

# Silicon PIN Photodiode

## PD526AC-U

**SIVAGO**<sup>®</sup>  
SEMICONDUCTOR

### Features

Fast response times

High photo sensitivity

Small junction capacitance

Pb free

The product itself will remain within RoHS compliant version

Compliance with EU REACH



### Application

High speed photo detector

Camera

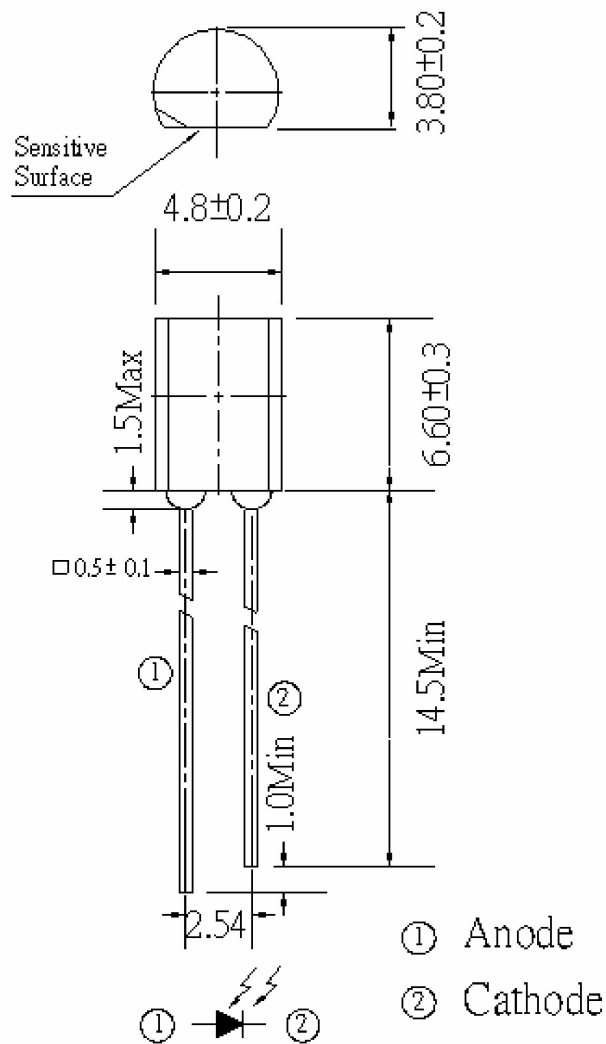
Optoelectronic switch

VCRs , Video camera

### Description

PD526AU-C is a high speed and sensitive PIN photodiode in a flat side view plastic package. Due to its water clear epoxy the device is sensitive to visible and infrared radiation.

## PACKAGE DIMENSIONS



### NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$ mm (.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

**ABSOLUTE MAXIMUM RATINGS AT TA =25°C**

<b>Parameter</b>	<b>Symbol</b>	<b>Rating</b>	<b>Units</b>
Reverse Voltage	V <sub>R</sub>	32	V
Power Dissipation	P <sub>d</sub>	150	mW
Lead Soldering Temperature	T <sub>sol</sub>	260	°C
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +85	°C

**Notes:** \*1 Soldering time ≤ 5 seconds

**ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Rang of Spectral Bandwidth	$\lambda_{0.5}$	-----	400	---	1100	nm
Wavelength of Peak Sensitivity	$\lambda_p$	-----	---	940	---	nm
Open-Circuit Voltage	$V_{OC}$	Ee=5m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	0.35	---	V
Short- Circuit Current	$I_{SC}$	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	18	---	$\mu\text{A}$
Reverse Light Current	$I_L$	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$ $V_R=5\text{V}$	10.2	18	---	
Dark Current	$I_d$	Ee=0m W/cm <sup>2</sup> $V_R=10\text{V}$	---	5	30	nA
Reverse Breakdown	$BV_R$	Ee=0m W/cm <sup>2</sup> $I_R=100\ \mu\text{A}$	32	170	---	V
Total Capacitance	$C_t$	Ee=0m W/cm <sup>2</sup> $V_R=3\text{V}$ $f=1\text{MHZ}$	---	25	---	pF
Rise/Fall Time	$t_r/t_f$	$V_R=10\text{V}$ $R_L=1\text{K}\ \Omega$	---	50/50	---	nS

## Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs.  
Ambient Temperature

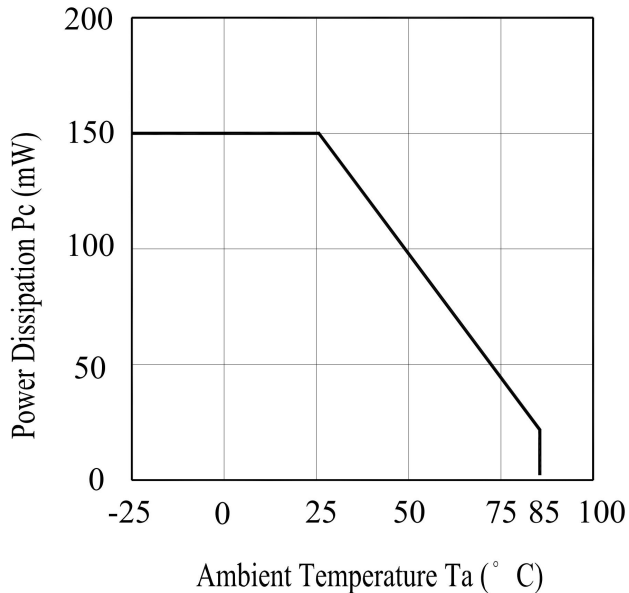


Fig.2 Spectral Sensitivity

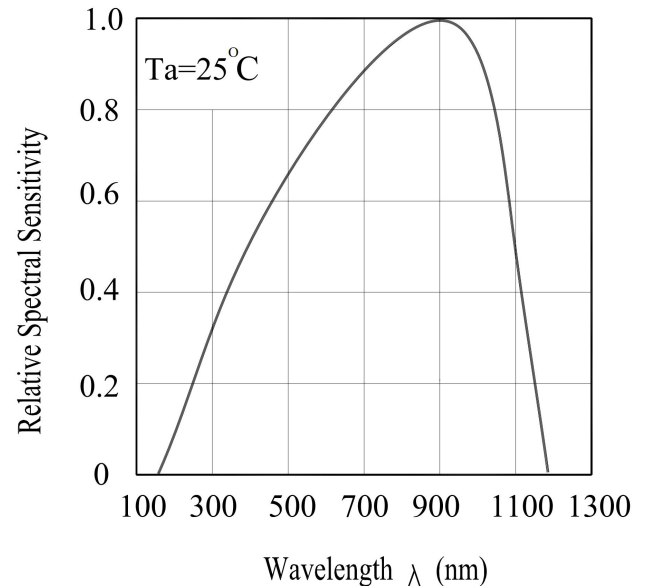


Fig.3 Dark Current vs.  
Ambient Temperature

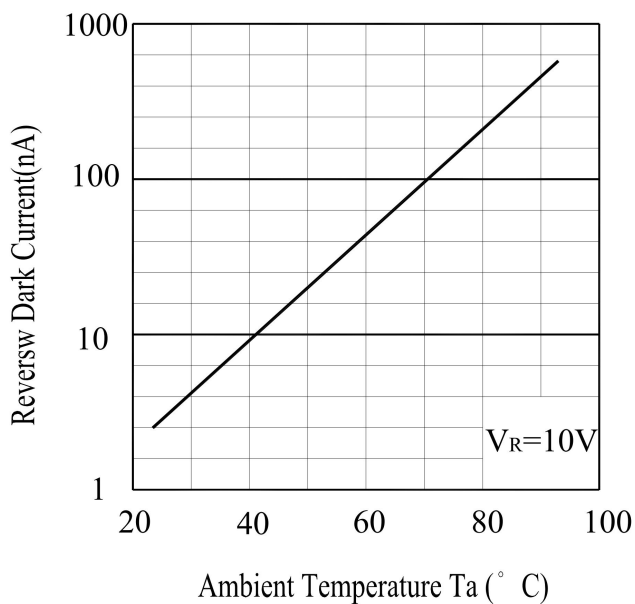
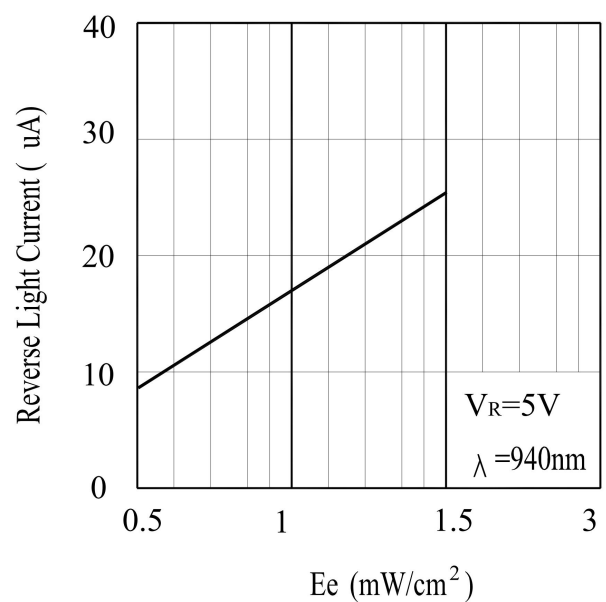


Fig. 4 Reverse Light Current vs.  
 $E_e$



## Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs.  
Reverse Voltage

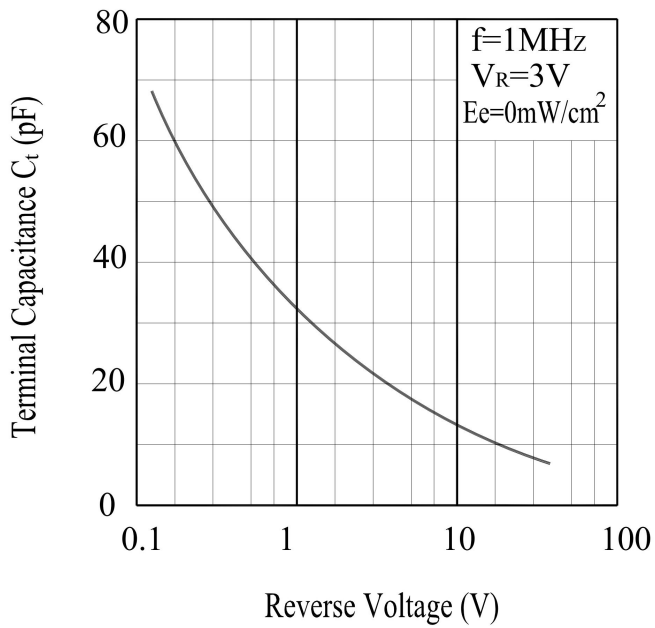
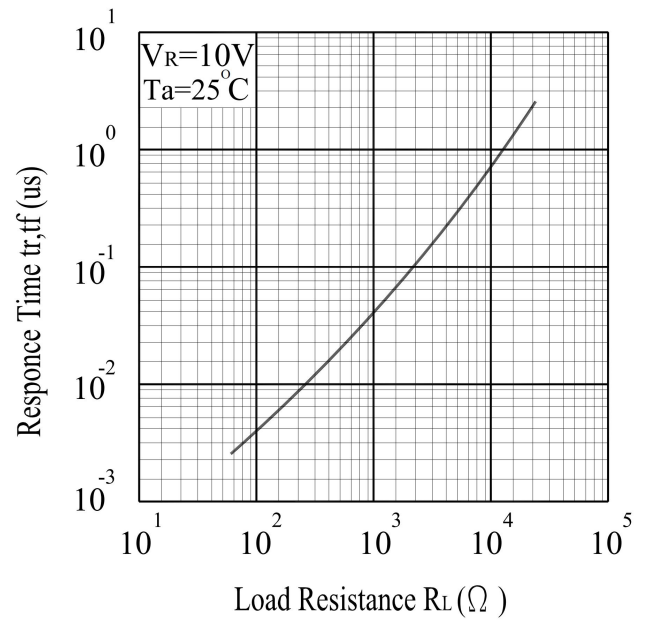


Fig.6 Response Time vs.  
Load Resistance

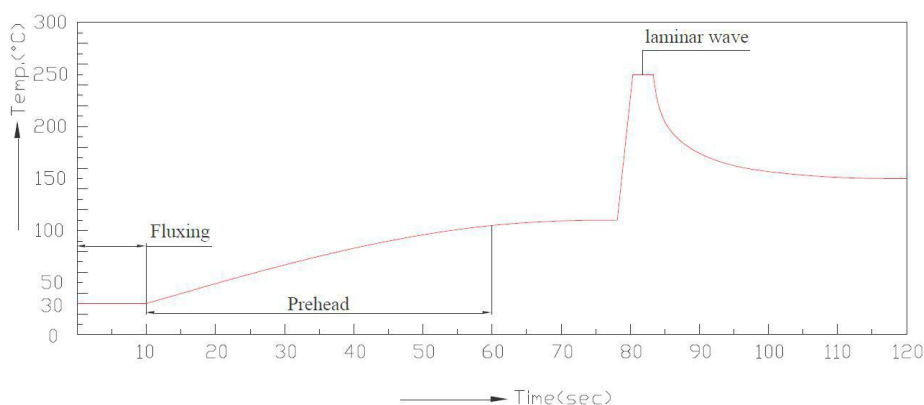


## Soldering

- Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

### 3. Recommended soldering profile



- Avoiding applying any stress to the lead frame while the Photodiode are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the Photodiode, the epoxy bulb should be protected from mechanical shock or vibration until the Photodiode return to room temperature.
- A rapid-rate process is not recommended for cooling the Photodiode down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the Photodiode.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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