5mm Round PN junction Silicon Photodiode
Technical Data Sheet

Part No.: DL-5586PD-1PD

◆ **Features:**

1. Fast response time.
2. High photo sensitivity.
3. Small junction capacitance.
4. The product itself will remain within RoHS compliant Version.

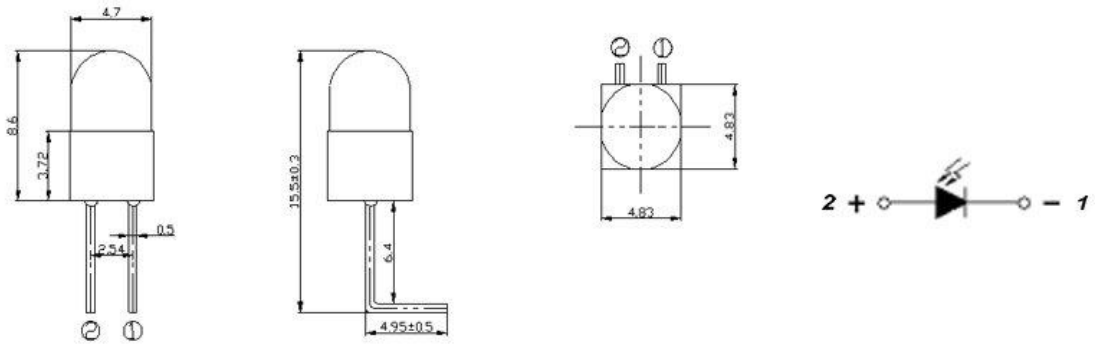
◆ **Descriptions:**

1. The DL-5586PD is a high speed and high sensitive PIN photodiode in a standard ϕ5 epoxy package. Due to its water clear epoxy the device is sensitive to visible and infrared radiation.

◆ **Applications:**

1. High speed photo detector.
2. Automatic door sensor.
3. Security system.
4. Game machine.
5. Camera.

◆ **Package Dimension:**



Part No.	Chip Material	Lens Color	Source Color
DL-5586PD-1PD	Silicon	Water Clear	Photodiode Receiver

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (.010") unless otherwise noted.
3. Protruded resin is 1.00mm (.039") max.
4. Specifications are subject to change without notice.

◆ **Absolute Maximum Ratings at Ta=25℃**

Parameters	Symbol	Max.	Unit
Power Dissipation	PD	150	mW
Reverse Voltage	VR	30	V
Operating Temperature Range	Topr	-25℃ to +80℃	
Storage Temperature Range	Tstg	-40℃ to +85℃	
Lead Soldering Temperature [4mm (.157") From Body]	Tsld	260℃	

Electrical Optical Characteristics at Ta=25℃

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Spectral Sensitivity	Δλ	700	—	1050	nm	—
Peak sensitivity Wavelength	λp	—	940	—	nm	—
View Angle	2θ1/2	35	40	45	deg	VR=5V λ=940nm
Angle off center	Δθ	-5	—	5	deg	
Open-Circuit Voltage	Voc	—	0.45	—	V	Ee=5.0mW/cm²
Light Current	IL	30	40	50	uA	Ee=5.0mW/cm² VR=5V
Dark Current	ID	—	5	30	nA	VR=10V Ee=0mW/cm²
Terminal Capacitance	Ct	—	30	—	pF	f=1MHz
RiseTime	tr	—	50	—	ns	RL=1KΩ VR=10V
Fall Time	tf	—	50	—	ns	

Notes:

1. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

◆ **Typical Electrical / Optical Characteristics Curves**

(25℃ Ambient Temperature Unless Otherwise Noted)

Fig.1 Power Dissipation vs. Ambient Temperature

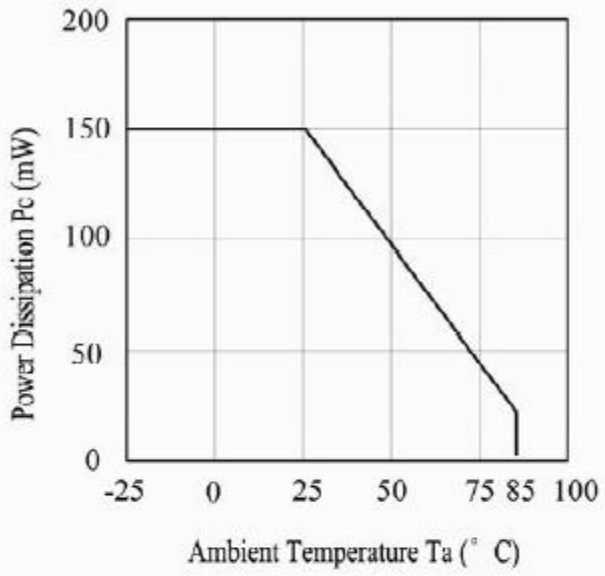


Fig.2 Spectral Sensitivity

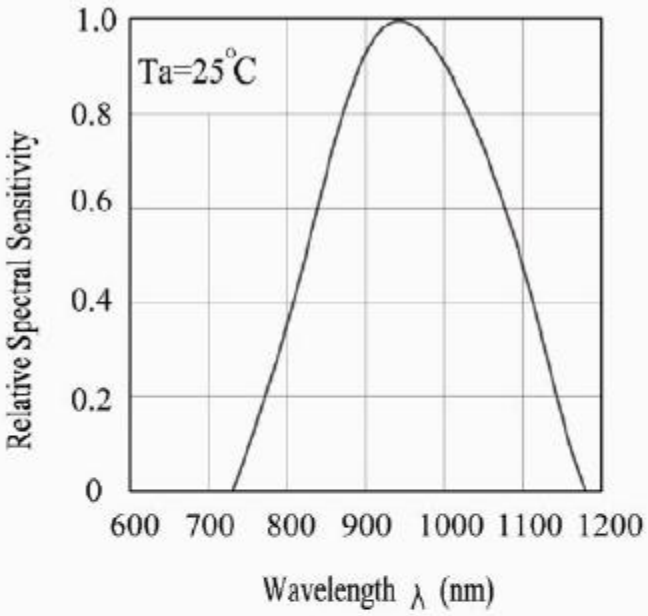


Fig.3 Dark Current vs. Ambient Temperature

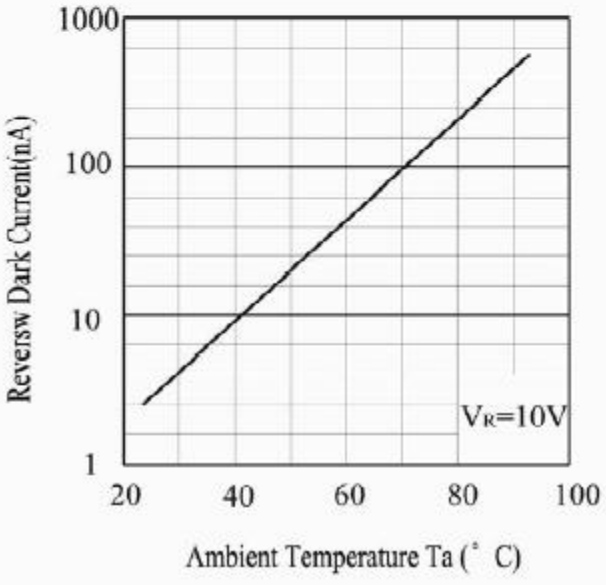


Fig. 4 Reverse Light Current vs. Ee

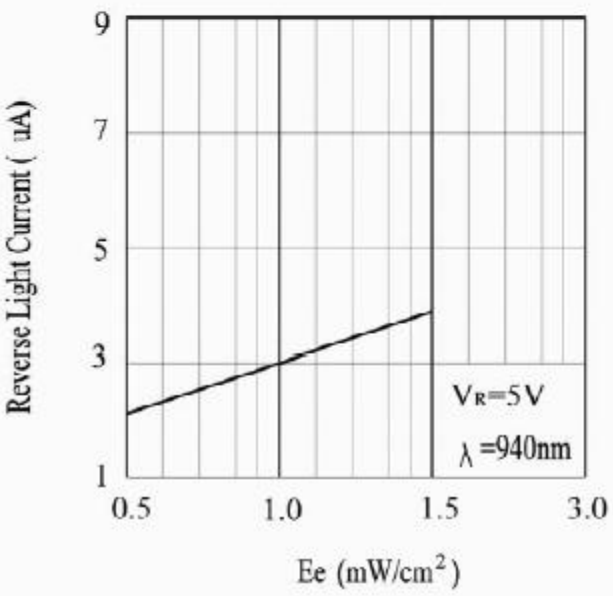


Fig.5 Terminal Capacitance vs. Reverse Voltage

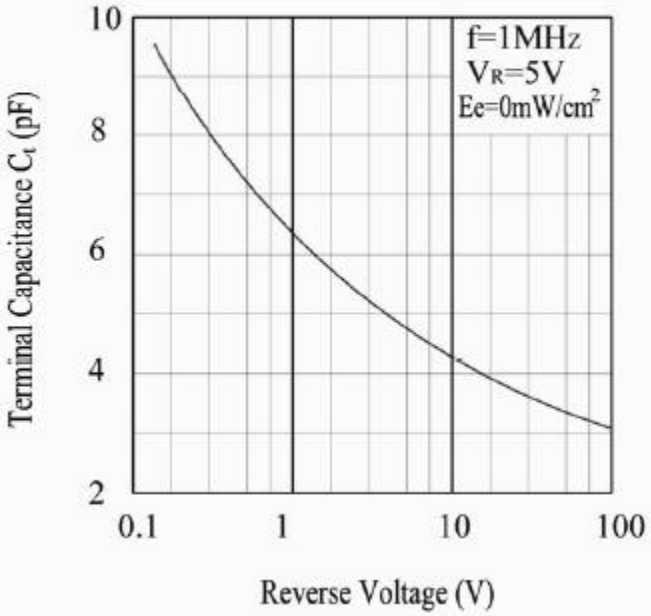
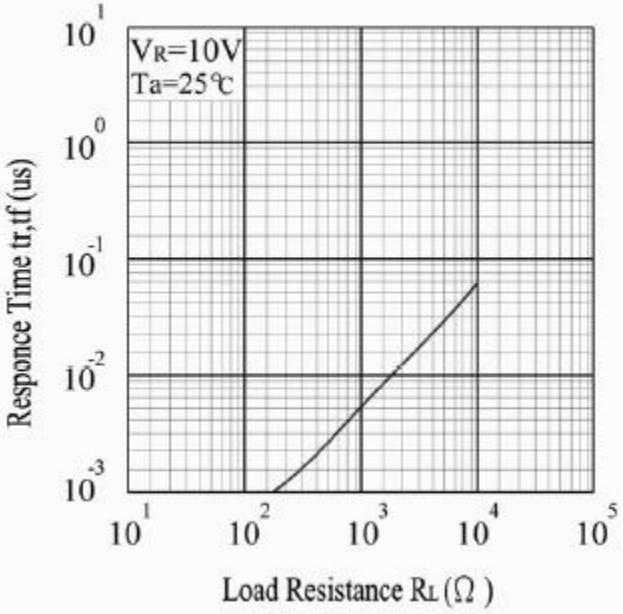


Fig.6 Response Time vs. Load Resistance



◆ **Please read the following notes before using the datasheets:**

1. Over-current-proof

   Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

   2.1 Do not open moisture proof bag before the products are ready to use.

   2.2 Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.

   2.3 The LEDs should be used within a year.

   2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

   2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

3. Soldering Condition

   3.1 Pb-free solder temperature profile.

   3.2 Reflow soldering should not be done more than two times.

   3.3 When soldering, do not put stress on the LEDs during heating.

   3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

   Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

   Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

6. Caution in ESD

   Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices equipment and machinery must be properly grounded.