EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DPD-043-001 REV : 2.2
ECN : PAGE : 1/7

4.8mm Semi-Lens Slicon PIN Photodiode

MODEL NO : PD438B

Features :

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

Description :

PD438B 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 :

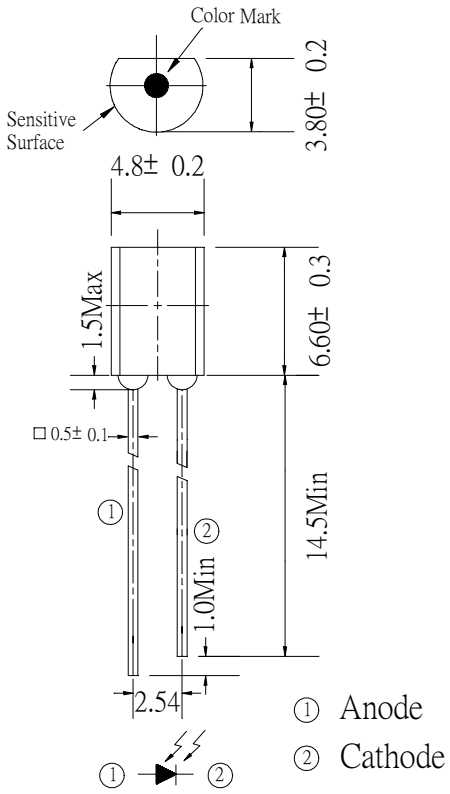
- High speed photo detector
- Camera
- Infrared remote controller for TVs VCR, audio equipment, air conditioner, etc.

PART NO.	CHIP MATERIAL	LENS COLOR
PD	Silicon	Black

4.8mm Semi-Lens Slicon PIN Photodiode

MODEL NO : PD438B

Package Dimension :



Notes :

1.All dimensions are in millimeter.

2.Protruded resin under flange 1.5 mm Max.

3.Lead spacing is measured where the lead emerge from the package.

4.Lens color：Black.

5.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.

6.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.

7.When using this product , please observe the absolute maximum ratings and the instructions for use 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.

4.8mm Semi-Lens Slicon PIN Photodiode

MODEL NO : PD438B

■ Absolute Maximum Ratings at T_A = 25℃

Parameter	Symbol	Rating	Unit	Notice
Reverse Voltage	V_R	32	V	
Power Dissipation	Pd	150	mW	
Lead Soldering Temperature	Tsol	260	℃	4mm from mold body less than 5 seconds
Operating Temperature	Topr	-25 ~ +85	℃	
Storage Temperature	Tstg	-40 ~ +85	℃	

■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Rang of Spectral Bandwidth	$\lambda_{0.5}$	----	840---1200	----	nm	----
Wavelength of Peak Sensitivity	λ_p	----	980	----	nm	----
Open-Circuit Voltage	V_{OC}	----	0.35	----	V	E_e=5mW/c㎡ λ p=940nm
Short-Circuit Current	I_{SC}	----	70	----	μA	
Reverse Light Current	I_L	----	70	----	μA	E_e=5mW/c㎡ λ p=940nm V_R=5V
Dark Current	I_D	----	5	30	nA	E_e=0mW/c㎡ V_R=10V
Reverse Breakdown Voltage	B_{VR}	32	170	----	V	E_e=0mW/c㎡ I_R=100μA
Total Capacitance	C_t	----	25	----	pF	E_e=0mW/c㎡ f=1MHZ V_R=3V
Rise/Fall Time	t_r/t_f	----	50/50	----	nS	R_L=1000Ω V_R=10V

4.8mm Semi-Lens Slicon PIN Photodiode

MODEL NO : PD438B

■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Power Dissipation vs. Ambient Temperature

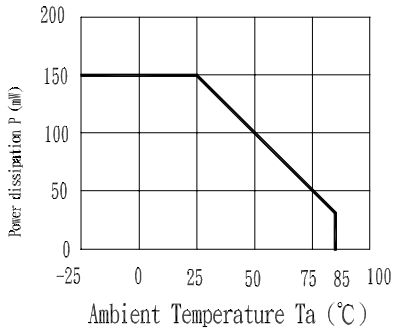


Fig. 2 Spectral Sensitivity

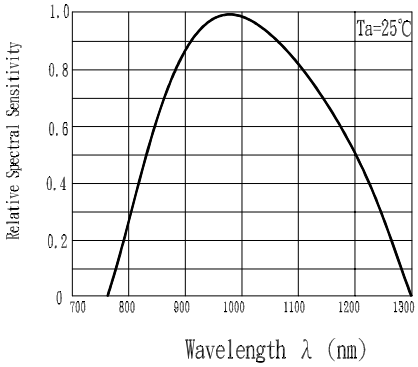


Fig. 3 Dark Current vs. Ambient Temperature

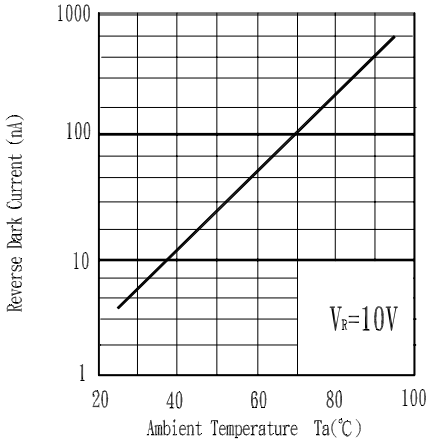


Fig. 4 Reverse Light Current vs. Ee

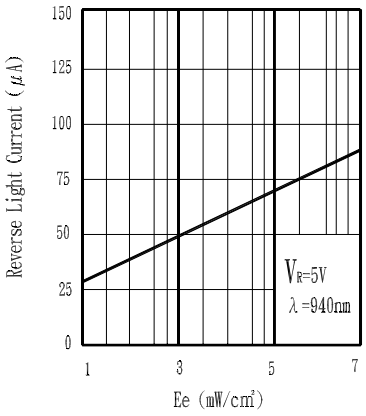


Fig. 5 Terminal Capacitance vs. Revere Voltage

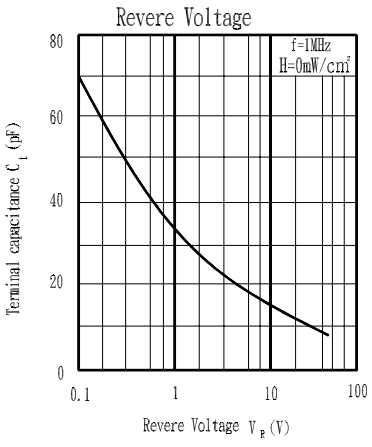
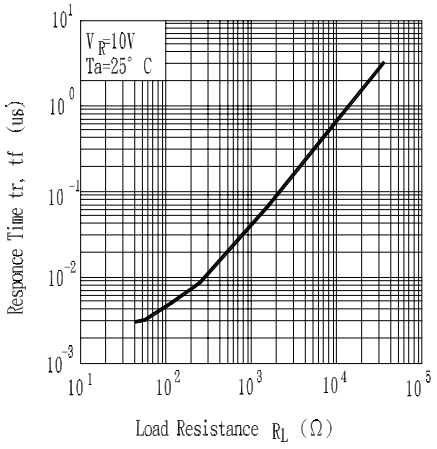


Fig. 6 Responce Time vs. Load Resistance



4.8mm Semi-Lens Slicon PIN Photodiode

MODEL NO : PD438B

■ 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/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	**Solder Heat**	TEMP : 260℃ ± 5 ℃	5 sec	22 PCs	$I_L \leqq L \times 0.8$ L :Lower specification limit	0/1
2	**Temperature Cycle**	H : +85℃ 30 min 5 min L : -55℃ 30 min	50 cycle	22 PCs		0/1
3	**Thermal Shock**	H : +100℃ 5 min 10 sec L : -10℃ 30 min	50 cycle	22 PCs		0/1
4	**High Temperature Storage**	TEMP. : +100℃	1000 hrs	22 PCs		0/1
5	**Low Temperature Storage**	TEMP. : -55℃	1000 hrs	22 PCs		0/1
6	**DC Operating Life**	V_R=5V	1000 hrs	22 PCs		0/1
7	**High Temperature / High Humidity**	85℃ / 85% R.H.	1000 hrs	22 PCs		0/1

4.8mm Semi-Lens Slicon PIN Photodiode

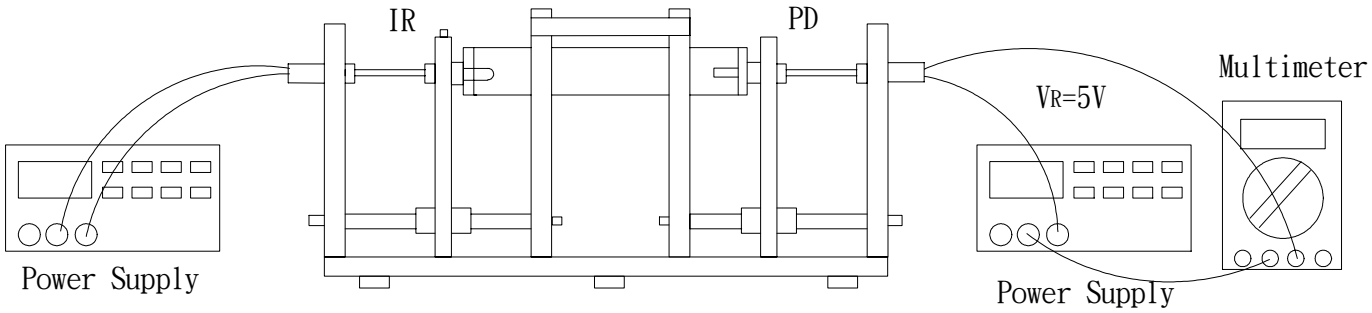
MODEL NO : PD438B

■ Test Method For Reverse Light Current

Condition: Ee=5mW/c㎡,V_R=5V

Test Item: Reverse Light Current)

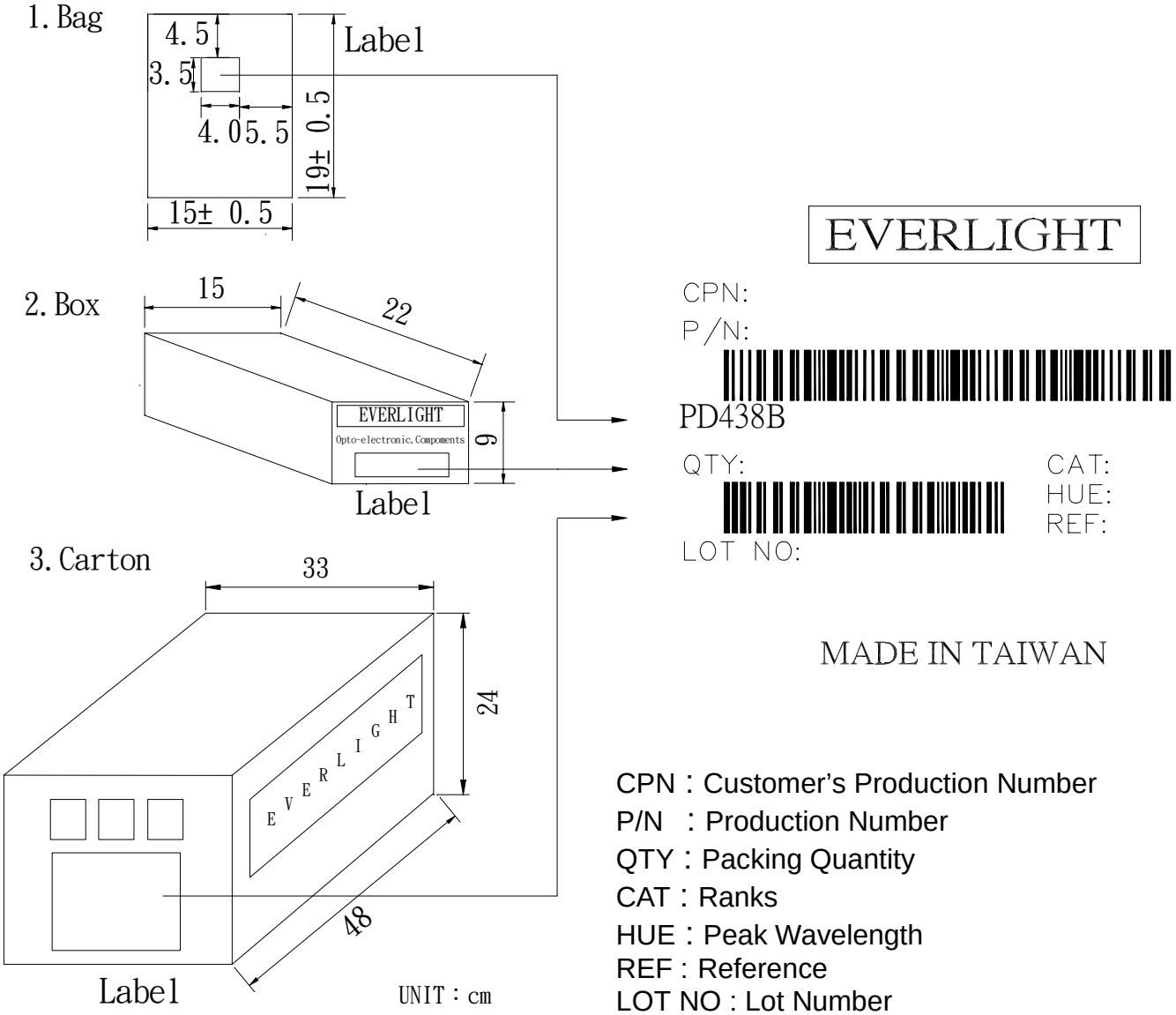
Unit : μA



4.8mm Semi-Lens Slicon PIN Photodiode

MODEL NO : PD438B

■ Packing Specifications



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

■ Packing Quantity Specification

1. 500 Pcs/1Bag，10 Bags/1Box
2. 10 Boxes/1Carton