



PP1101W

Surface Mount PIN Photodiode/Flat Lenz Type

Features

Package	Flat Lenz Type, Water clear epoxy
Product features	• Small Size • Outer Dimension 3.0 x 2.0 x 1.5mm (L x W x H) • Photo Current : 4mA TYP. ($V_{CE}=5V, E_e=5mW/cm^2$) • Wide Distribution • No lead package
Peak Sensitivity Wavelength	950nm
Half Intensity Angle	140 deg.
Die materials	Si
Assembly method	Auto pick & place machine (Auto Mounter)
Soldering methods	Reflow soldering, and manual soldering ※Please refer to Soldering Conditions about soldering.
Taping and reel	2,500pcs per reel in a 8mm width tape. (Standard) Reel diameter: ϕ 180mm
ESD	2kV (HBM)

Recommended Applications

Car Audio, Electric Household Appliances, OA/FA, PC/Peripheral Equipment, Other General Applications


PP1101W

Surface Mount PIN Photodiode/Flat Lenz Type

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	P_d	30	mW
Reverse Voltage	V_R	15	V
Operating Temperature	T_{opr}	-30~+85	
Storage Temperature	T_{stg}	-30~+90	

Electro-Optical Characteristics

(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
Photo Current	$V_R=5V$, $E_e=5mW/cm^2$ 1	I_p	TYP.	4	μA
Response Time	$V_R=10V$, $R_L=1,000 \Omega$	tr/tf	TYP.	50	ns
Capacity	$V_R=10V$, $f=1MHz$	C_T	TYP.	3	pF
Dark Current	$V_R=10V$	I_D	Max.	10	nA
Peak Sensitivity Wavelength	$V_R=0V$	λ_p	TYP.	950	nm
Sensitivity	$V_R=5V$, $\lambda=950nm$	S	TYP.	0.64	A/W
Spatial Half Width	$V_R=5V$	θ	TYP.	140	deg.

1 Color temperature is 2,856K. Employs a standard tungsten lamp.

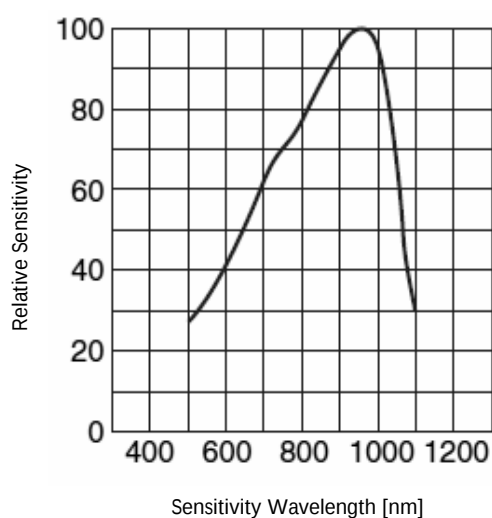


PP1101W

Surface Mount PIN Photodiode/Flat Lenz Type

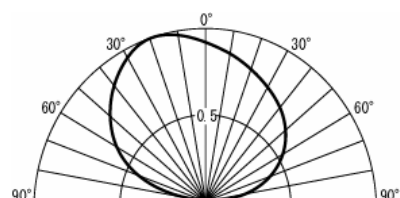
Technical Data

Relative Sensitivity vs. Sensitivity Wavelength
Condition : $T_a = 25$, $V_R = 10V$

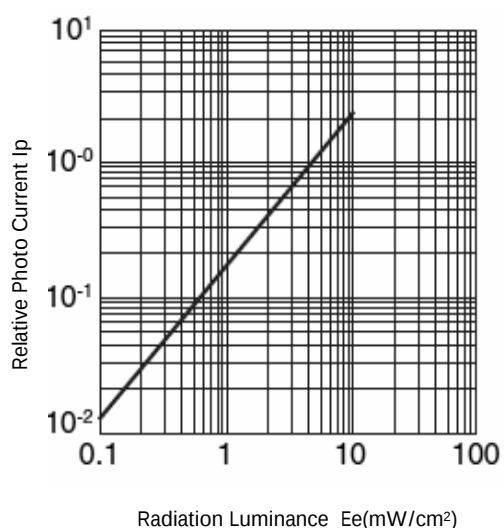


Spatial Distribution Example

Condition : $T_a = 25$

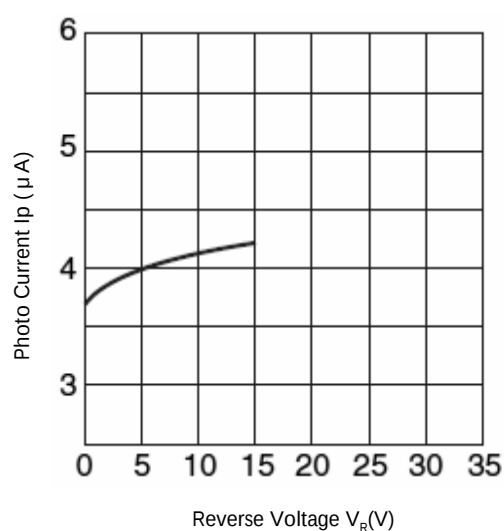


Radiation Luminance vs. Relative Photo Current
Condition : $T_a = 25$, $V_R = 5V$



It is based on $E_e = 5 \text{ mW/cm}^2$.
Employs a standard tungsten lamp of 2,856K.

Reverse Voltage vs. Photo Current
Condition : $T_a = 25$, $E_e = 5 \text{ mW/cm}^2$



Employs a standard tungsten lamp of 2,856K.

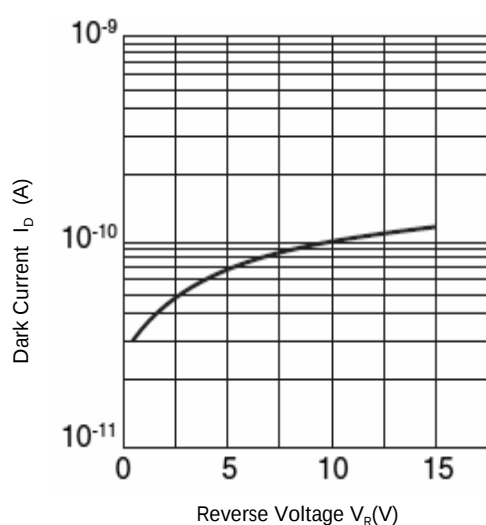


PP1101W

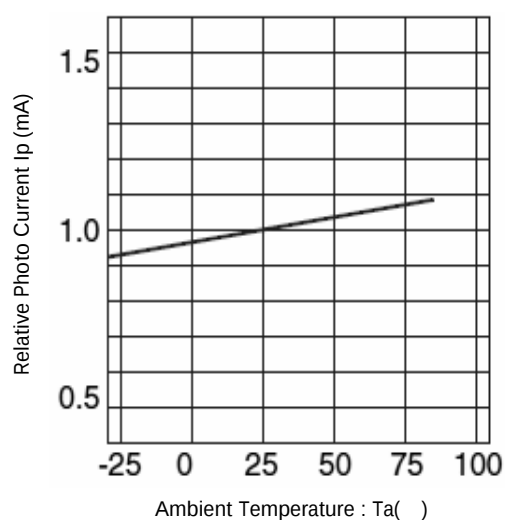
Surface Mount PIN Photodiode/Flat Lenz Type

Technical Data

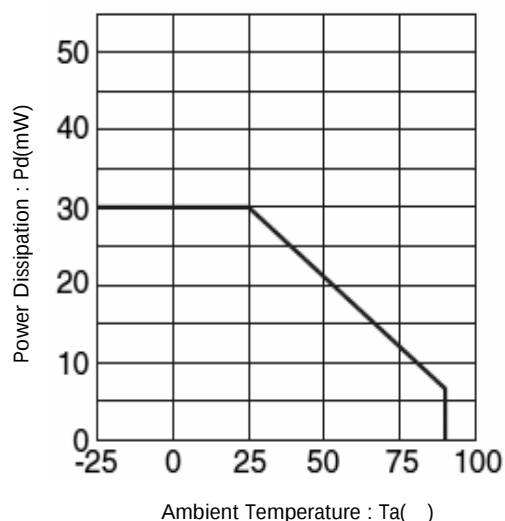
Reverse Voltage vs. Dark Current
Condition : $T_a = 25$



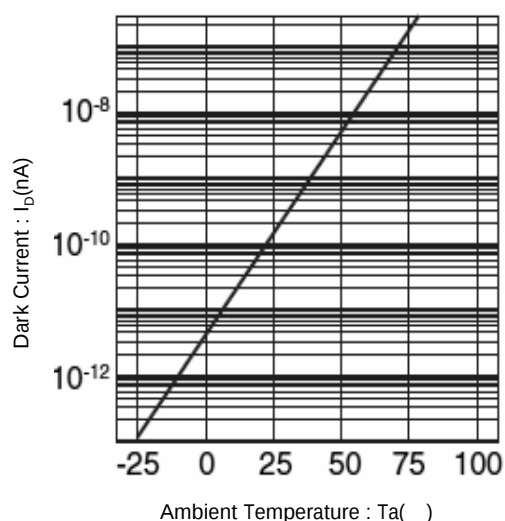
Ambient Temperature vs. Relative Photo Current
Condition : $V_R = 5V$



Ambient Temperature vs. Power Dissipation

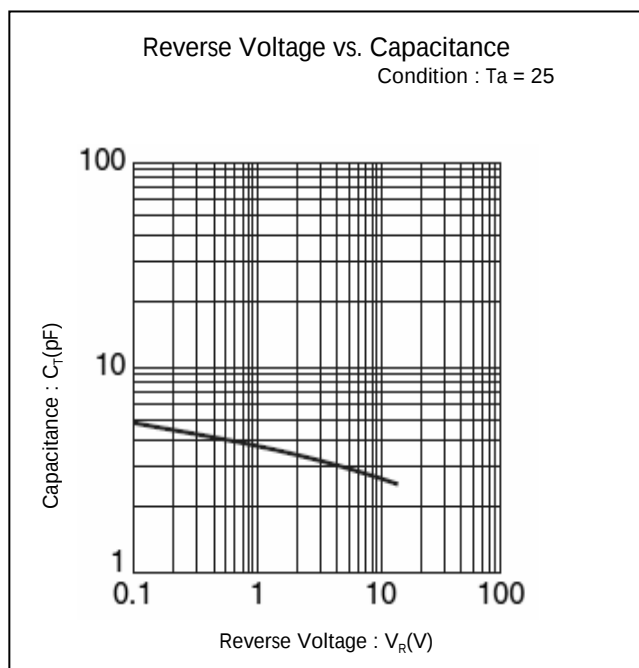


Ambient Temperature vs. Dark Current
Condition : $V_R = 10V$



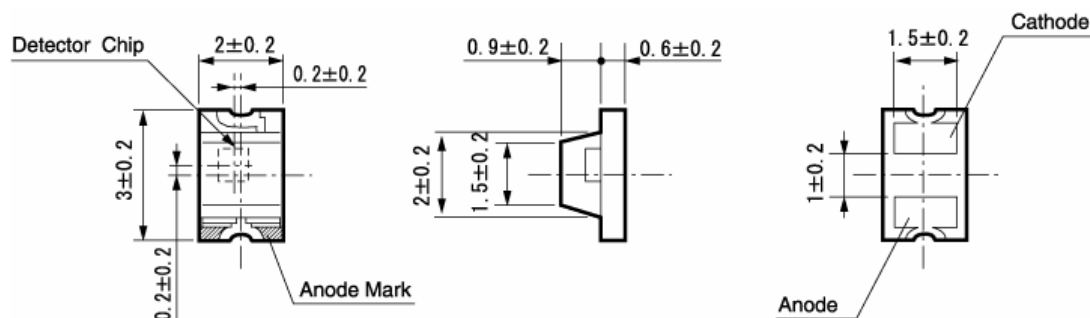


Technical Data

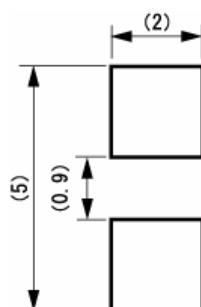


(Unit: mm)

Weight: (7.80)mg

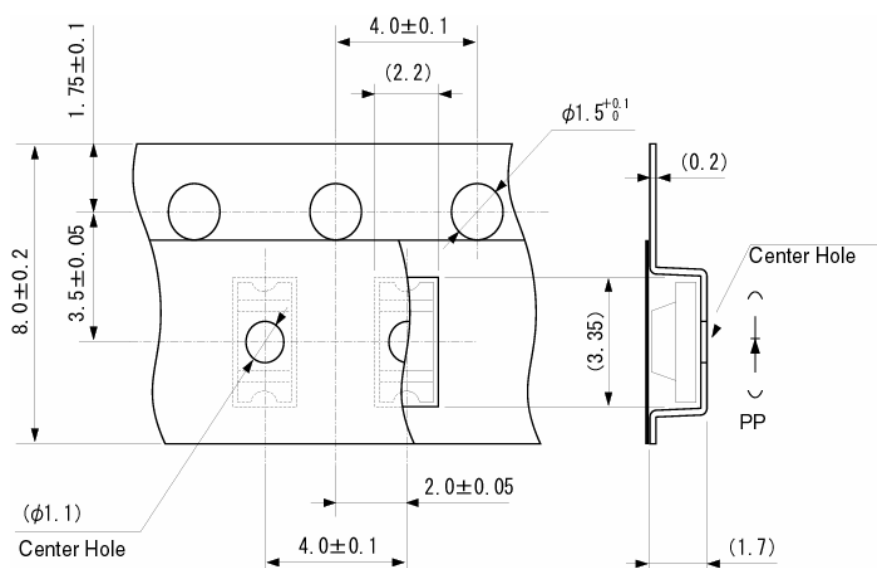


(Unit: mm)



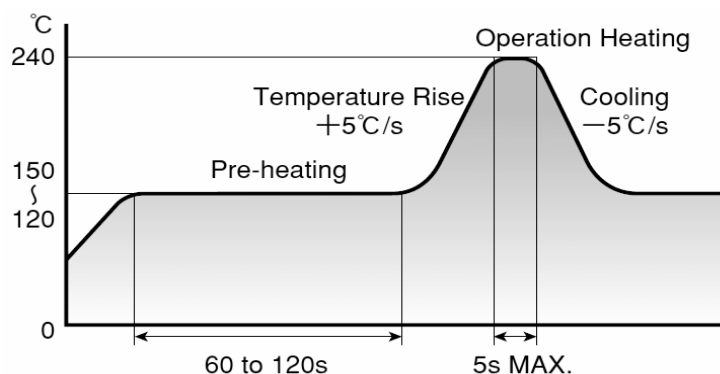
(Unit: mm)

Quantity: 2,500pcs/ reel (standard)





Reflow Soldering Conditions



- 1) The above profile temperature gives the maximum temperature of the device resin surface. Please set the temperature so as to avoid exceeding this range.
- 2) Total times of reflow soldering process shall be no more than 2 times. When the second reflow soldering process is performed, intervals between the first and second reflow should be short as possible (while allowing some time for the component to return to normal temperature after the first reflow) in order to prevent the device from absorbing moisture.
- 3) Temperature fluctuation to the device during the pre-heating process shall be minimized.

Manual Soldering Conditions

Iron tip temp.	280	(MAX.) (30 W Max.)
Soldering time and frequency	3 s	(MAX.)
	1 time	(MAX.)



Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25°C, Pd = Maximum Rated Power Dissipation	1,000 h	0/16
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5°C, 3mm from package base	5sec	0/16
		265±5°C, 3mm from package base	5sec	0/16
Temperature Cycling	EIAJ ED-4701/100(105)	Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min)	5 cycles	0/16
Wet High Temp. Storage Life	EIAJ ED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/16
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/16
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/16
Lead Tension	EIAJ ED-4701/400(401)	10N,1time (□0.4 and Flat Package : 5N)	10sec	0/16
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/16

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Photo Current	I _P	E _E Value of each product Radiant Intensity of Photo Current V _R Value of each product Reverse Voltage of Photo Current	Testing Max. Value ≥ Initial Value x 1.3 Testing Min. Value ≤ Initial Value x 0.7
Dark Current	I _D	V _R Value of each product Reverse Voltage of Dark Current	Testing Max. Value ≥ Spec. Max. Value x 1.2
Cosmetic Appearance	-	-	No notable, decoloration, deformation and cracking



Special Notice to Customers Using the Products and Technical Information Shown in This Data Sheet

- 1) The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.
- 2) For the purpose of product improvement, the specifications, characteristics and technical data described in the data sheets are subject to change without prior notice. Therefore it is recommended that the most updated specifications be used in your design.
- 3) When using the products described in the data sheets, please adhere to the maximum ratings for operating voltage, heat dissipation characteristics, and other precautions for use. We are not responsible for any damage which may occur if these specifications are exceeded.
- 4) The products described in the data sheets are made to be used in standard electronic applications such as office automation appliances, communication devices, audio visual, home appliances, and measuring instruments.
- 5) If the products in the data sheets are to be used for purposes other than the above which requires high level reliability and safety where failure and or malfunction of the product may cause death or other serious effects on the human body such as airplane, space activity, transportation, medical, nuclear), please contact our sales personnel.
- 6) In order to export the products or technologies described in this data sheet which are under the "Foreign Exchange and Foreign Trade Control Law," it is necessary to first obtain an export permit from the Japanese government.
- 7) No part of this data sheet may be reprinted or reproduced without prior written permission from Stanley Electric Co., Ltd.
- 8) The most updated edition of this data sheet can be obtained from the address below:
<http://www.stanley-components.com>