



## Technical Data Sheet

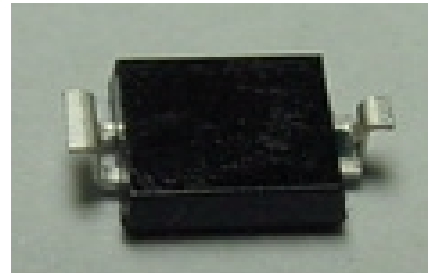
### Silicon Planar PIN Photodiode

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#### PD70-01B/TR10

#### Features

- Daylight filter
- High sensitivity
- Low capacitance
- Short switching time
- Wide temperature range
- Small package



#### Descriptions

- The PD70-01B/TR10 is high sensitivity, fast switching times, low capacitance, compact size, and lack of measurable degradation make it suitable for diverse applications, such as TV and appliance remote control, IR sound transmission, video recorders, and measurement and control.

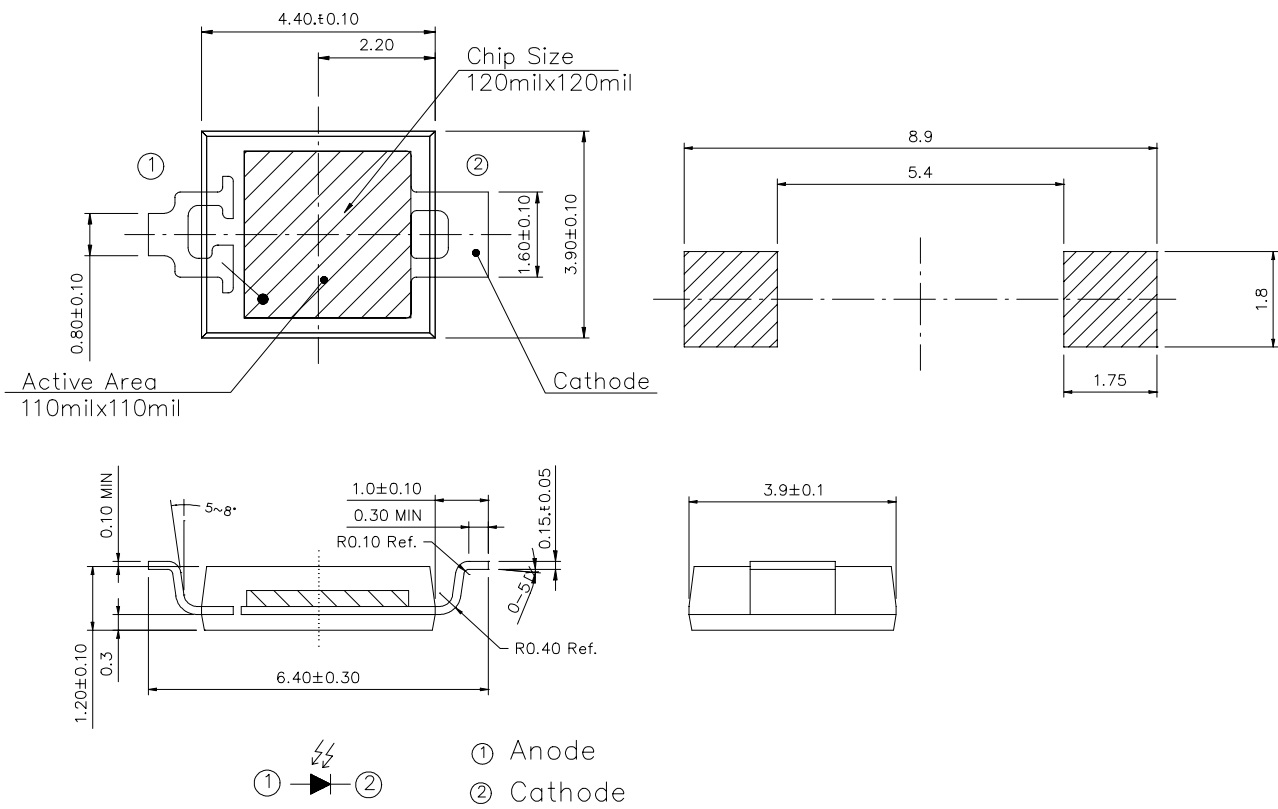
#### Applications

- High speed photo detector
- Copier
- Elevator

#### 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  $\pm 0.1\text{mm}$

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

Parameter	Symbol	Rating	Units
Reverse Voltage	$V_R$	32	V
Operating Temperature	$T_{opr}$	-25 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +85	°C
Soldering Temperature	$T_{sol}$	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	$P_c$	150	mW

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

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	---	730	---	1100	nm
Wavelength Of Peak Sensitivity	$\lambda_p$	---	---	940	---	nm
Open-Circuit Voltage	$V_{OC}$	Ee=5mW/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	0.35	---	V
Short- Circuit Current	$I_{SC}$	Ee=1mW/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	35	---	$\mu\text{A}$
Reverse Light Current	$I_L$	Ee=1mW/cm <sup>2</sup> $\lambda_p=870\text{nm}$ $V_R=5\text{V}$	17	25	---	$\mu\text{A}$
		Ee=1mW/cm <sup>2</sup> $\lambda_p=940\text{nm}$ $V_R=5\text{V}$	25	37	---	
Reverse Dark Current	$I_D$	Ee=0mW/cm <sup>2</sup> $V_R=10\text{V}$	---	5	30	nA
Reverse Breakdown Voltage	$B_{VR}$	Ee=0mW/cm <sup>2</sup> $I_R=100\mu\text{A}$	32	170	---	V
Total Capacitance	$C_t$	Ee=0mW/cm <sup>2</sup> $V_R=3\text{V}$ $f=1\text{MHz}$	---	25	---	pF
Rise/Fall Time	$t_r/t_f$	$V_R=10\text{V}$ $R_L=1\text{K}\Omega$	---	50/50	---	nS

**Typical Electro-Optical Characteristics Curves**

Fig.1 Power Dissipation vs. Ambient Temperature

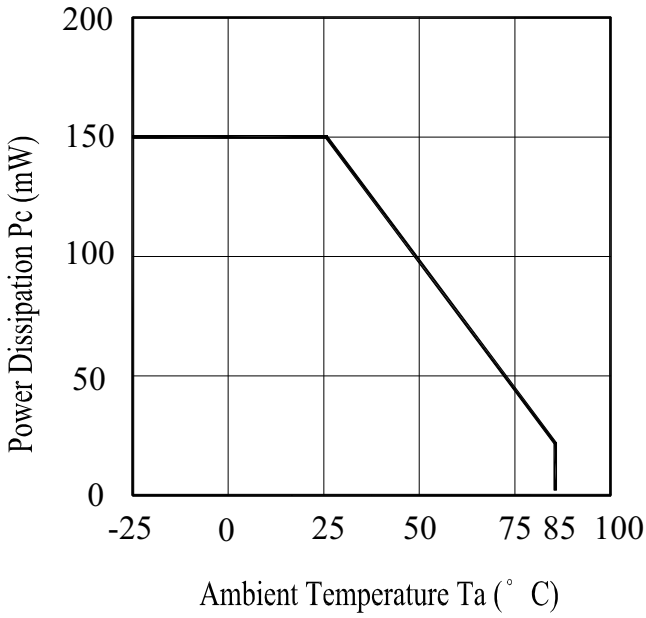


Fig.2 Spectral Sensitivity

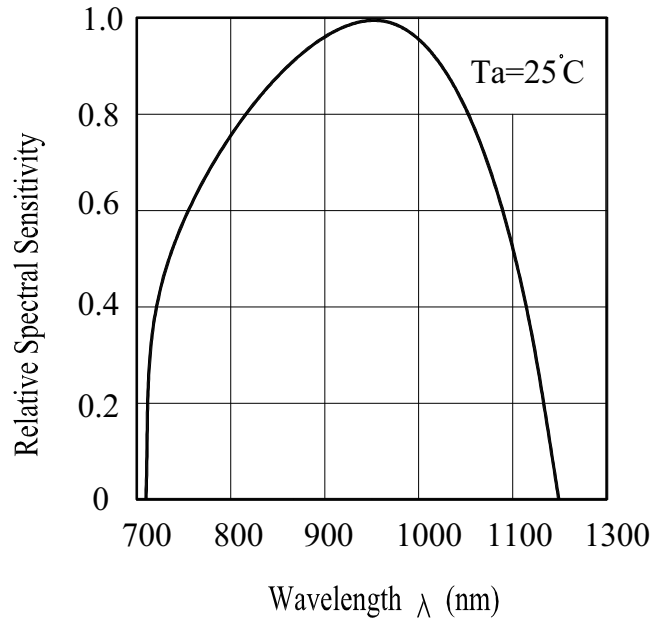


Fig.3 Dark Current vs. Ambient Temperature

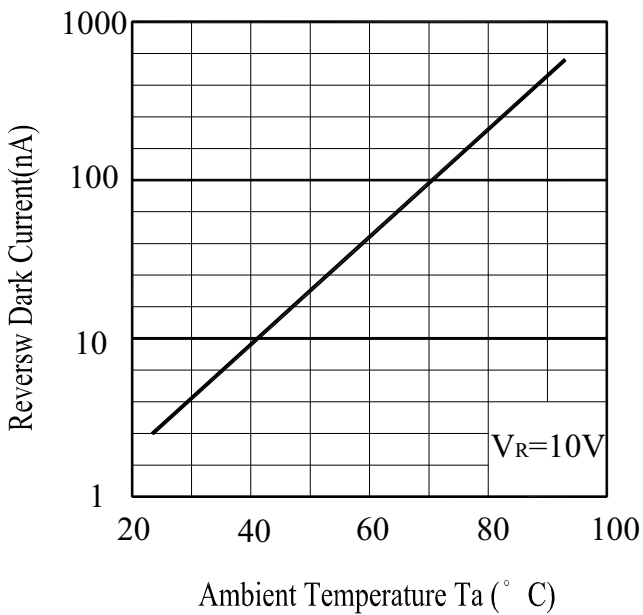
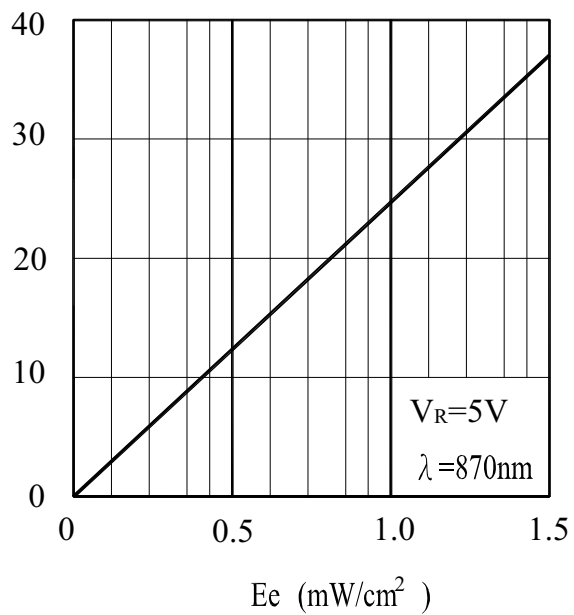


Fig. 4 Reverse Light Current vs.  $E_e$



**Typical Electro-Optical Characteristics Curves**

Fig.5 Terminal Capacitance vs. Reverse Voltage

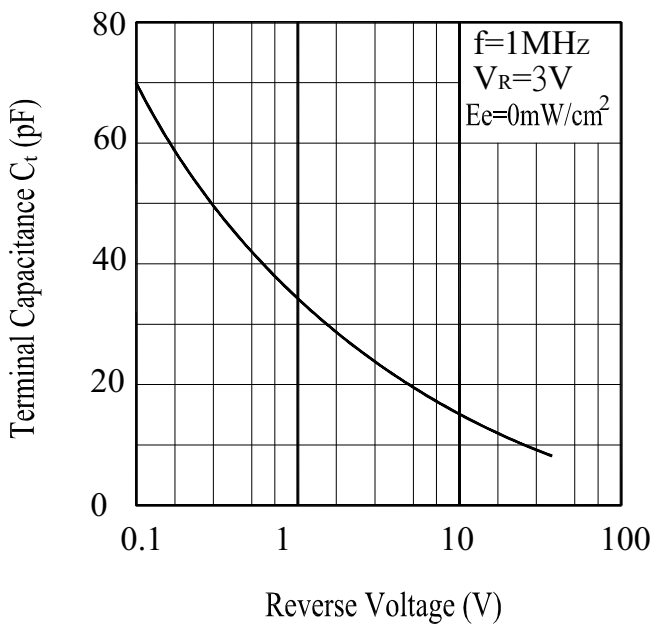
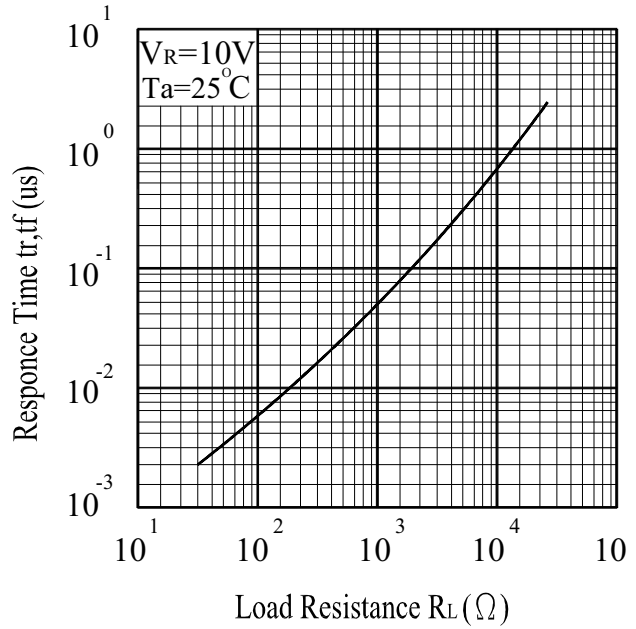
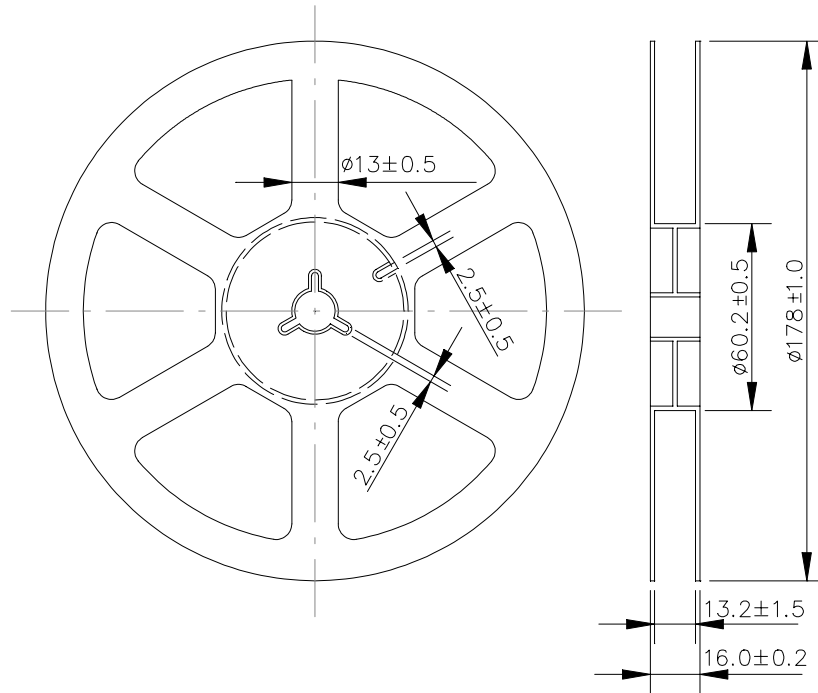


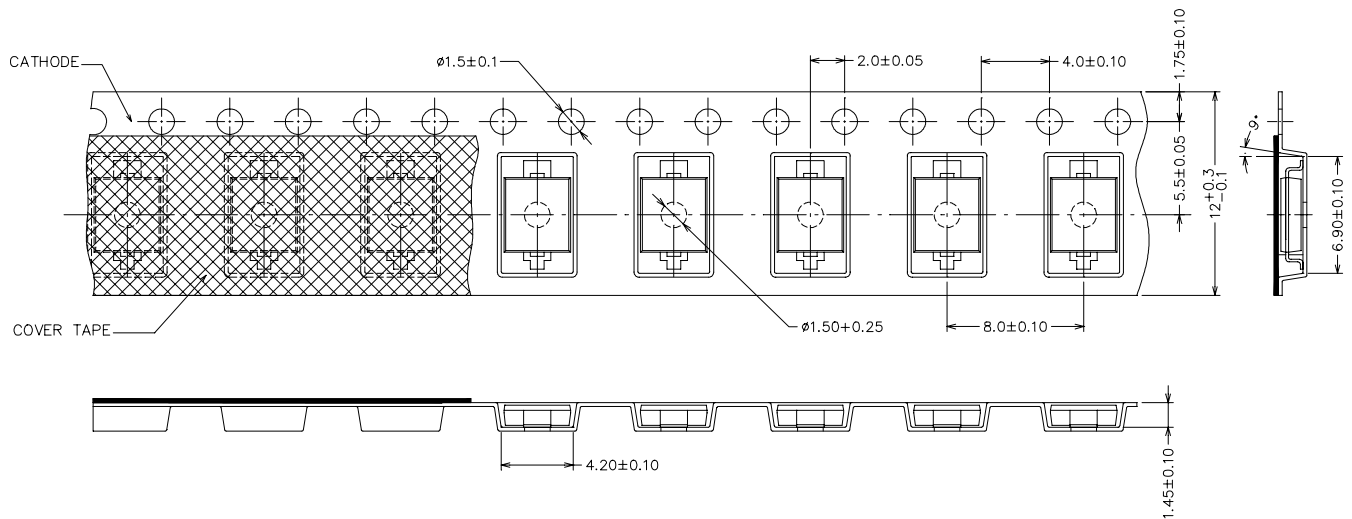
Fig.6 Response Time vs. Load Resistance



**Package Dimensions**

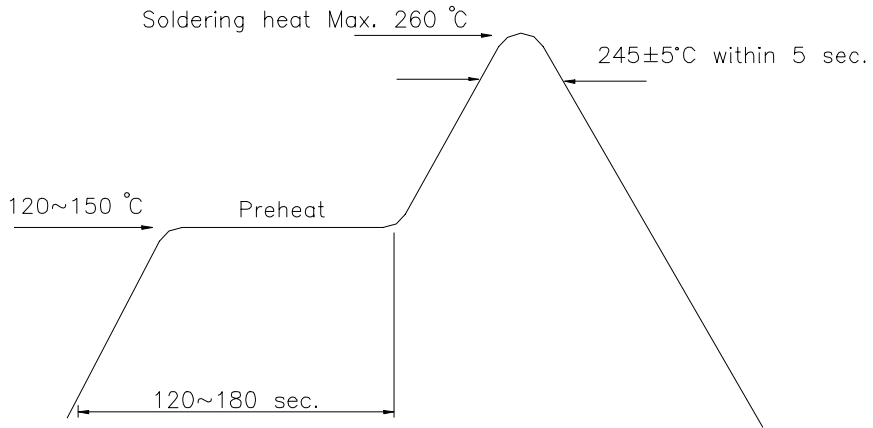


**Loaded Quantity Per Reel 1000PCS/Reel**



**Unit :mm**

**Soldering heat**

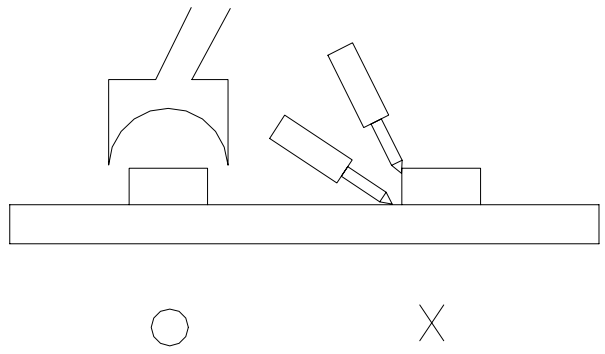


**Soldering Iron**

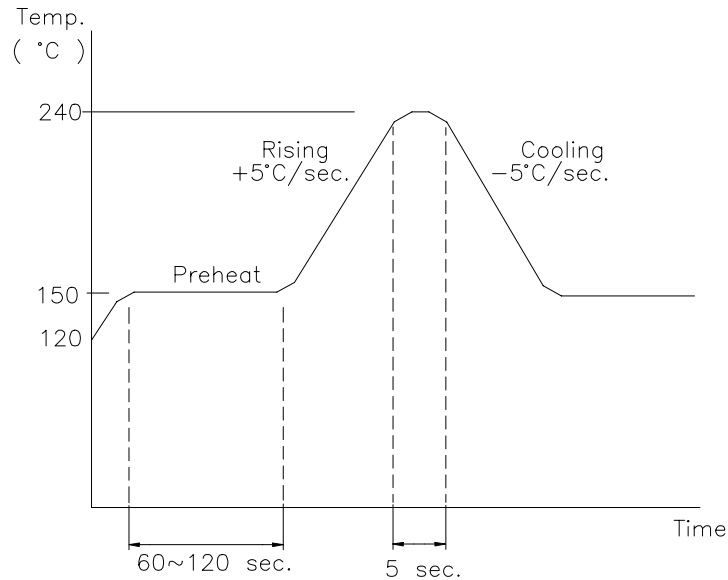
Basic spec is  $\leq 5$  sec when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C} \longrightarrow -1\text{sec}$ ). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under  $230^{\circ}\text{C}$ .

**Rework**

1. Customer must finish rework within 5 sec under  $245^{\circ}\text{C}$
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.



**Reflow Temp./Time**



**Precautions For Use**

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 The operation of temperature and R.H are : 5°C ~ 35°C , R.H.60%.

2.2 Once the package is opened, the products be should be used within a week.

Otherwise, they should be keep in a damp proof box with desiccation anent.

Considering the tape life, we suggest our customers to use products within a year (from production date).

2-3. If opened more than one week in an atmosphere 5°C ~ 35°C, R.H.60%, they should be treated at 60°C ± 5°C for 15hrs.

2-4. When you discover that the desiccant in the package has a pink color (normal=blue), you should treat them in the same conditions as 2.3



**Reliability Test Item And Condition**

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

Confidence level : 90%

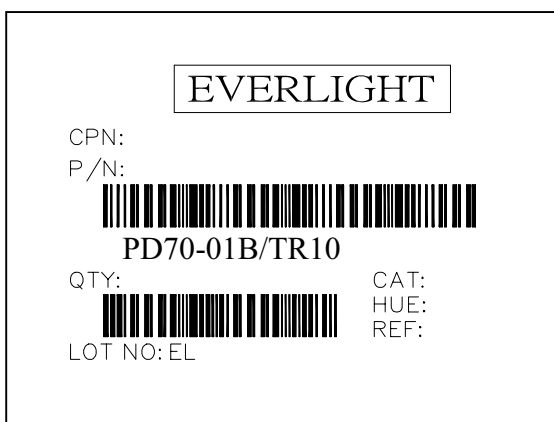
LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	REFLOW	TEMP. : $240^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 5secs	6Mins	22pcs	$I_L \leq L \times 0.8$ $V_F \geq U \times 1.2$ U : Upper Specification Limit L : Lower	0/1
2	Temperature Cycle	H : $+85^{\circ}\text{C}$ 30mins $\updownarrow$ 5mins L : $-55^{\circ}\text{C}$ 30mins	50Cycles	22pcs		0/1
3	Thermal Shock	H : $+100^{\circ}\text{C}$ 5mins $\updownarrow$ 10secs L : $-10^{\circ}\text{C}$ 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : $-55^{\circ}\text{C}$	1000hrs	22pcs		0/1
6	DC Operating Life	$V_R=5\text{V}$	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	$85^{\circ}\text{C} / 85\% \text{ R.H}$	1000hrs	22pcs		0/1

### **Packing Quantity Specification**

1. 1000Pcs/1Volume , 1Volume/1Bag
2. 10Bag/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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