

Silicon PIN Photodiode

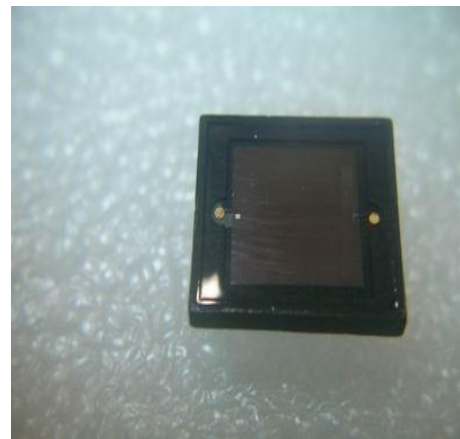
DS10BU

Description

DS10BU is a planar Silicon PN photodiode in a hermetically sealed short TO-5 case, especially designed for high precision linear applications. Due to its extremely high dark resistance, the short circuit photocurrent is linear over seven decades of illumination level. On the other hand, there is a strictly logarithmic correlation between open circuit voltage and illumination over the same range. The device is equipped with a flat glass window with built in color correction filter, giving an approximation to the spectral response of the human eye.

Features

- Large radiant sensitive area ($A=100 \text{ mm}^2$)
- Wide angle of half sensitivity $\phi = \pm 65^\circ$
- High sensitivity
- Low dark current
- Suitable for visible and near infrared radiation
- Windowless package



Applications

- High speed photo detector
- Various UV detection

Absolute maximum ratings ($T_a=25^\circ\text{C}$)

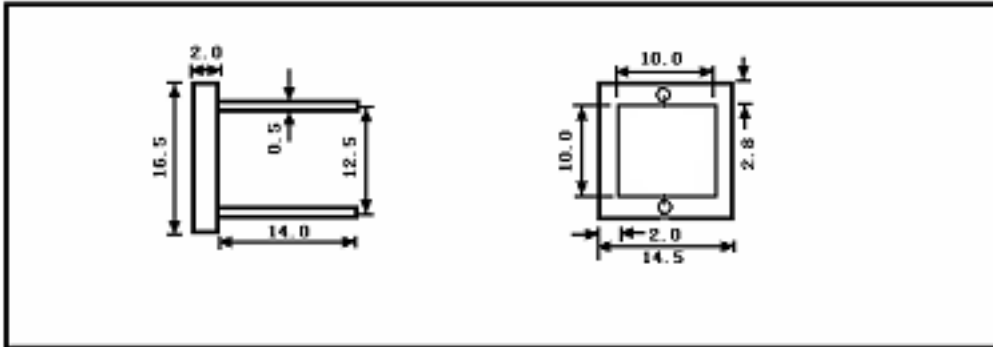
Parameter	Symbol	Value	Unit
Reverse voltage	$V_r \text{ Max.}$	30	v
Operating temperature	T_{opr}	-20 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +80	$^\circ\text{C}$

Electrical and optical characteristics ($T_a=25^\circ\text{C}$)

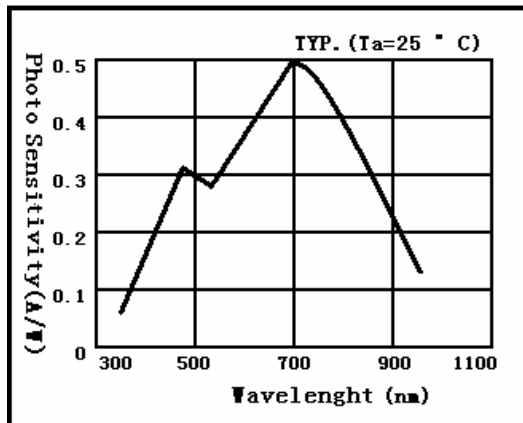
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	320 to 1000	-	nm
Peak sensitivity wavelength	λ_p		-	700	-	nm
Photo sensitivity	S	$I_{sc}=60\mu\text{A}$	0.30	0.55	-	mA/mW
Dark current	I_D	$V_r=3\text{V}$	-	0.5		μA
Terminal capacitance	C_t	$V_r=0 \text{ V}, f=10 \text{ kHz}$	-	4	-	nF
Rise time	t_r	$V_r=0 \text{ V}, R_L=1 \text{ k}\Omega$ 10 to 90 %	-	7	-	μs

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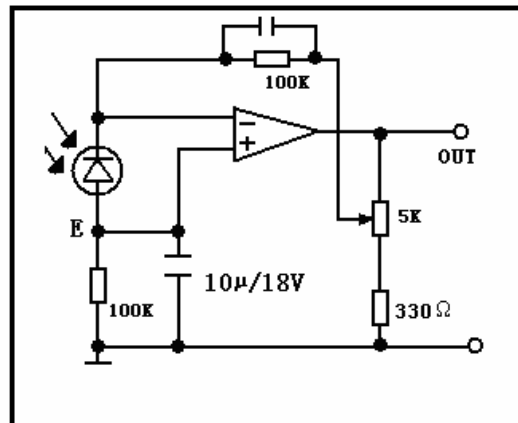
Dimensional outline (unit: mm)



Spectral Response



Circuit



Handling precautions Handle the photodiodes in a clean room.

- Never touch the photodiode chip surface and wire bonding.
- Wear dust-proof gloves and dust-proof mask.
- Use an air dust cleaner to blow away dust and foreign matter on the photodiode chip surface.
- Do not clean the photodiodes by any method other than air blow.