

Pb-free
HEAT



PP1191FB

Surface Mount PIN Photodiode/Side Viewing Type

Features

Package	Side Viewing type, Black Visible Radiation Cut Filter epoxy
Product features	<ul style="list-style-type: none">• Outer Dimension 3.0 x 2.0 x 1.0 mm (L x W x H)• Photo Current : 1.8 μ A TYP. ($V_R=5V, E_e=5mW/cm^2$)• Visible Radiation Cut Filter under 700nm• Lead-free soldering compatible• RoHS compliant
Peak Sensitivity Wavelength	950nm
Half Intensity Angle	$\theta_x = 156 \text{ deg.}, \theta_y = 132 \text{ deg.}$
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	3,000pcs per reel in a 8mm width tape. (Standard) Reel diameter: ϕ 180mm
ESD	2kV (HBM)

Recommended Applications

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

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	Pd	15	mW
Reverse Voltage	V _R	12	V
Operating Temperature	T _{opr}	-30~+85	°C
Storage Temperature	T _{stg}	-40~+100	°C

Electro-Optical Characteristics

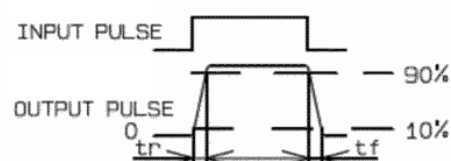
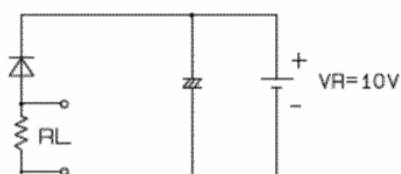
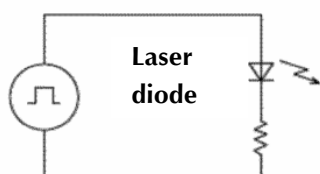
(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
Photo Current	V _R =5V, Ee=5mW/cm ² ※1	I _p	MIN.	1.2	μ A
			TYP.	1.8	
			MAX.	2.4	
Response Time	V _R =10V, R _L =1,000Ω ※3	tr/tf	TYP.	60	ns
Capacity	V _R =5V, f=1MHz	C _T	TYP.	1.6	pF
Dark Current	V _R =10V	I _D	TYP.	0.1	nA
			MAX.	20	
Peak Sensitivity Wavelength	V _R =0V	λ _p	TYP.	950	nm
Spatial Half Width ※2	V _R =0V	2θ _{1/2}	TYP.	156(θ _x)	deg.
			TYP.	132(θ _y)	

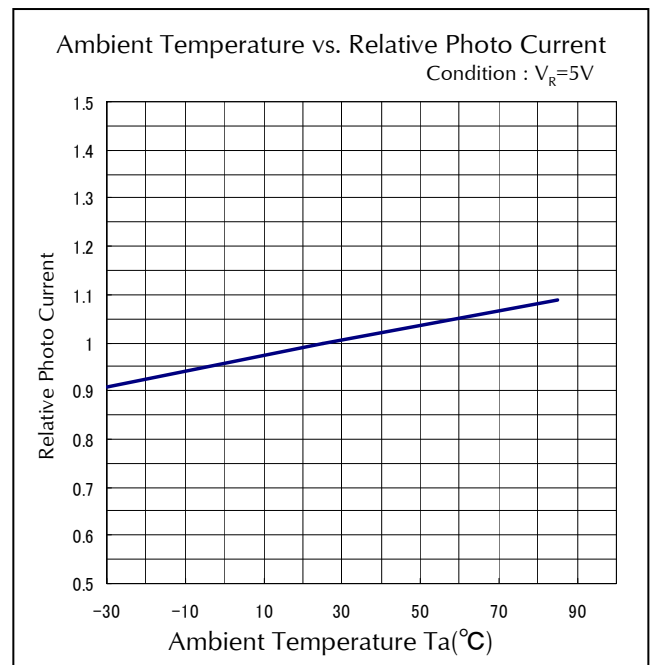
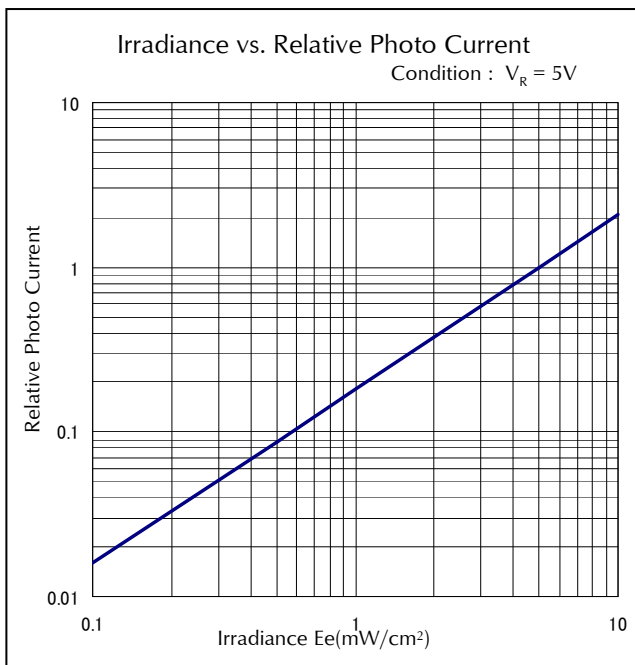
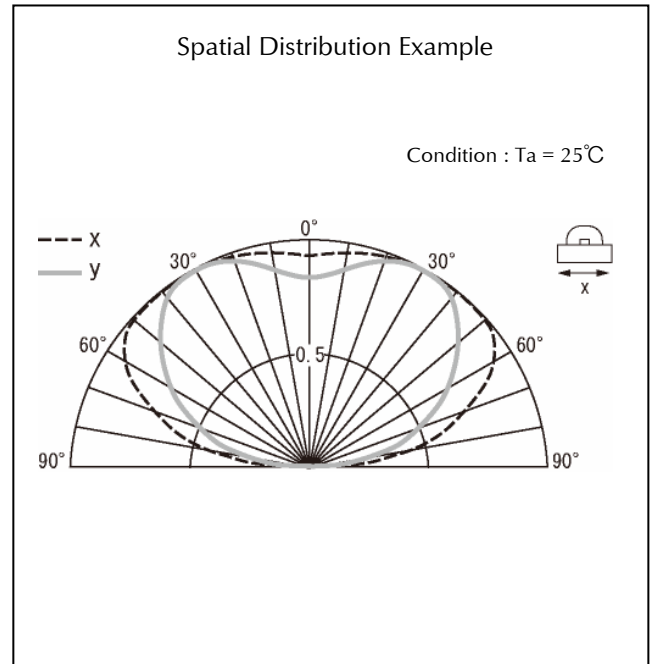
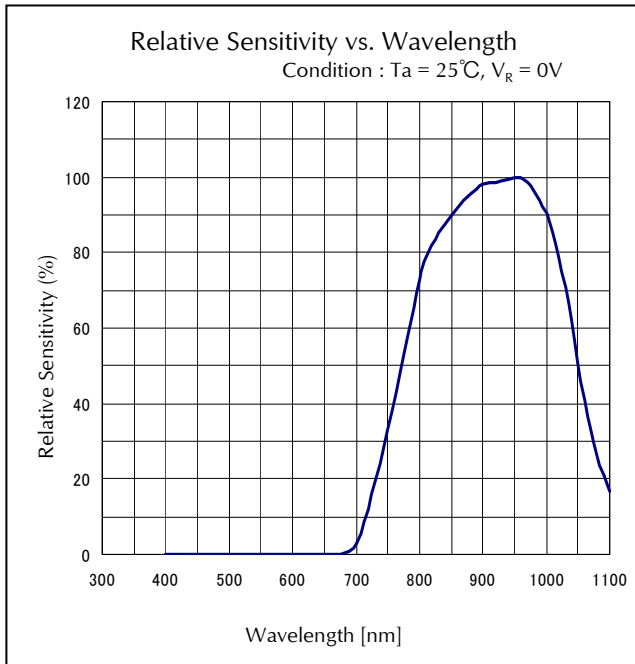
※1 Color temperature is 2,856K. Employs a standard tungsten lamp.

 ※2 θ_x : Lens long side axis, θ_y : Lens short side axis

※3 Response time test circuit.

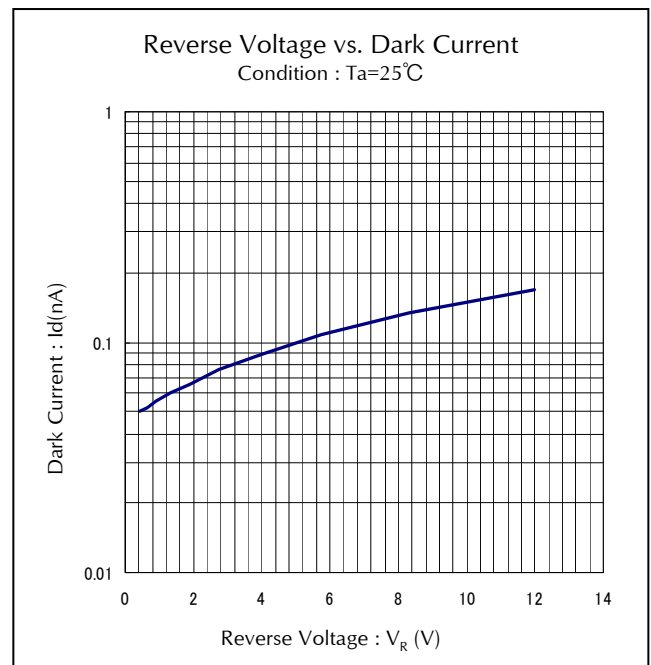
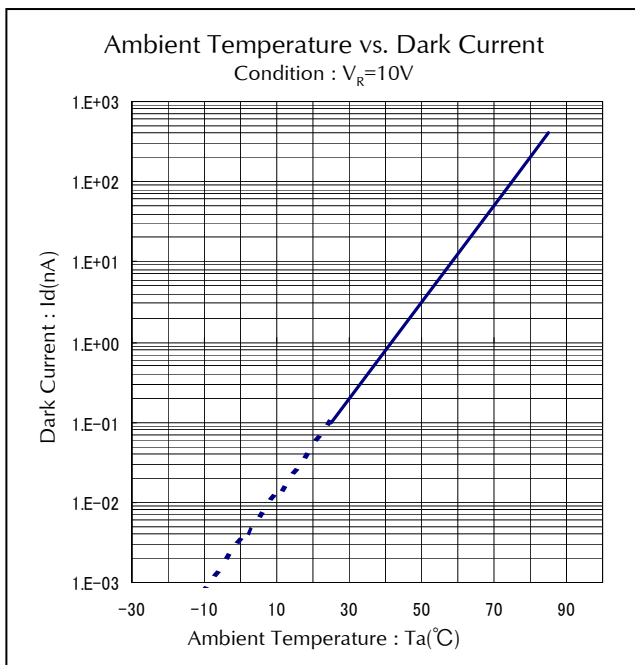
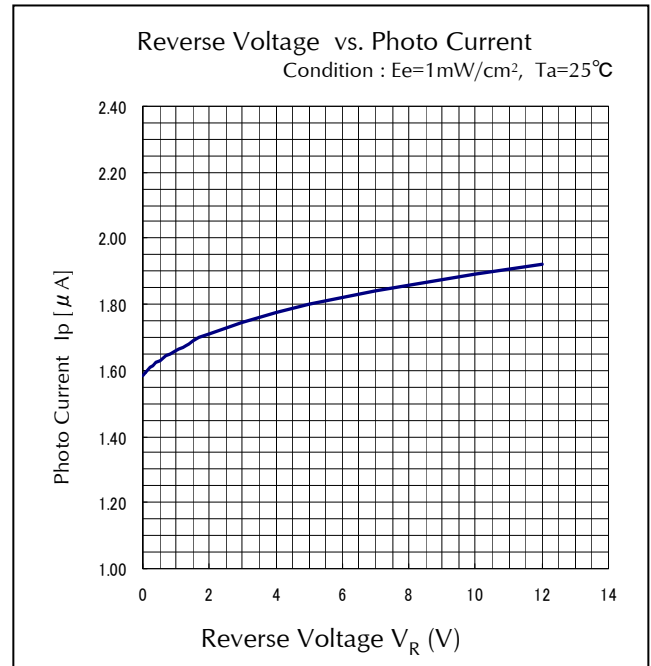
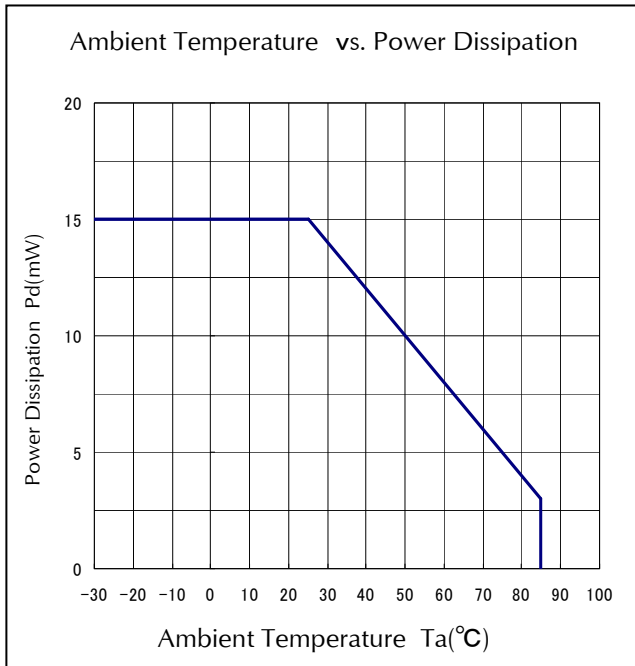


Technical Data

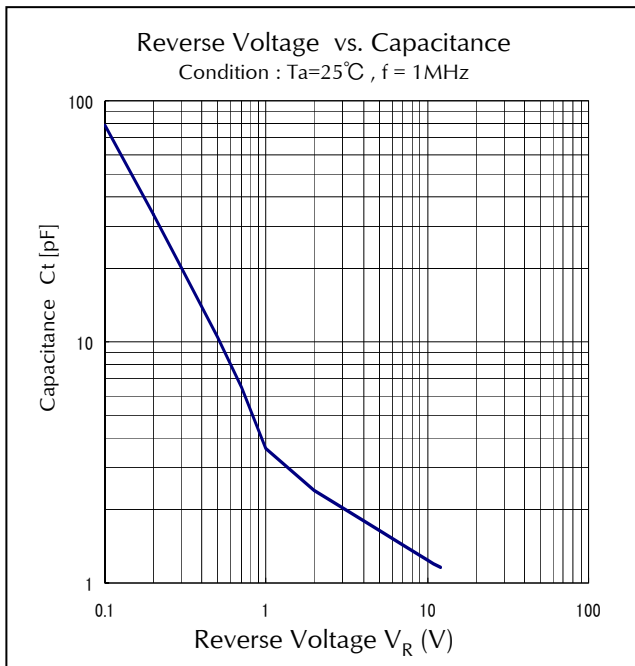


It is based on $E_e = 5\text{mW/cm}^2$.
Employs a standard tungsten lamp of 2,856K.

Technical Data



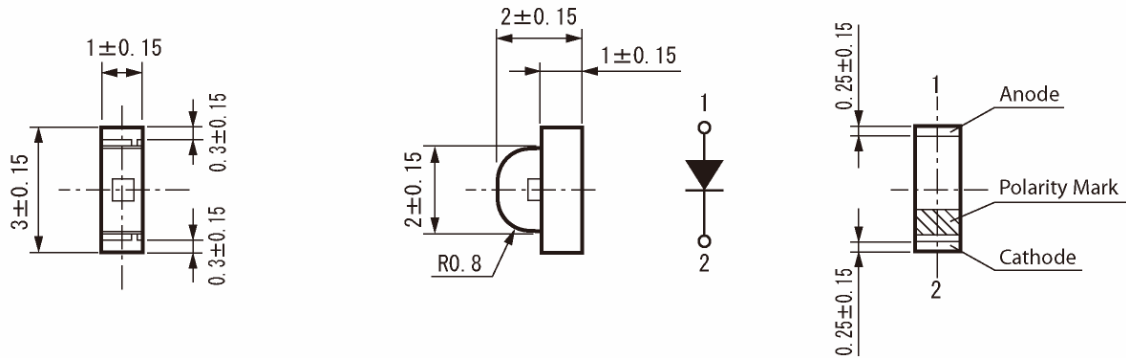
Technical Data



Package Dimensions

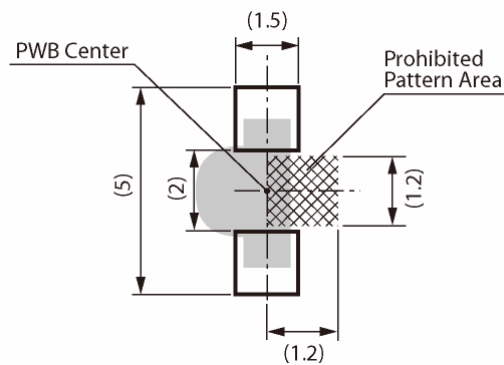
(Unit: mm)

MASS: (8.5)mg



Recommended Soldering Pattern

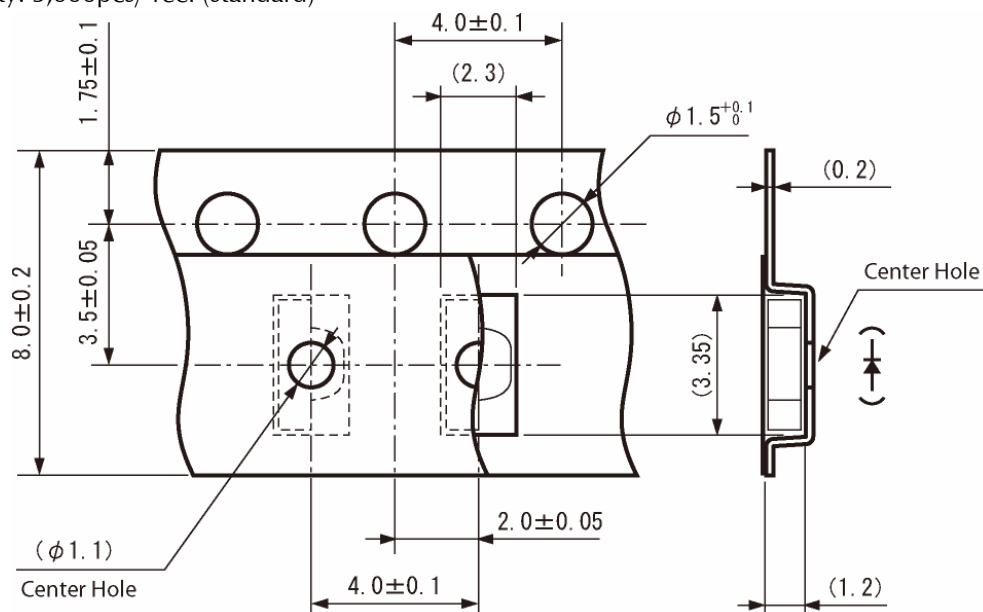
(Unit: mm)



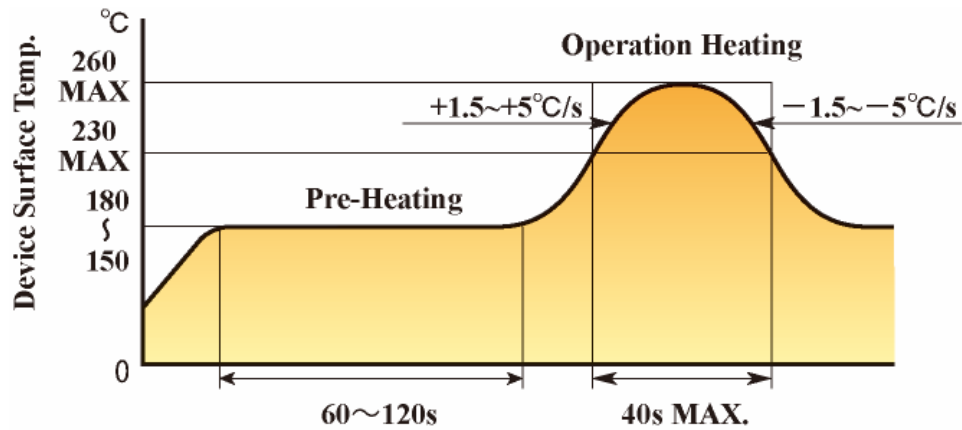
Taping Specification

(Unit: mm)

Quantity: 3,000pcs/ 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.	350 °C	
Soldering time and frequency	3 s	(MAX.)
	1 time	(MAX.)

Reliability Testing Result

Test Item	Applicable Standard	Testing Conditions	Duration	Failure
Operating Life	EIAJ ED-4701/100(101)	Ta=25°C Maximum Voltage (Dark condition)	1,000 h	0/15
High Temperature Operating Life	EIAJ ED-4701/100(101)	Ta=85°C V _R =5V (Dark condition)	1,000 h	0/15
Low Temperature Operating Life	EIAJ ED-4701/100(101)	Ta=30°C V _R =5V (Dark condition)	1,000 h	0/15
Wet High Temperature Operating Life	EIAJ ED-4701/100(102)	Ta=60°C Rh=90% V _R =5V (Dark condition)	1,000 h	0/15
High Temperature Storage Life	EIAJ ED-4701/200(201)	Ta = Tstg MAX. Maximum Storage Temperature	1,000 h	0/15
Low Temperature Storage Life	EIAJ ED-4701/200(202)	Ta = Tstg MIN. Minimum Storage Temperature	1,000 h	0/15
Wet High Temperature Storage Life	EIAJ ED-4701/100(101)	Ta=60°C Rh=90%	1,000 h	0/15
Thermal Shock	EIAJ ED-4701/100(105)	Ta = Tstg MAX. ~ Tstg MIN. (each 15min)	5 cycles	0/15
Resistance to Reflow Soldering	EIAJ ED-4701/300(301)	Moisture Soak: 30°C 70% 72h Preheating: 150 ~ 180°C 120sec MAX. Soldering: 260°C 5sec	2 times	0/15

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Relative Photocurrent	I _p	V _R =5V, E _e =5mW/cm ²	Testing Max. Value ≥ Initial Value x 1.3 Testing Min. Value < Initial Value x 0.7
Dark Current	I _D	V _R =10V	Testing Max. Value ≥ 20mA x 2.5

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