

Technical Data Sheet

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

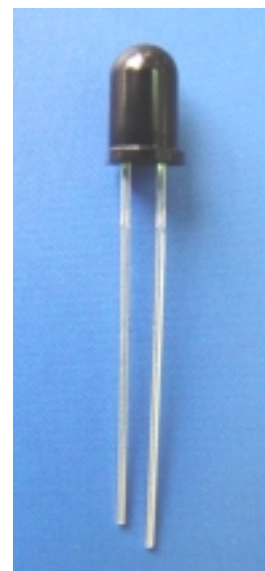
PD333-3B/C1

Features

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

Descriptions

PD333-3B/C1 is a high speed and high sensitive PIN photodiode in a standard 5 ϕ plastic package. The device is spectrally matched to infrared emitting diode.



Applications

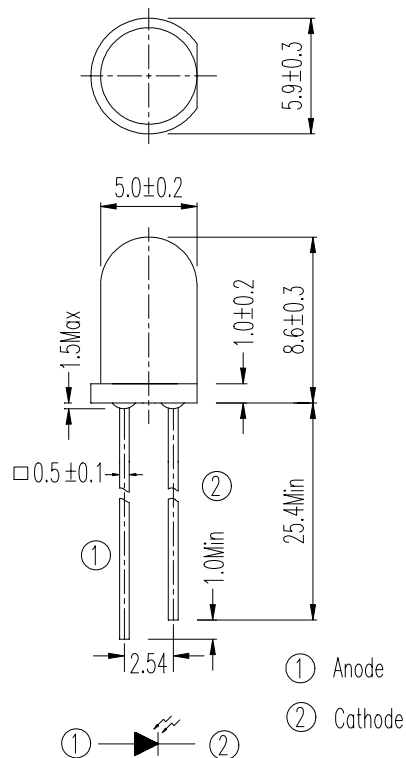
- High speed photo detector
- Security system
- Machine

Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
PD	Silicon	Black

Device No:DPD-033-092

Package Dimensions



Notes: 1.All dimensions are in mil
2.Tolerances unless dimensions ± 0.25 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 ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Rang of Spectral Bandwidth	$\lambda_{0.5}$	-----	---	760-1100	---	nm
Wavelength of Peak Sensitivity	λ_p	-----	---	940	---	nm
Open-Circuit Voltage	V_{OC}	Ee=5m W/cm ² λ_p =940nm	---	0.42	---	V
Short- Circuit Current	I_{SC}	Ee=1m W/cm ² λ_p =940nm	---	7.0	---	μA
Reverse Light Current	I_L	Ee=1m W/cm ² λ_p =940nm V_R =5V	---	7.5	---	
Dark Current	I_d	Ee=0m W/cm ² V_R =10V	---	---	10	nA
Reverse Breakdown	BV_R	Ee=0m W/cm ² I_R =100 μA	32	170	---	V
Total Capacitance	C_t	Ee=0m W/cm ² V_R =5V f=1MHZ	---	5	---	pF
Rise/Fall Time	t_r/t_f	V_R =10V R_L =1000 Ω	---	6/6	---	nS

Typical Electro-Optical Characteristics Curves

Fig. 1 Power Dissipation vs. Ambient Temperature

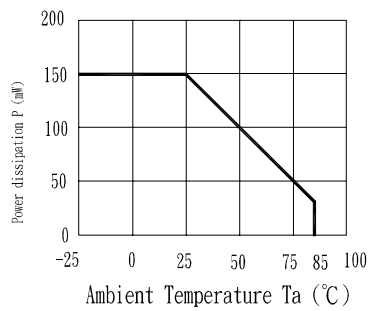


Fig.2 Spectral Sensitivity

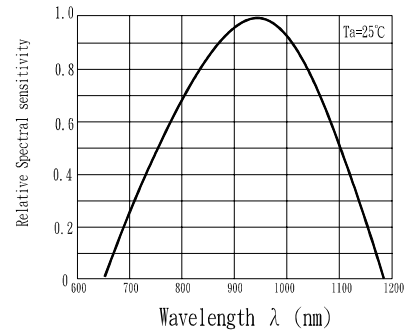


Fig.3 Dark Current vs. Ambient Temperature

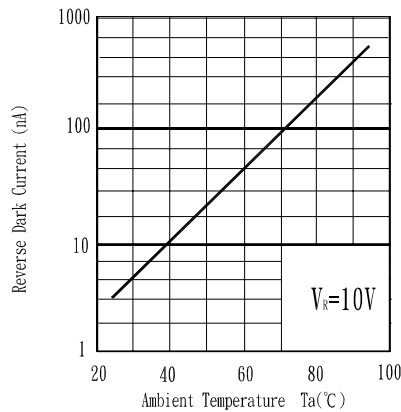


Fig.4 Reverse Light Current vs. E_e

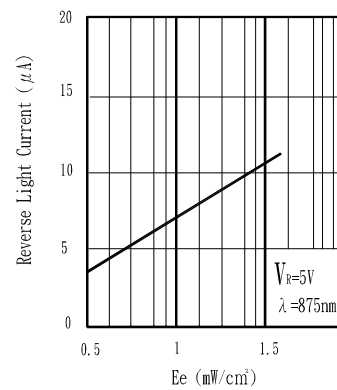


Fig.5 Terminal Capacitance vs. Reverse Voltage

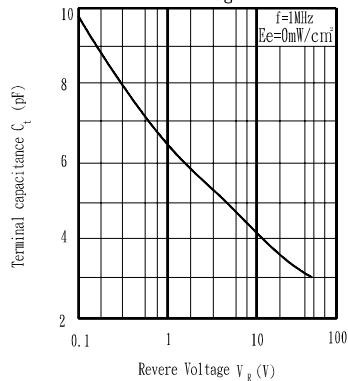
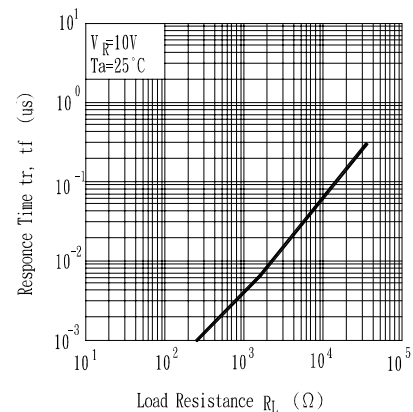


Fig.6 Response Time vs. Load Resistance



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 : $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$	10secs	22pcs		0/1
2	Temperature Cycle	$\begin{array}{c} \text{H : } +85^{\circ}\text{C} \quad 30\text{mins} \\ \updownarrow 5\text{mins} \\ \text{L : } -55^{\circ}\text{C} \quad 30\text{mins} \end{array}$	50Cycles	22pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$	0/1
3	Thermal Shock	$\begin{array}{c} \text{H : } +100^{\circ}\text{C} \quad 5\text{mins} \\ \updownarrow 10\text{secs} \\ \text{L : } -10^{\circ}\text{C} \quad 5\text{mins} \end{array}$	50Cycles	22pcs	U : Upper Specification	0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs	Limit	0/1
5	Low Temperature Storage	TEMP. : -55°C	1000hrs	22pcs	L : Lower Specification	0/1
6	DC Operating Life	$V_R = 5\text{V}$	1000hrs	22pcs	Limit	0/1
7	High Temperature/ High Humidity	$85^{\circ}\text{C} / 85\% \text{ R.H}$	1000hrs	22pcs		0/1

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Device No:DPD-033-092