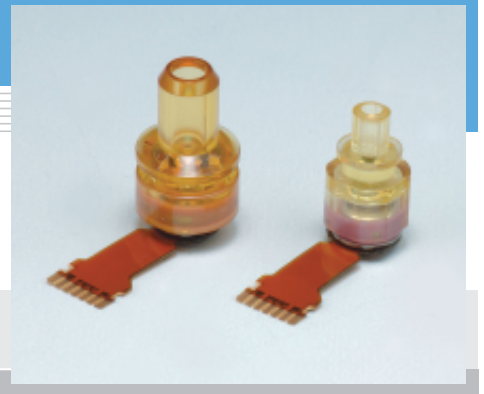


# InGaAs PIN photodiode with preamp G10518-51/-54

ROSA type, 1.3  $\mu\text{m}$ , 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 $\Omega$  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, $R_L=50$ $\Omega$ \*2, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Responsivity	R	$\lambda=1.31$ $\mu\text{m}$	0.70	0.80	-	A/W
Supply current	$I_{cc}$	Dark state, $R_L=\infty$	-	32	45	mA
Cut-off frequency	$f_c$	$\lambda=1.31$ $\mu\text{m}$ , -3 dB	6.5	8.0	-	GHz
Low cut-off frequency	$f_{c-L}$	$\lambda=1.31$ $\mu\text{m}$ , -3 dB	-	10	50	kHz
Noise equivalent power *1	NEP	Dark state, DC to 7.5 GHz	-	1.1	2.2	$\mu\text{Wrms}$
Trans-impedance *1	$T_z$	$f=100$ MHz	4	6	-	k $\Omega$
Minimum receivable sensitivity	$P_{min}$	10 Gbps, NRZ, $\lambda=1.31$ $\mu\text{m}$ PRBS=2 <sup>31</sup> -1, BER=10 <sup>-12</sup> 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	$\lambda=1.31$ $\mu\text{m}$	12	14	-	dB

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

\*2: Capacitive coupling

