

# InGaAs PIN photodiode

## G9906-01

Small package InGaAs PIN photodiode for C-L band



G9906-01 is an InGaAs PIN photodiode designed to minimize temperature dependence of the photo sensitivity in the C-L band. It has an active area of  $\phi 0.3$  mm and is housed in a subminiature package making it ideal for use in smaller modules.

### Features

- C-L band temperature dependence:  $\pm 0.2$  dB ( $-10$  °C to  $+85$  °C)
- Small package
- Low dark current: 0.5 nA Max. ( $V_R=5$  V)

### Applications

- C-L band monitors

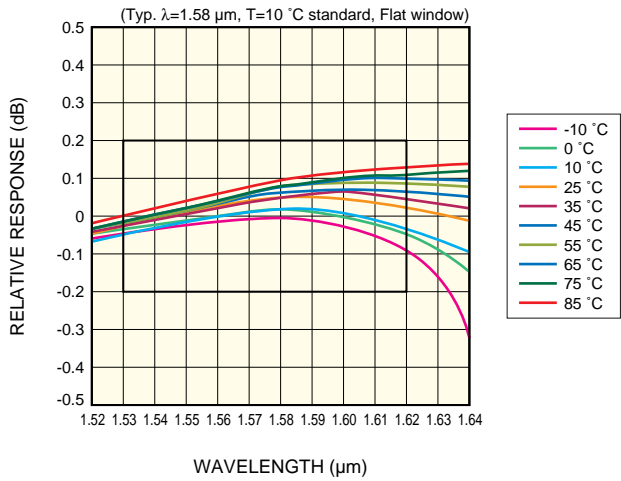
#### ■ Absolute maximum ratings ( $T_a=25$ °C)

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	$V_R$ Max.		20	V
Forward current	$I_F$		10	mA
Operating temperature	$T_{opr}$	No condensation	$-10$ to $+85$	°C
Storage temperature	$T_{stg}$	No condensation	$-55$ to $+125$	°C

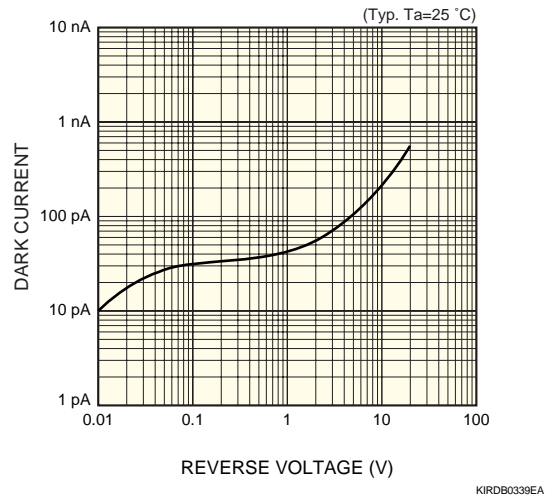
#### ■ Electrical and optical characteristics ( $T_a=25$ °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Active area	-		-	$\phi 0.3$	-	mm
Spectral response range	$\lambda$	10 % or more of peak sensitivity	-	0.9 to 1.7	-	$\mu\text{m}$
Peak sensitivity wavelength	$\lambda_p$		-	1.55	-	$\mu\text{m}$
Photo sensitivity	S	$\lambda=1.3$ $\mu\text{m}$	0.8	0.9	-	A/W
		$\lambda=\lambda_p$	0.85	0.95	-	
Photo response uniformity	-	$\lambda=1.53$ to $1.62$ $\mu\text{m}$ , $T=-10$ to $85$ °C	-0.2	-	+0.2	dB
Dark current	$I_D$	$V_R=5$ V	-	0.2	0.5	nA
Cut-off frequency	$f_c$	$V_R=5$ V, $R_L=50$ $\Omega$ -3dB	-	500	-	MHz
Terminal capacitance	$C_t$	$V_R=5$ V, $f=1$ MHz	-	6	8	pF
Shunt resistance	$R_{sh}$	$V_R=10$ mV	-	1000	-	$M\Omega$
Detectivity	$D^*$	$\lambda=\lambda_p$	-	$5 \times 10^{12}$	-	$\text{cm} \cdot \text{Hz}^{1/2}/\text{W}$
Noise equivalent power	NEP	$\lambda=\lambda_p$	-	$4 \times 10^{-15}$	-	$\text{W}/\text{Hz}^{1/2}$
Linearity	-	$V_R=5$ V, $R_L=2$ $\Omega$ $-55$ to $+10$ dBm	-0.15	-	+0.15	dB

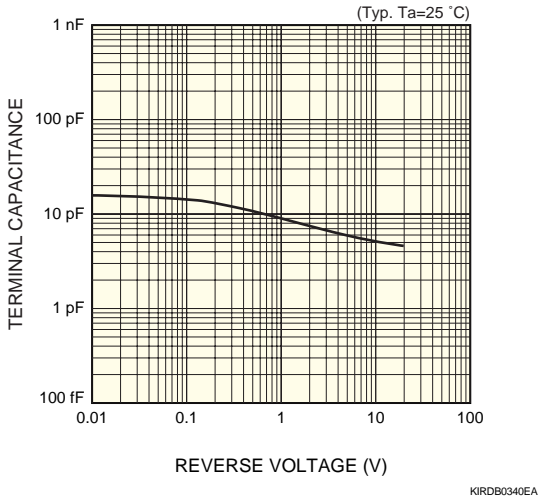
■ Spectral response



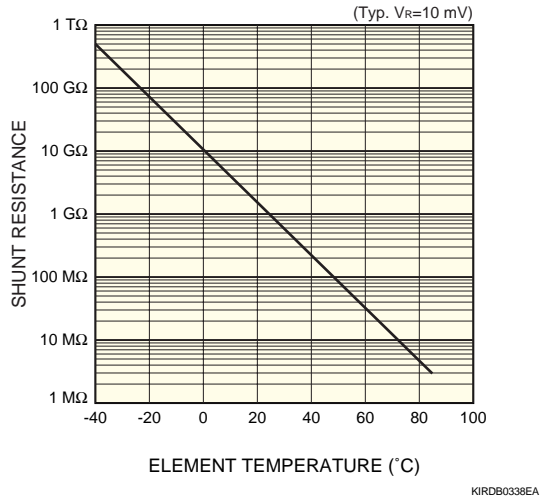
■ Dark current vs. reverse voltage



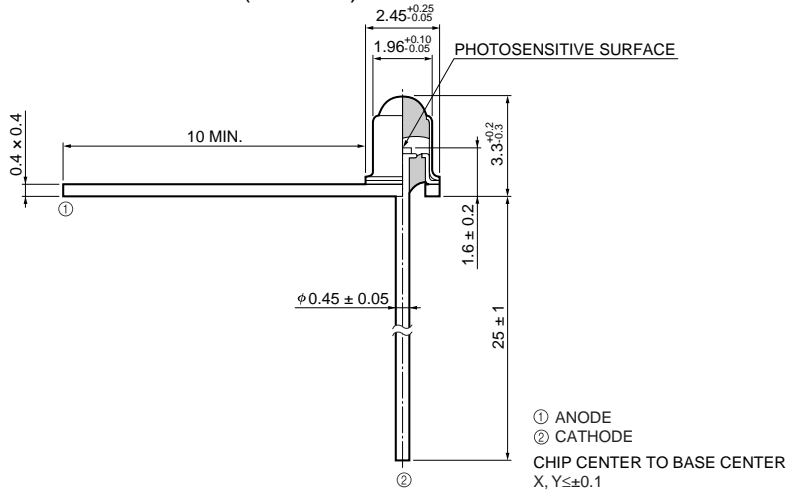
■ Terminal capacitance vs. reverse voltage



■ Shunt resistance vs. element temperature



■ Dimensional outline (unit: mm)



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