

## Technical Data Sheet

### 5mm Silicon PIN Photodiode , T-1 3/4

#### PD333-3B/L3/C2

#### Features

- Fast response time
- High photo sensitivity
- Small junction capacitance

#### Descriptions

PD333-3B/L3/C2 is a high speed and high sensitive PIN photodiode in a standard 5  $\phi$  plastic package. The device is spectrally matched to infrared emitting diode.



#### Applications

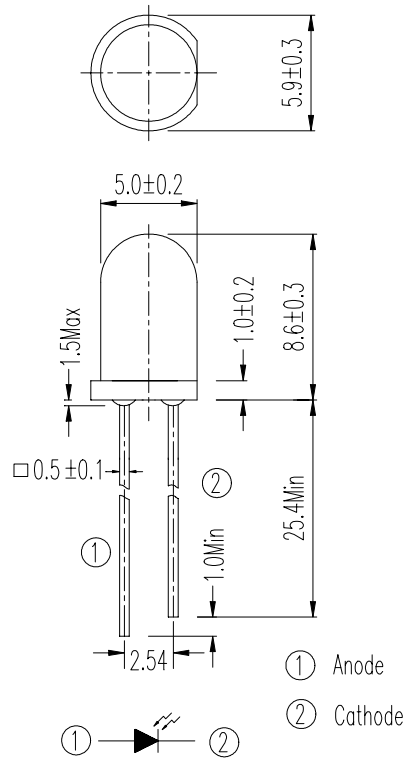
- High speed photo detector
- Security system
- Machine

#### Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
PD	Silicon	Black

Device No:DPD-033-087

**Package Dimensions**



- Notes:** 1.All dimensions are in mil  
2.Tolerances unless dimensions  $\pm 0.25\text{mm}$

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Units
Reverse Voltage	$V_R$	32	V
Power Dissipation	$P_d$	150	mW
Lead Soldering Temperature	$T_{sol}$	260	°C
Operating Temperature	$T_{opr}$	-25 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +85	°C

**Notes:** \*1:Soldering time  $\leq 5$  seconds.

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Rang of Spectral Bandwidth	$\lambda_{0.5}$	-----	---	700-1100	---	nm
Wavelength of Peak Sensitivity	$\lambda_p$	-----	---	980	---	nm
Open-Circuit Voltage	$V_{OC}$	Ee=5m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	0.44	---	V
Short- Circuit Current	$I_{SC}$	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	20	---	$\mu A$
Reverse Light Current	$I_L$	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$ $V_R=5V$	---	22	---	
Dark Current	$I_d$	Ee=0m W/cm <sup>2</sup> $V_R=10V$	---	---	10	nA
Reverse Breakdown	$BV_R$	Ee=0m W/cm <sup>2</sup> $I_R=100 \mu A$	32	170	---	V
Total Capacitance	$C_t$	Ee=0m W/cm <sup>2</sup> $V_R=5V$ $f=1\text{MHZ}$	---	10	---	pF
Rise/Fall Time	$t_r/t_f$	$V_R=10V$ $R_L=100 \Omega$	---	10/10	---	nS

**Typical Electro-Optical Characteristics Curves**

Fig. 1 Power Dissipation vs. Ambient Temperature

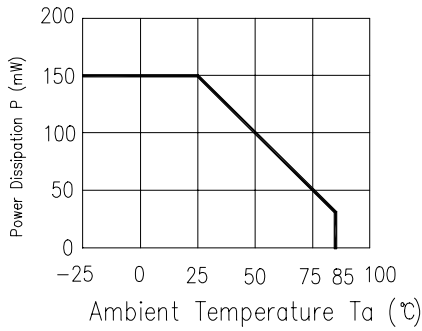


Fig.2 Spectral Sensitivity

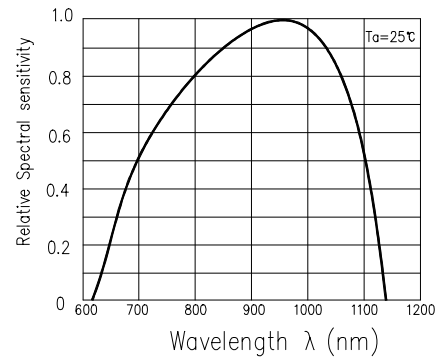


Fig.3 Dark Current vs. Ambient Temperature

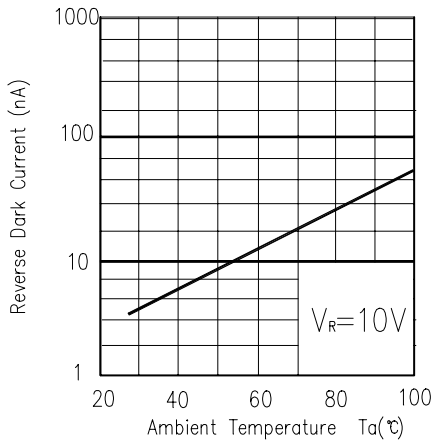


Fig.4 Reverse Light Current vs.Ee

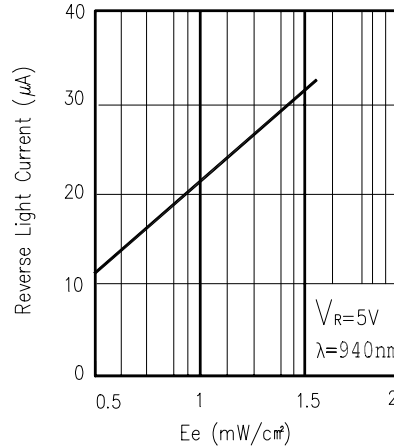


Fig.5 Terminal Capacitance vs. Reverse Voltage

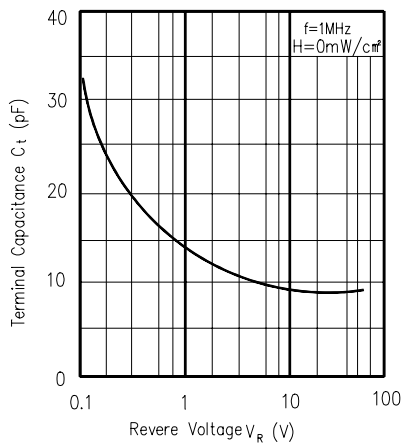
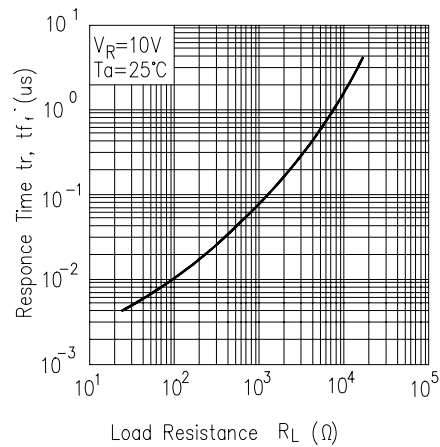


Fig.6 Response Time vs. Load Resistance



Device No:DPD-033-087

**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°C± 5°C	10secs	22pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$  U : Upper Specification  Limit L : Lower Specification Limit	0/1
2	Temperature Cycle	H : +85°C    30mins ↑ 5mins ↓ L : -55°C    30mins	50Cycles	22pcs		0/1
3	Thermal Shock	H :+100°C    5mins ↑ 10secs ↓ L :-10°C     5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -55°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

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