



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPD-043-020

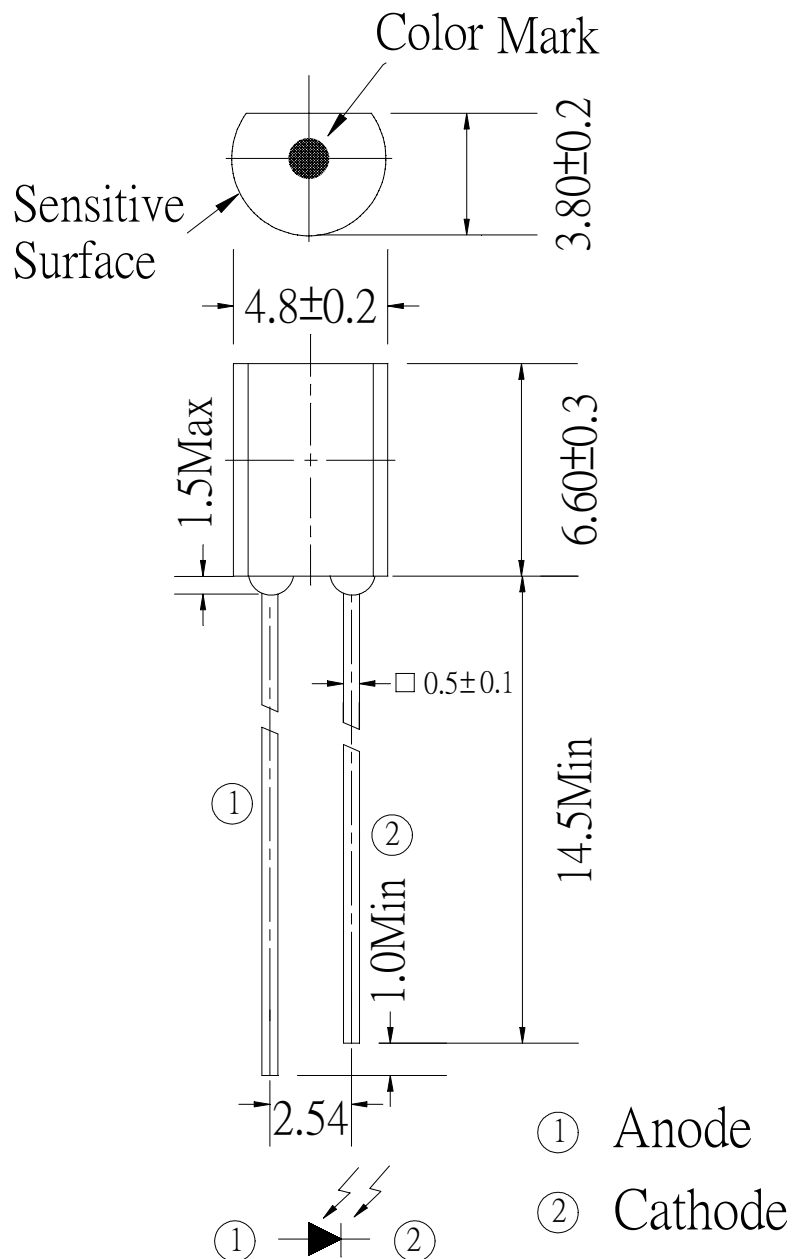
REV: 1.2

MODEL NO: PD438B/L2

ECN:

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Package Dimensions:



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◎Notes :

- 1.All dimensions are in millimeter.
- 2.Lead spacing is measured where the lead emerge from the package .
- 3.Protruded resin under flange 1.5 mm Max.
- 4.Lens color : Black transparent.
- 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.

Description

PD438B/L2 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 GaAs or GaAlAs IR emitters($\lambda_p \geq 840\text{nm}$)

Features

- High photo sensitivity
- Fast response time
- Small junction capacitance
- Large radiant sensitive area($A = 4 \text{ mm}^2$)

Applications

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



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Device Number: DPD-043-020 REV: 1.2MODEL NO: PD438B/L2 ECN: Page: 3/7**Absolute Maximum Ratings**

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	32	V
Power Dissipation	P_d	150	mW
Lead Soldering Temperature (1/16 inch from body for 5 sec.)	T_{sol}	260	°C
Operating Temperature Range	T_{opr}	-25 to +85	°C
Storage Temperature Range	T_{stg}	-40 to +85	°C

Electro Optical Characteristics

(Ta=25°C)

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}		0.39		V	Ee=5m W/c m ² $\lambda_p=940nm$
Short-Circuit Current	I_{sc}		55		μA	
Reverse Light Current	I_L		60		μA	Ee=5m W/c m ² $\lambda_p=940nm$, $V_R=5V$
Dark Current	I_D		5	30	nA	Ee=0m W/c m ² $V_R=10V$
Reverse Breakdown Voltage	BV_R	32	170		V	Ee=0m W/c m ² $I_R=100\mu A$
Terminal Capacitance	C_t		18		pF	Ee=0m W/c m ² $V_R=5V, f=1MHz$
Rise/Fall Time	t_r/t_f		45/45		nS	$V_R=10V$ $R_L=1K\Omega$



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Typical Electrical/Optical/Characteristics Curves

Fig. 1 Power Dissipation vs.
Ambient Temperature

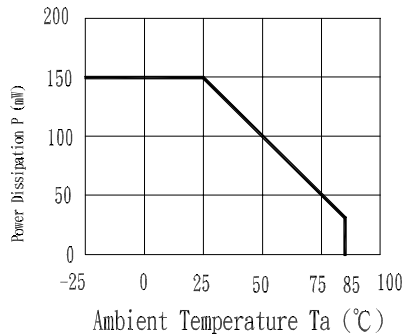


Fig.2 Spectral Sensitivity

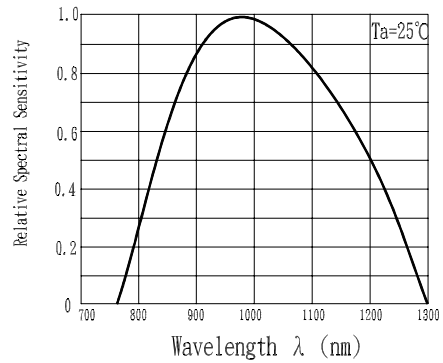


Fig.3 Dark Current vs.

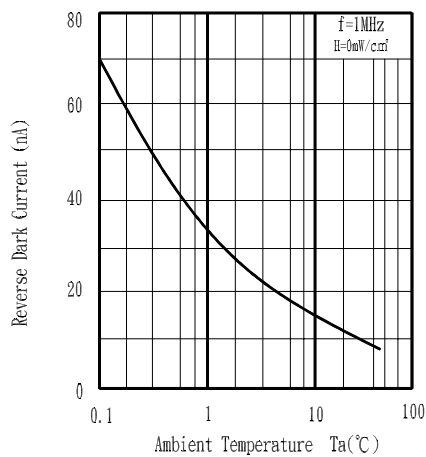


Fig.4 Reverse Light Current vs.Ee

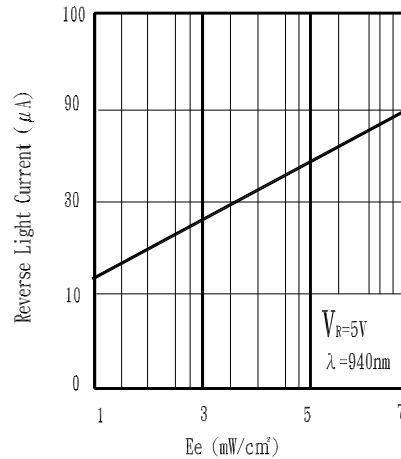


Fig.5 Terminal Capacitance vs.
Reverse Voltage

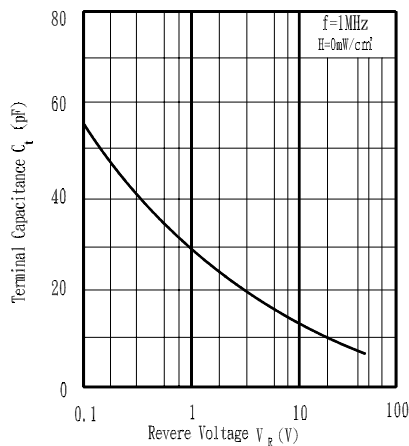
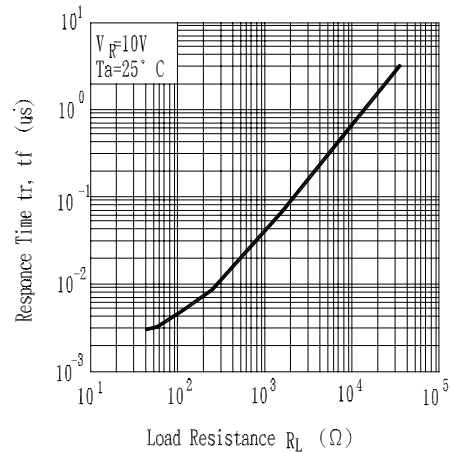


Fig.6 Response Time vs.
Load Resistance





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Reliability

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

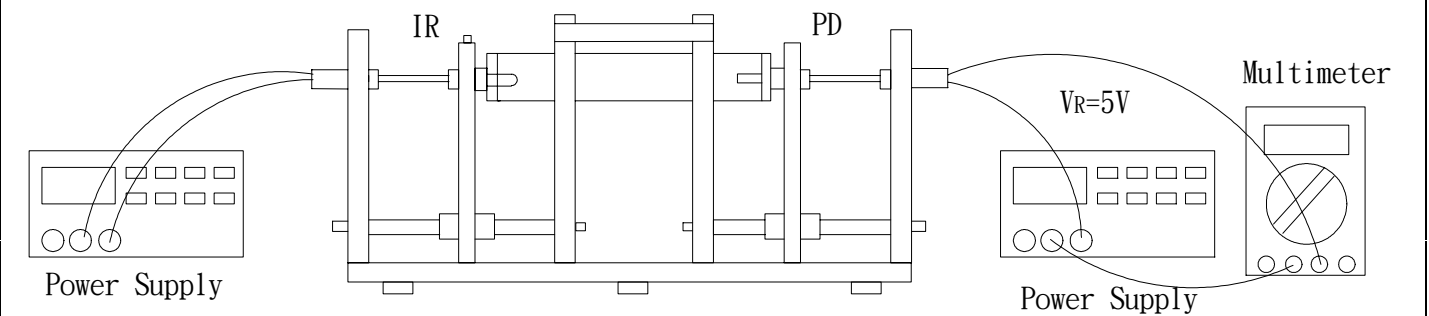
LTPD : 10%

Test Items	Test Conditions	Failure Judgement Criteria	Samples(n)
			Defective(c)
Operation life	$V_R=5V$, $T_a : 25^{\circ}C$ 1000hrs	$I_L \leq L \times 0.8$ L : Lower specification limit	n =22 , c=0
Temperature cycle	1cycle $-55^{\circ}C$ to $+25^{\circ}C$ to $+85^{\circ}C$ (30min) (5min) (30min) 50 cycle test		n =22 , c=0
Thermal shock	$-10^{\circ}C$ to $+100^{\circ}C$ (5min) (10sec) (5min) 50cycle test		n =22 , c=0
High temperature storage	Temp : $+100^{\circ}C$ 1000hrs		n =22 , c=0
Low temperature storage	Temp : $-55^{\circ}C$ 1000hrs		n =22 , c=0
High temperature High humidity	$T_a : 85^{\circ}C$ RH : 85% 1000hrs		n =22 , c=0
Solder heat	Temp : $260 \pm 5^{\circ}C$ 5sec 4mm Form the bottom of the package.		n =22 , c=0
Solderability	Temp : $230 \pm 5^{\circ}C$ 5sec 4mm Form the bottom of the package.	More than 90% of Lead to be covered by soldering	n =22 , c=0



Test Method For Power

Condition : $E_e=5m\text{ W/c m}^2$, $V_R=5V$
Test Item : Reverse Light Current (unit : $\mu\text{ A}$)



Supplements

1.Parts

(1) Chip

Type	Material	Wavelength of Peak Sensitivity
PD	Silicon	980nm

(2) Material

Type	Lead frame	Wire	Package
Material	SPCC	Gold	Epoxy



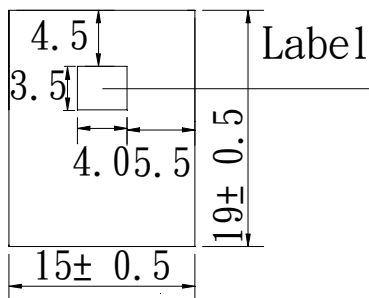
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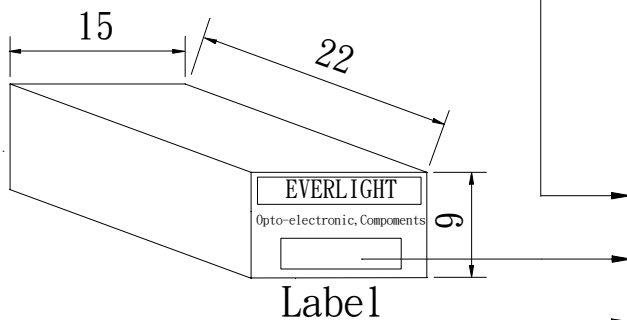
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Packing Specifications

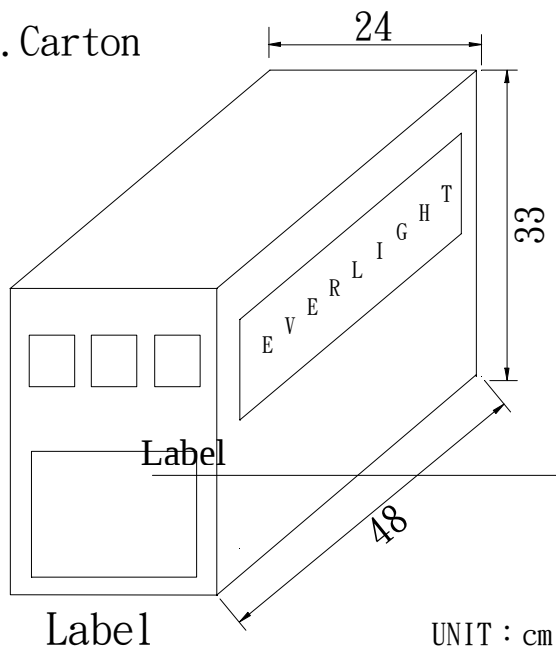
1. Bag



2. Box



3. Carton



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

1.500Pcs/1bag , 10bags/1box

2.10boxes/1Carton