



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## Technical Data Sheet

### 4.8mm Semi-Lens Silicon PIN Photodiode

#### PD438B/L1

#### Features

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

#### Descriptions

PD438B/L1 is a high speed and sensitive PIN photodiode in a cylindrical side view plastic package. The epoxy package itself is an IR filter , spectrally matched to IR emitter.



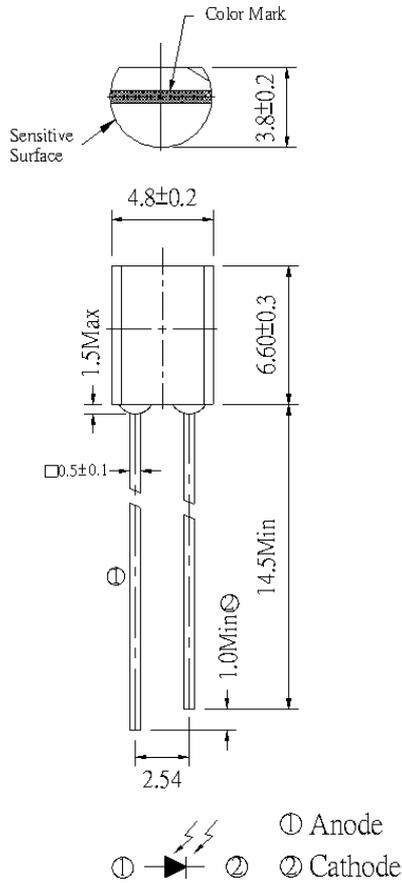
#### Applications

- High speed photo detector
- Camera
- Optoelectronic switch
- VCRs , Video camera

#### 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  $\pm 0.25$ 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	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°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	$\lambda_{0.5}$	-----	840	---	1100	nm
Wavelength of Peak Sensitivity	$\lambda_p$	-----	---	940	---	nm
Open-Circuit Voltage	$V_{OC}$	Ee=5m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	0.41	---	V
Short- Circuit Current	$I_{SC}$	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	4.0	---	$\mu\text{A}$
Reverse Light Current	$I_L$	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$ $V_R=5\text{V}$	2.6	4.0	---	
Dark Current	$I_d$	Ee=0m W/cm <sup>2</sup> $V_R=10\text{V}$	---	---	10	nA
Reverse Breakdown	$BV_R$	Ee=0m W/cm <sup>2</sup> $I_R=100\ \mu\text{A}$	32	170	---	V
Total Capacitance	$C_t$	Ee=0m W/cm <sup>2</sup> $V_R=5\text{V}$ $f=1\text{MHZ}$	---	6	---	pF
Rise/Fall Time	$t_r/t_f$	$V_R=10\text{V}$ $R_L=1\text{K}\ \Omega$	---	10/10	---	nS

**Typical Electro-Optical Characteristics Curves**

Fig.1 Power Dissipation vs.

Ambient Temperature

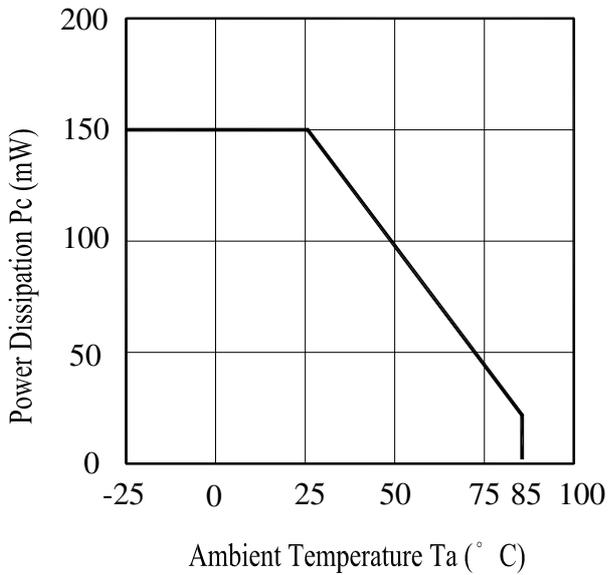


Fig.2 Spectral Sensitivity

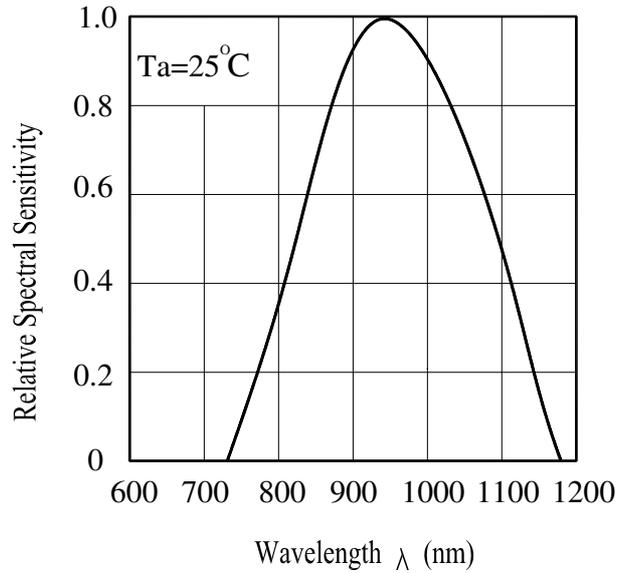


Fig.3 Dark Current vs.

Ambient Temperature

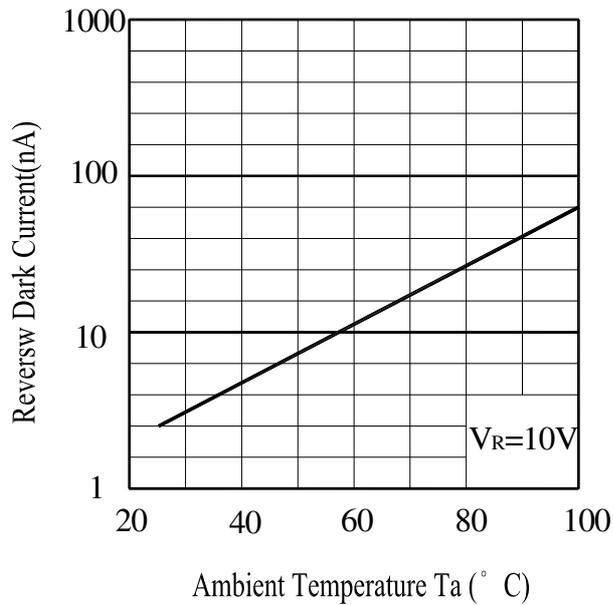
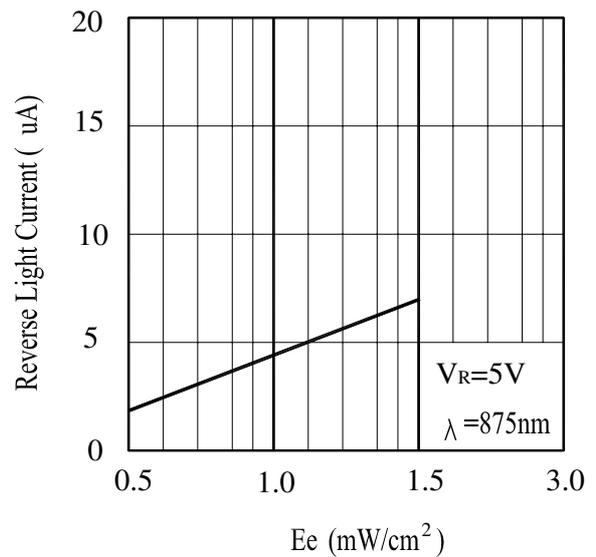


Fig. 4 Reverse Light Current vs.

Ee



**Typical Electro-Optical Characteristics Curves**

Fig.5 Terminal Capacitance vs.

Reverse Voltage

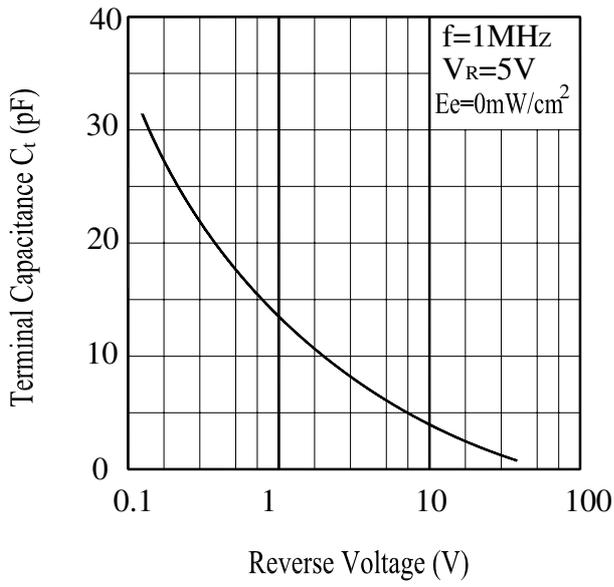
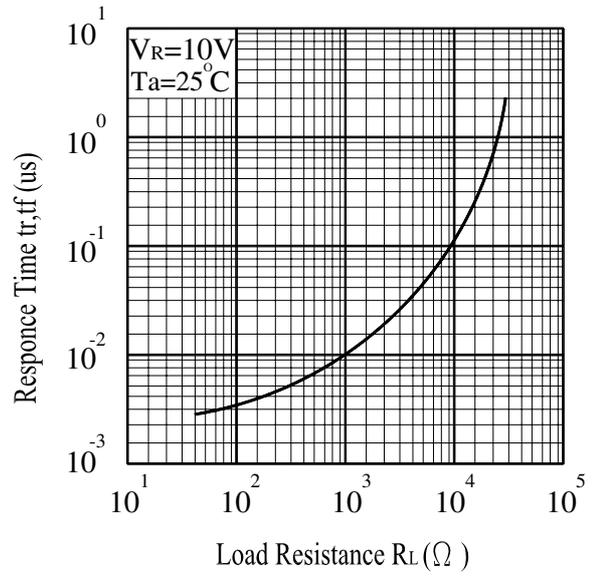


Fig.6 Response Time vs.

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/R e
1	Solder heat	TEMP. : 260°C±5°C	10secs	22pcs	$I_L \leq L \times 0.8$  L : Lower  Specification Limit	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 · 6Bags/1Box

2.10Boxes/1Carton

### **Label Form Specification**



CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

### **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.
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