PP508-1

Through-hole PIN Photodiode/Right Angle Type

Features

Package	Right angle type, Black Visible Radiation Cut Filter epoxy
Product features	・Outer Dimension 5 x 4.1 mm (Right Angle Type) ・High Photo Current : 5.5 μA(V_R=5V,Ee=0.5mW/cm^2) ・Wide Distribution ・Visible Radiation Cut Filter under 700nm ・No lead package ・RoHS compliant
Peak Sensitivity Wavelength	950nm
Half Intensity Angle	θx = 130 deg., θy = 150 deg.
Die materials	Si
Soldering methods	TTW (Through The Wave) soldering and manual soldering ※Please refer to Soldering Conditions about soldering.
ESD	2kV (HBM)
Packing	Bulk : 200pcs(MIN.)

Recommended Applications

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

Absolute Maximum Ratings

(Ta=25℃)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	P_d	100	mW
Reverse Voltage	V_R	30	V
Operating Temperature	T_{opr}	-30~+85	℃
Storage Temperature	T_{stg}	-30~+100	℃

Electro-Optical Characteristics

(Ta=25℃)

Item	Conditions	Symbol	Characteristics		Unit
Photo Current	V_R=5V, Ee=0.5mW/cm^2 ※1	Ip	TYP.	5.5	μA
Response Time	V_R=10V, R_L=1,000Ω	tr/tf	TYP.	50	ns
Capacity	V_R=10V, f=1MHz	C_T	TYP.	11	pF
Dark Current	V_R=10V	I_D	Max.	20	nA
Peak Sensitivity Wavelength	V_R=0V	λp	TYP.	950	nm
Sensitivity※2	V_R=5V, λ=950nm	S	TYP.	0.64	A/W
Spatial Half Width	V_R=5V	Δθ	TYP.	130(θx)	deg.
			TYP.	150(θy)	

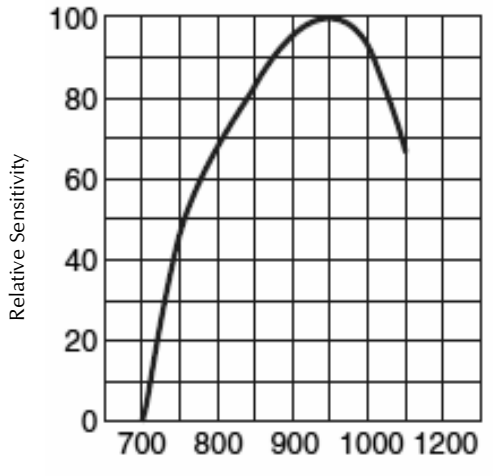
※1 Color temperature is 2,856K. Employs a standard tungsten lamp.

※2 By water clear package

Technical Data

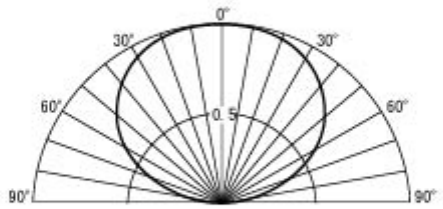
Relative Sensitivity vs. Sensitivity Wavelength

Condition : Ta = 25℃, V_R = 5V



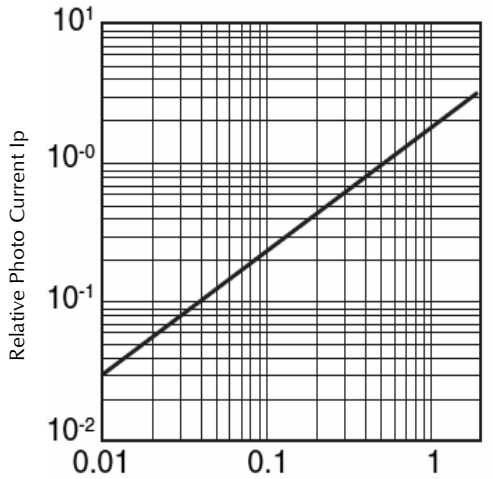
Spatial Distribution Example

Condition : Ta = 25℃



Radiation Luminance vs. Relative Photo Current

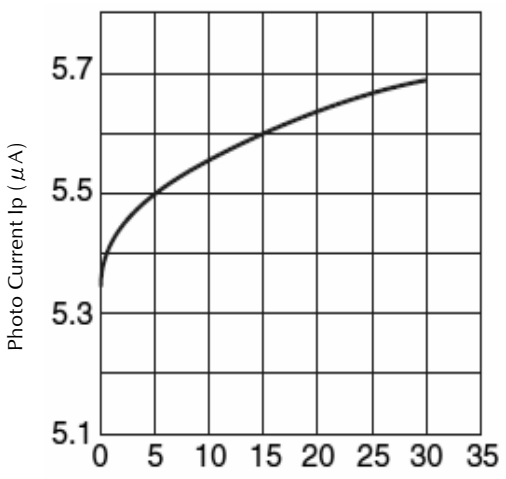
Condition : Ta = 25℃, V_R = 10V



It is based on Ee=0.5mW/cm².
Employs a standard tungsten lamp of 2,856K.

Reverse Voltage vs. Photo Current

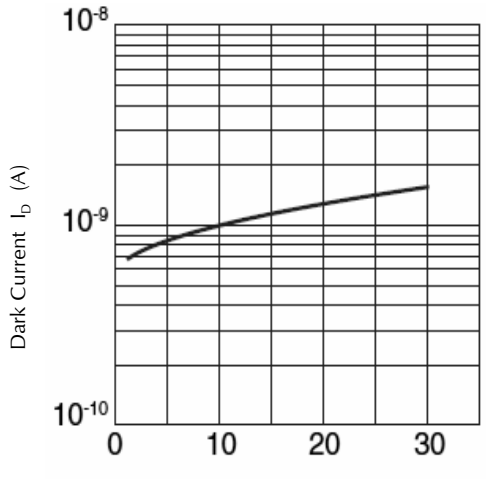
Condition : Ta = 25℃, Ee = 0.5mW/cm²



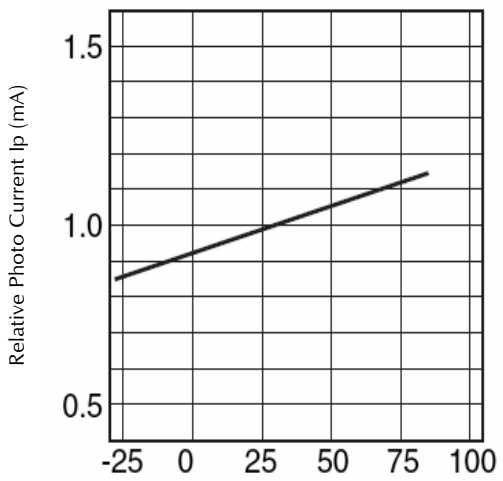
Employs a standard tungsten lamp of 2,856K.

Technical Data

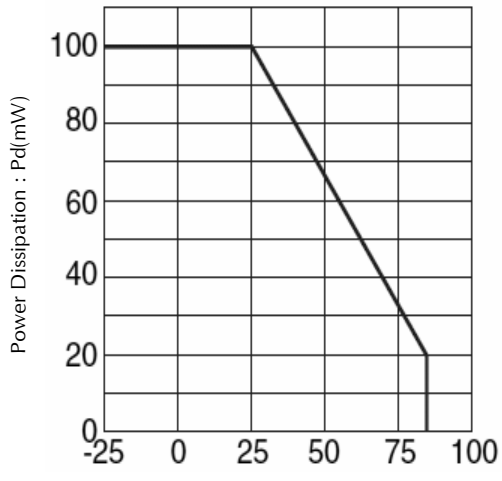
Reverse Voltage vs. Dark Current
Condition : Ta = 25℃



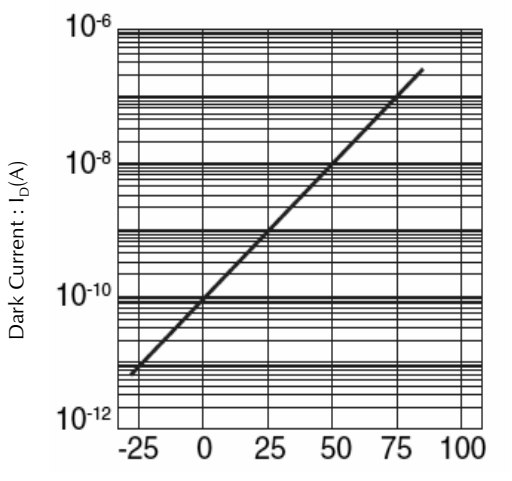
Ambient Temperature vs. Relative Photo Current
Condition : V_R = 5V



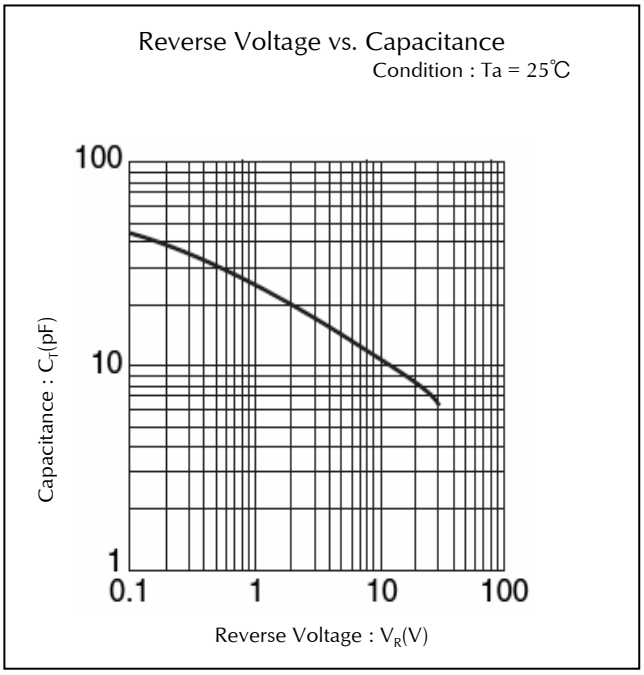
Ambient Temperature vs. Power Dissipation



Ambient Temperature vs. Dark Current
Condition : V_R = 5V

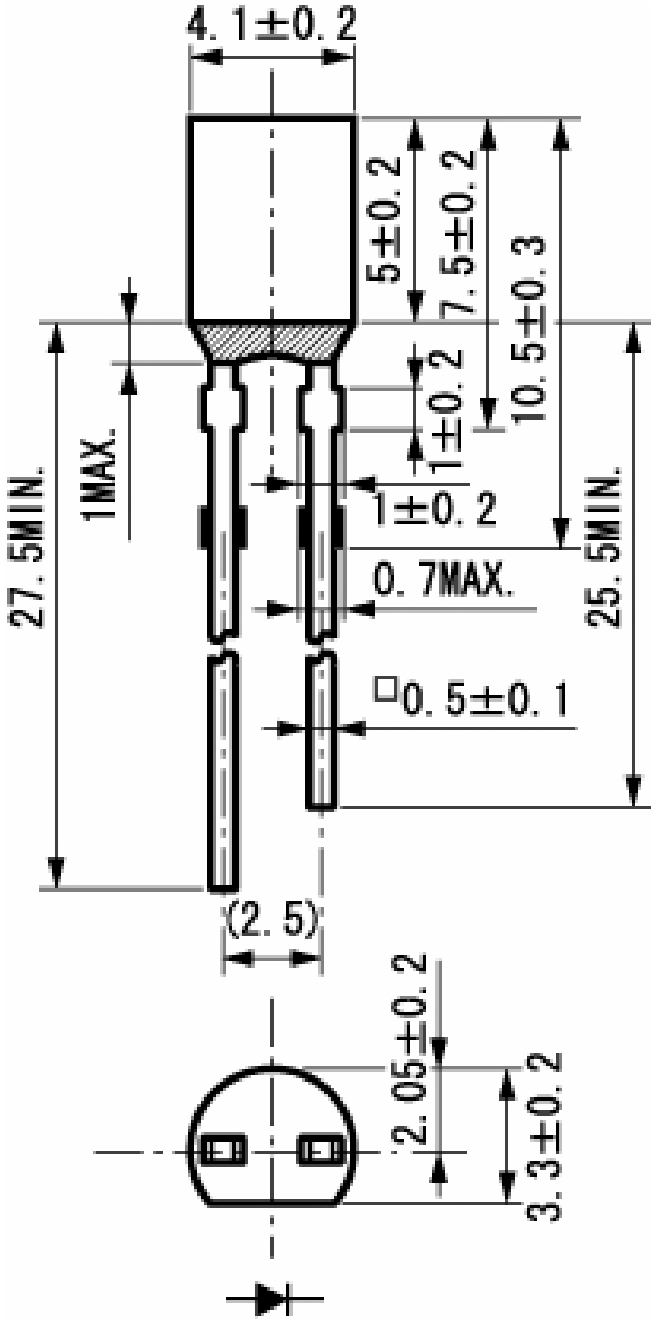


Technical Data



Package Dimensions

(Unit: mm)



TTW (Through The Wave) soldering Conditions

Pre-heating	100 ℃	(MAX.) Resin surface temperature
Solder Bath Temp.	260 ℃	(MAX.)
Dipping Time	5 s	(MAX.)
Position	At least 3.0 mm away from resin body	

1) The dip soldering process shall be 2 times maximum.
2) The product shall be cooled to normal temperature before the second dipping process.

※The detail is described to LED and Photodetector handling precautions of home page:
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Manual Soldering Conditions

Iron tip temp.	300 ℃	(MAX.) (30 W Max.)
Soldering time and frequency	3 s 1 time	(MAX.) (MAX.)
Position	At least 3.0 mm away from resin body	

※The detail is described to LED and Photodetector handling precautions of home page:
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25℃, Pd = Maxium Rated Power Dissipation	1,000 h	0/16
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5℃, 3mm from package base	5sec	0/16
		265±5℃, 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℃, 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 Irradiance 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