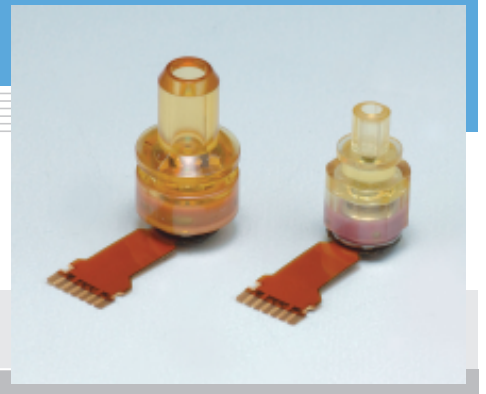


InGaAs PIN photodiode with preamp G10518-51/-54

ROSA type, 1.3 μm , 10 Gbps



Features

- $\phi 1.25$ mm (G10518-54)/ $\phi 2.5$ mm (G10518-51) sleeve type ROSA (Receiver Optical Sub-Assembly)
- High-speed response: 10.7 Gbps
- Low power supply voltage: $V_{cc}=V_{pd}=3.3$ V
- Differential output
- Sensitivity: +3 to -19.5 dBm Typ.
- Trans-impedance: 6 k Ω Typ. (single-ended)

Applications

- SDH/SONET, 10 gigabit ethernet
- Optical fiber communications

■ Absolute maximum ratings ($T_a=25$ °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 (case temperature)	T_{opr}	-20 to +85	°C
Storage temperature	T_{stg}	-40 to +85	°C

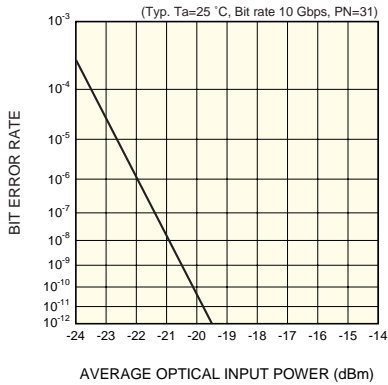
■ Electrical and optical characteristics ($T_a=25$ °C, $V_{cc}=3.05$ to 3.53 V, $V_{pd}=3.05$ to 5.0 V, $R_L=50$ Ω *2, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Responsivity	R	$\lambda=1.31$ μm	0.70	0.80	-	A/W
Supply current	I_{cc}	Dark state, $R_L=\infty$	-	32	45	mA
Cut-off frequency	f_c	$\lambda=1.31$ μm , -3 dB	6.5	8.0	-	GHz
Low cut-off frequency	f_{c-L}	$\lambda=1.31$ μm , -3 dB	-	10	50	kHz
Noise equivalent power *1	NEP	Dark state, DC to 7.5 GHz	-	1.1	2.2	μWrms
Trans-impedance *1	T_z	$f=100$ MHz	4	6	-	k Ω
Minimum receivable sensitivity	P_{min}	10 Gbps, NRZ, $\lambda=1.31$ μm PRBS=2 ³¹ -1, BER=10 ⁻¹² Extinction ratio=14 dB	-	-19.5	-17.5	dBm
Maximum receivable sensitivity	P_{max}		+2	+3	-	dBm
Output amplitude	V_{omax}		300	450	650	mVpp
Dark current	I_D	Dark state, $R_L=\infty$	-	0.05	0.5	nA
Optical return loss	ORL	$\lambda=1.31$ μm	12	14	-	dB

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

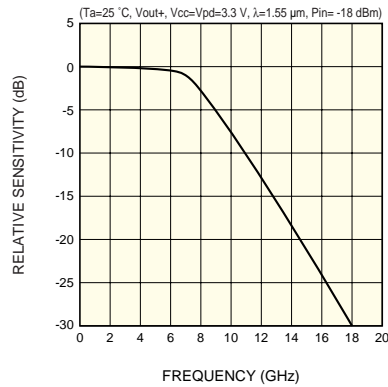
*2: Capacitive coupling

Bit error rate



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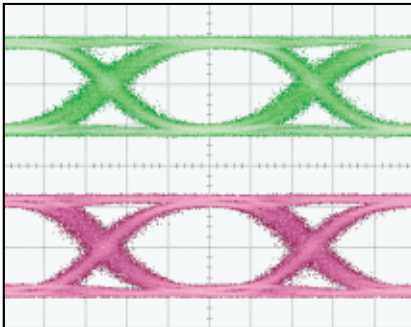
Frequency response



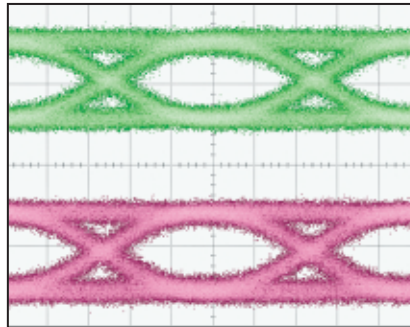
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Eye diagram

Bit rate 10 Gbps, PN=31, NRZ, λ=1.55 μm, Extinction ratio 14 dB, Vcc=Vpd=3.3 V



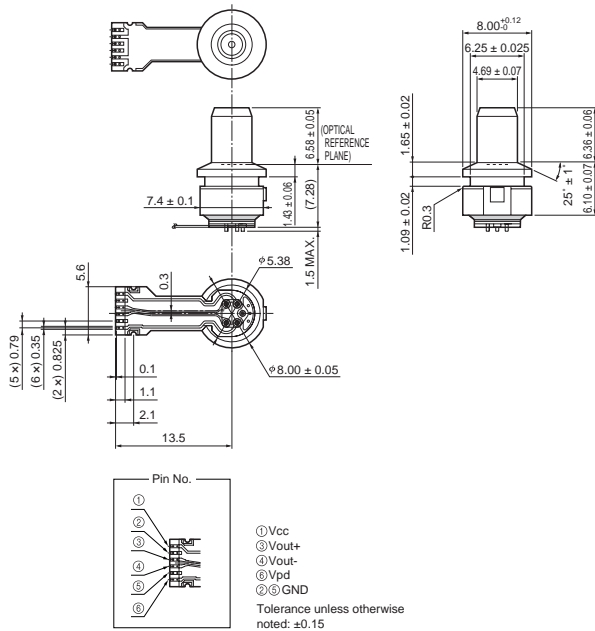
Pin= +2.5 dBm, 100 mV/div., 20 ps/div.



Pin= -20 dBm, 50 mV/div., 20 ps/div.

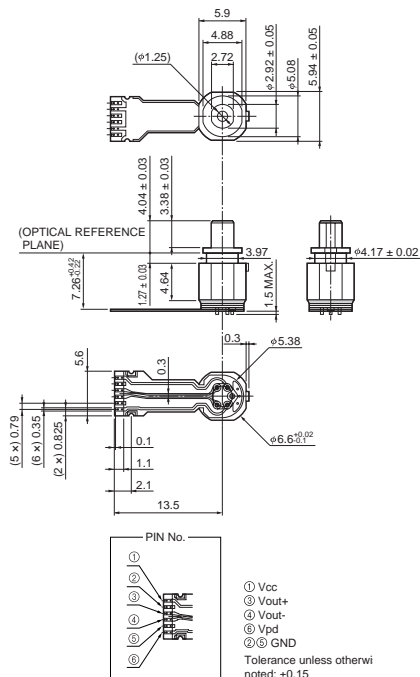
Dimensional outlines (unit: mm)

G10518-51



KGPDA0029EA

G10518-54



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