

# Silicon PIN Photodiode

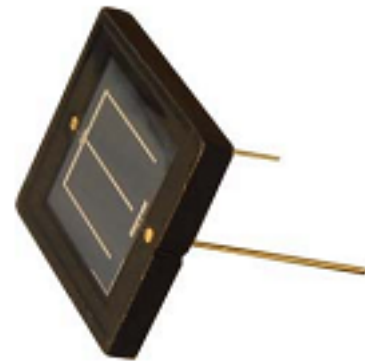
## DS10CU

### Description

DS10CU 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  $\varphi = \pm 65^\circ$
- 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 ( $T_a=25^\circ\text{C}$ )

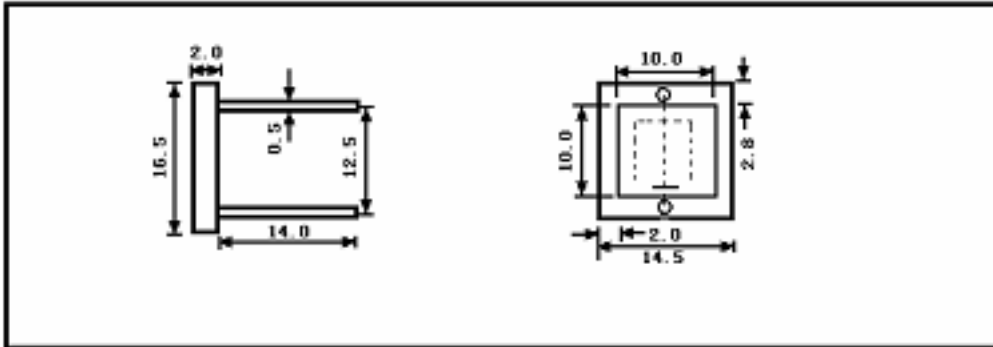
Parameter	Symbol	Value	Unit
Reverse voltage	$V_r \text{ Max.}$	30	v
Operating temperature	$T_{opr}$	-20 to +60	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +80	$^\circ\text{C}$

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

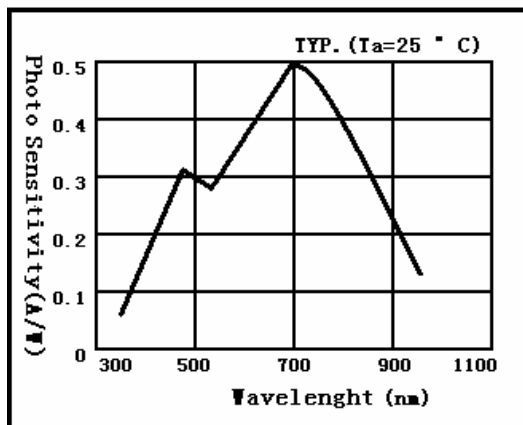
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	$\lambda$		-	320 to 1000	-	nm
Peak sensitivity wavelength	$\lambda_p$		-	700	-	nm
Photo sensitivity	S	$I_{sc}=60\mu\text{A}$	0.30	0.55	-	$\text{mA/mW}$
Dark current	$I_D$	$V_r=3\text{V}$	-	0.5		$\mu\text{A}$
Terminal capacitance	$C_t$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

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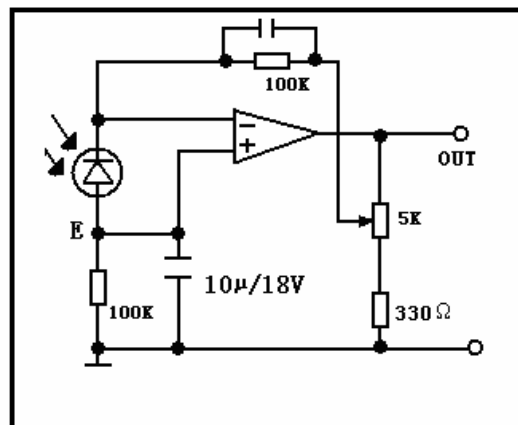
Dimensional outline (unit: mm)



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.