

Technical Data Sheet

5mm Silicon PIN Photodiode T-1

PD3893-3B/L1

Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Pb free
- This product itself will remain within RoHS compliant version.

Descriptions

- PD3893-3B/L1 is a high speed and high sensitive PIN photodiode in a standard 5Φ black plastic package.
The device is spectrally matched to infrared emitting diode.

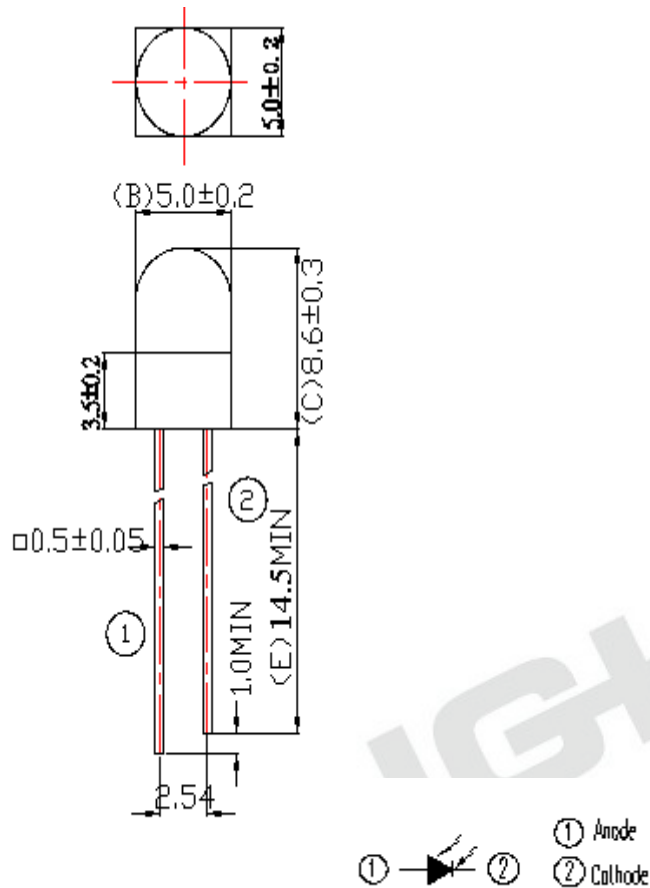
Applications

- Automatic door sensor
- Copier
- Game machine

Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
PD	Silicon	Black

Package Dimensions



Notes: 1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.1 mm

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Units
Reverse Voltage	V_R	32	V
Operating Temperature	T_{opr}	$-25 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40 \sim +85$	$^\circ\text{C}$
Soldering Temperature(*1)	T_{sol}	260	$^\circ\text{C}$
Power Dissipation at(or below) 25 Free Air Temperature	P_c	150	mW

Notes: *1: Soldering time 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	---	840	---	1100	nm
Wavelength Of Peak Sensitivity	λ_p	---	---	940	---	nm
Open-Circuit Voltage	V_{OC}	$E_e=5\text{mW/cm}^2$ $\lambda_p=940\text{nm}$	---	0.44	---	V
Short- Circuit Current	I_{SC}	$E_e=1\text{mW/cm}^2$ $\lambda_p=940\text{nm}$	---	10	---	μA
Reverse Light Current	I_L	$E_e=1\text{mW/cm}^2$ $\lambda_p=940\text{nm}$ $V_R=5\text{V}$	15	---	---	μA
Reverse Dark Current	I_D	$E_e=0\text{mW/cm}^2$ $V_R=20\text{V}$	---	---	30	nA
Reverse Breakdown Voltage	B_{VR}	$E_e=0\text{mW/cm}^2$ $I_R=100\mu\text{A}$	32	170	---	V
Total Capacitance	C_t	$E_e=0\text{mW/cm}^2$ $V_R=5\text{V}$ $f=1\text{MHz}$	---	6.0	---	pF
Rise Time	t_r	$V_R=10\text{V}$ $R_L=100\Omega$	---	10	---	nS
Fall Time	t_f		---	10	---	

Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs.
Ambient Temperature

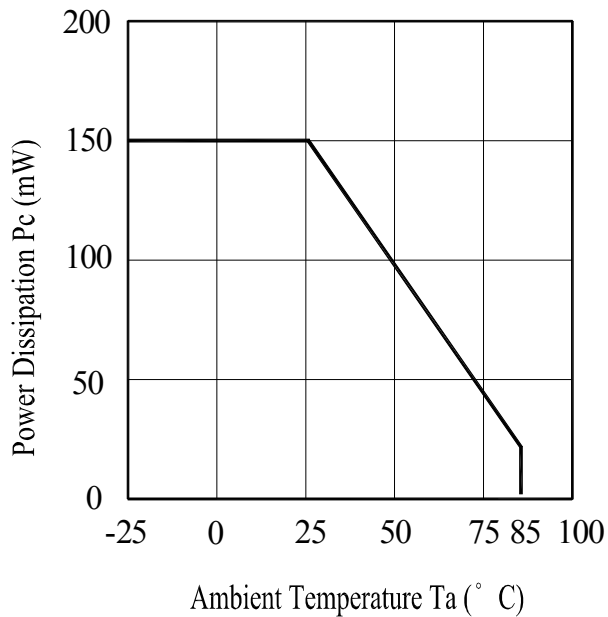


Fig.2 Spectral Sensitivity

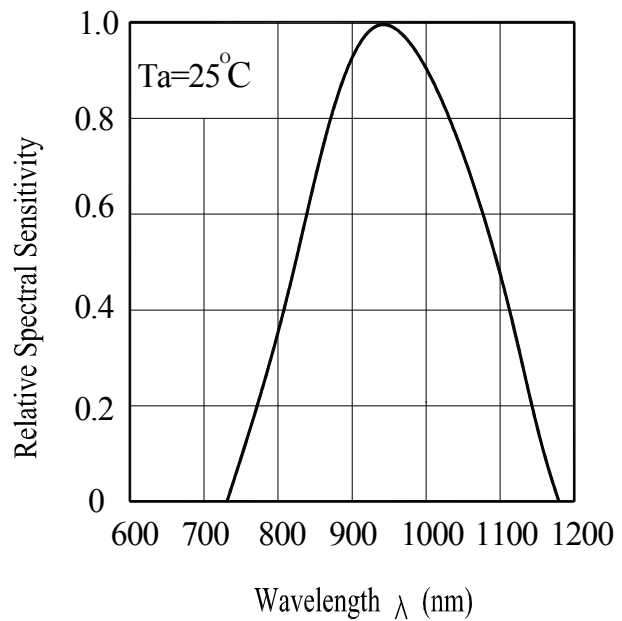


Fig.3 Dark Current vs.
Ambient Temperature

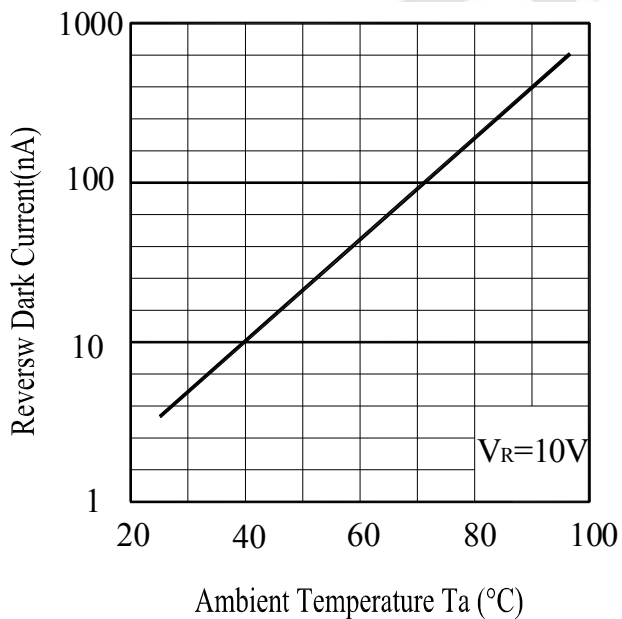
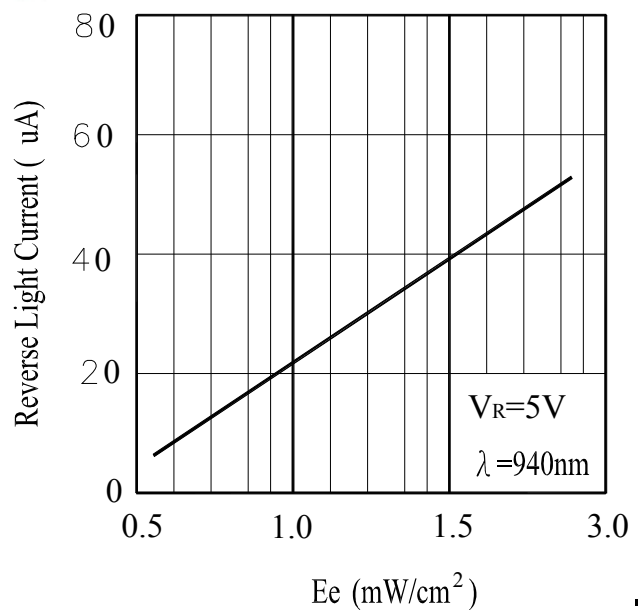


Fig. 4 Reverse Light Current vs.
 E_e



Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs.
Reverse Voltage

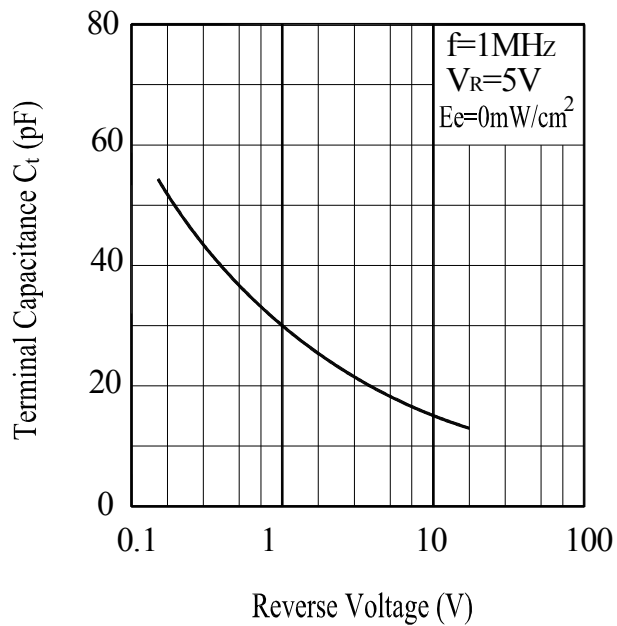
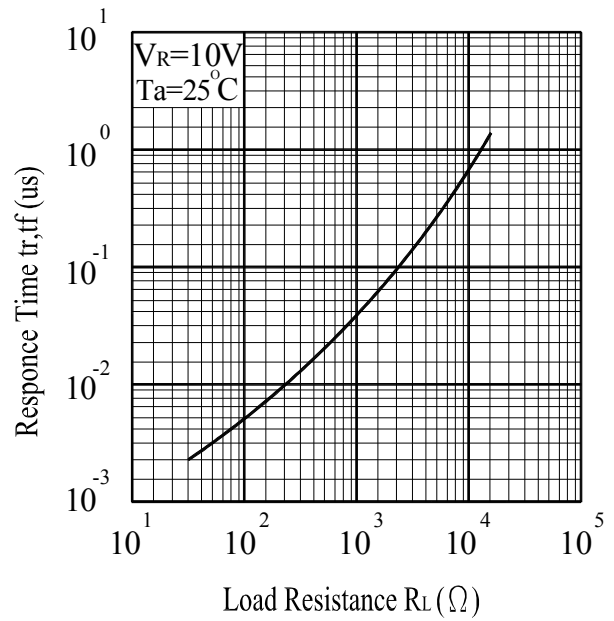


Fig.6 Response Time vs.
Load Resistance



Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP. : 260±5°C	10secs	22pcs	Attenuation of Light Current value>20%	0/1
2	Temperature Cycle	H : +100°C 15mins ↓ 5mins L : -40°C 15mins	300Cycles	22pcs		0/1
3	Thermal Shock	H : +100°C 5mins ↓ 10secs L : -10°C 5mins	300Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	V _R =5V	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1

Packing Quantity Specification

1.500PCS/1Bag , 5Bags/1Box

2.10Boxes/1Carton

Label Form Specification

The diagram shows a rectangular label with the following elements:

- Top left: A circle containing 'Pb'.
- Top center: A rectangle containing 'EVERLIGHT'.
- Top right: A circle containing 'X'.
- Below 'Pb': 'CPN:' and 'P/N:'.
- Below 'P/N:': A barcode.
- Below the barcode: 'PD3893-3B/L1'.
- Below 'PD3893-3B/L1': 'QTY:'.
- Below 'QTY:': A barcode.
- Below the barcode: 'LOT NO:'.
- Below 'LOT NO:': A barcode.
- Below the barcode: 'Reference'.
- Below 'Reference': A barcode.
- Below 'QTY:': 'CAT:'.
- Below 'CAT:': 'HUE:'.
- Below 'HUE:': 'REF:'.
- Below 'REF:': A barcode.
- Bottom right: A rectangle containing 'RoHS'.

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

X: Month

Reference: Identify Label Number

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

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