

SPECIFICATION

Product : 5mm Infra-Red Dome Phototransistor

Part No. : IWL-IP5R15F-XXX

Date : 2013. 07. 26 Ver. 6.0

Proposed By	Checked By	Checked By	Checked By	Checked By	Approval
Approved					

Comment



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5mm Dome LED Phototransistor IWL-IP5R15F-XXX



1. Features

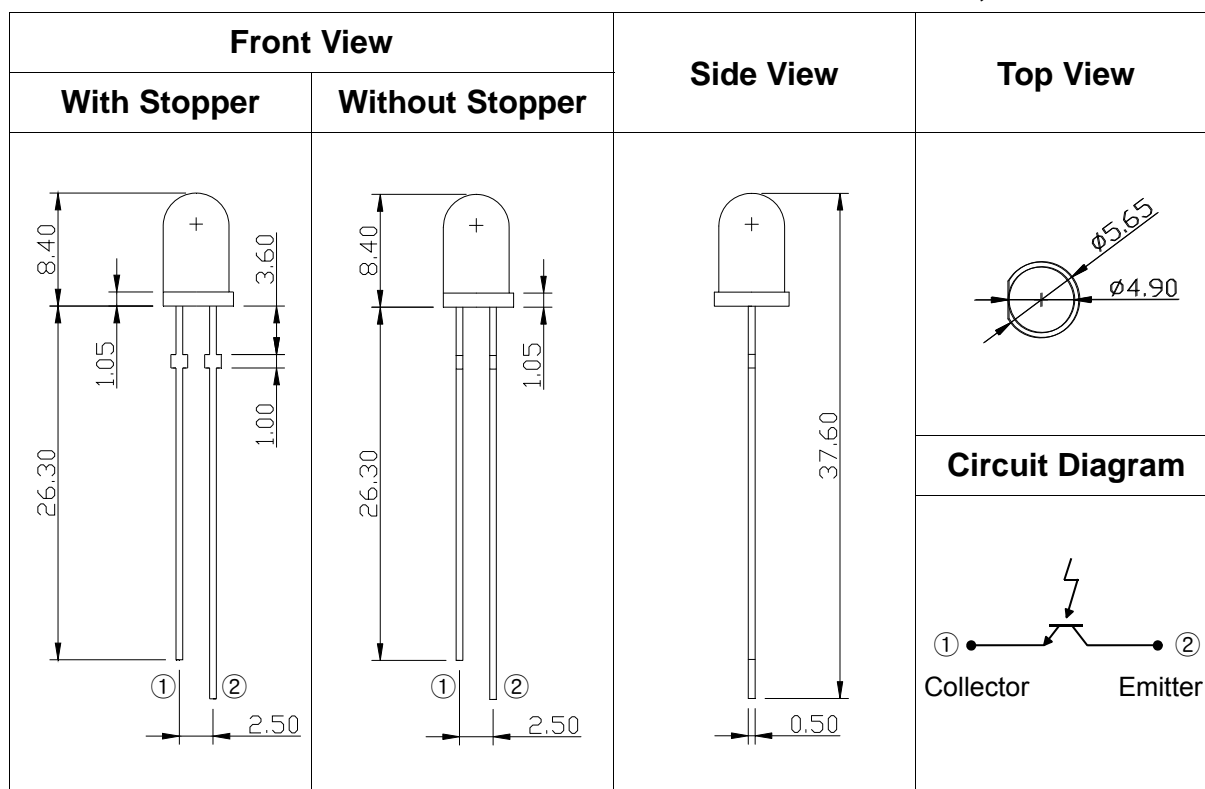
- Round Type Phototransistor
- 5mm Resin Mold Type
- Black Color Epoxy Lens Type for Visible Light Cut-Off
- Fast Response Time
- Si Based NPN Chip

2. Applications

- VCR, Camcorders
- Floppy Disk Drivers
- Optical Detectors : Touch Screen
- General Use

3. Outline Drawing and Dimension

* Unit : mm, Tolerance : ± 0.5



* Note

1. All dimensions are in millimeters
2. All dimensions without tolerances are for reference only
3. Base Material : Fe Alloy
4. Molding : Epoxy
5. Lead Plating : Ag/Ni
6. Pb Free

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4. Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Value	Unit
Collector-Emitter Breakdown Voltage	V_{CEO}	30	V
Emitter-Collector Breakdown Voltage	V_{ECO}	5	V
Collector Current	I_c	20	mA
Power Dissipation	P_d	75	mW
Operating Temperature Range	T_{opr}	-30 ~ 85	°C
Storage Temperature Range	T_{stg}	-30 ~ 100	°C
Soldering Temperature	T_{sol}	260 (10sec)	°C

5. Electrical & Optical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Photo Current	I_{CEL}	$V_{CE}=5V, E_e \doteq 0.5mW/cm^2$	-	8	-	mA
Collector Dark Current	I_{CEO}	$V_{CEO}=5V, E_e=0mW/cm^2$	-	-	200	nA
Switching Time (Rise Time / Fall Time)	T_R / T_F	$V_{CE}=5V, I_c=1mA$ $R_L=1000\Omega$	-	15 / 15	-	μs
Wavelength of Peak Sensitivity	λ_p	-	-	880	-	nm
Spectral Range of Sensitivity	λ_s	$\lambda_s = 20\% \text{ of } \lambda_p$	860	-	950	nm
Viewing Angle	$2\theta_{1/2}$	$E_e=0.5mW/cm^2,$ $V_{CE}=5V$	-	15	-	deg.

5.1 Photo Current Rank

Rank	Photo Current (mA)
B	4 ~ 6
C	6 ~ 8
D	8 ~ 10
E	10 ~ 13

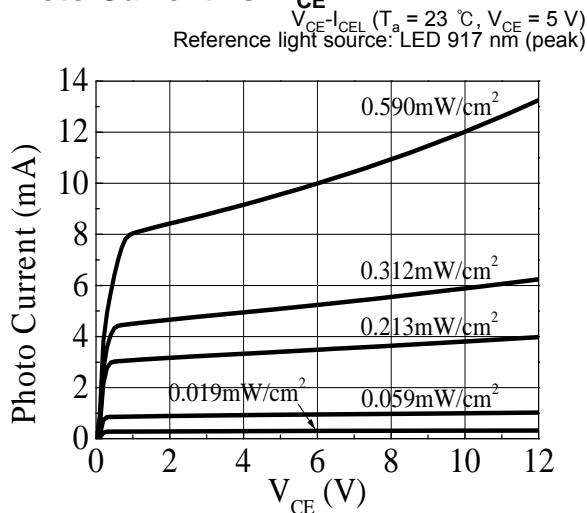
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6. Typical Characteristic Curve

Photo Current vs. V_{CE}



Power Dissipation vs. Solder Temperature

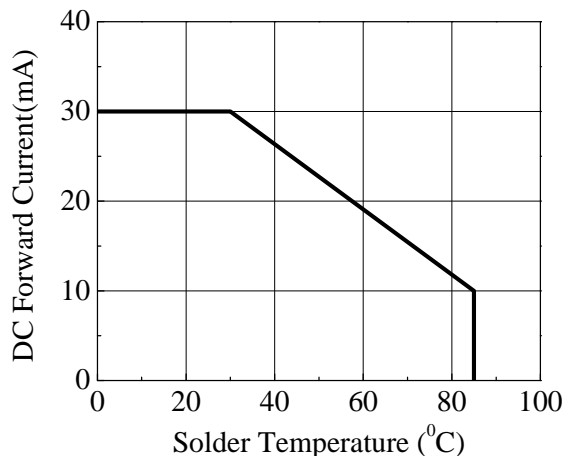


Photo Current vs. Solder Temperature

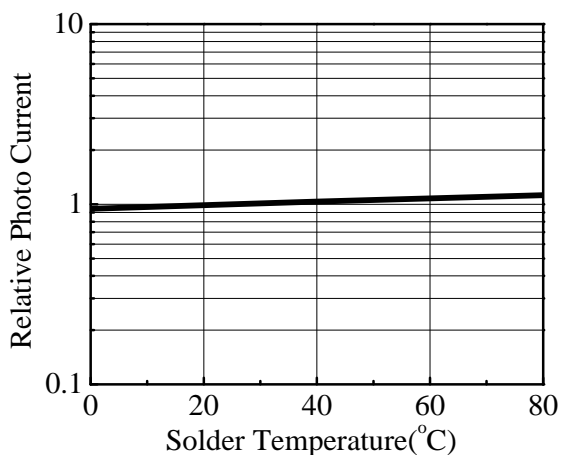
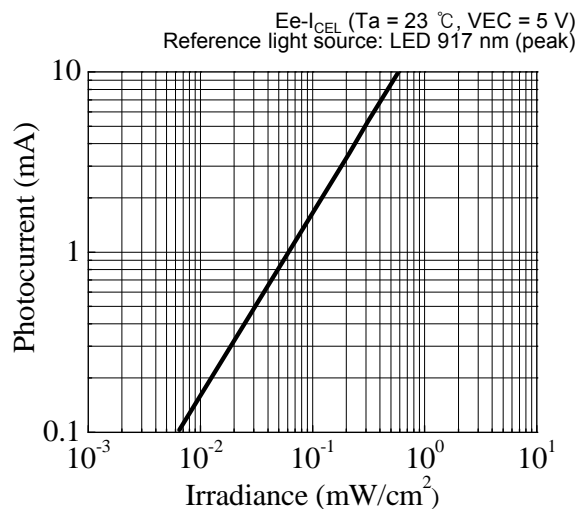
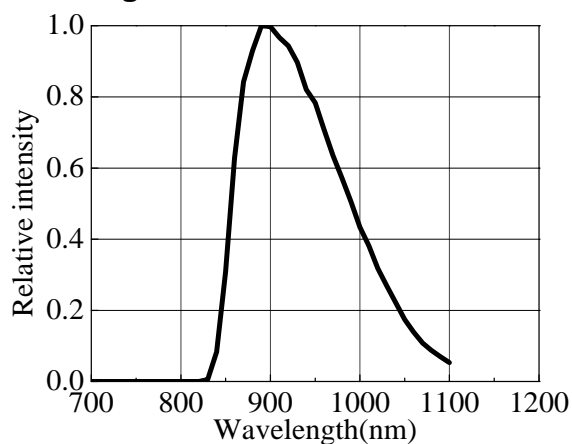


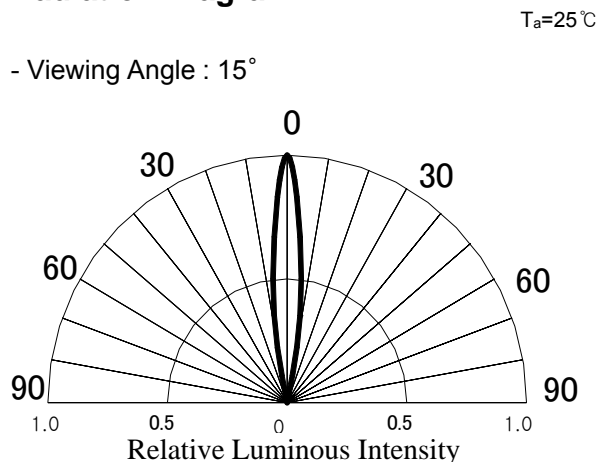
Photo current vs. Irradiance



Relative Luminous Intensity vs. Wavelength



Radiation Diagram



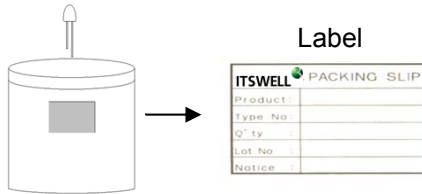
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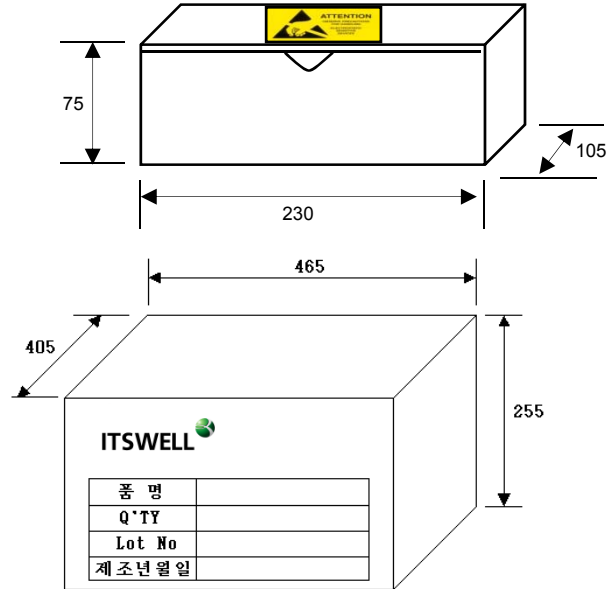
7. Packing & Tapping Dimension

7.1 Bulk Packing

- Bag packing



- Inner Box

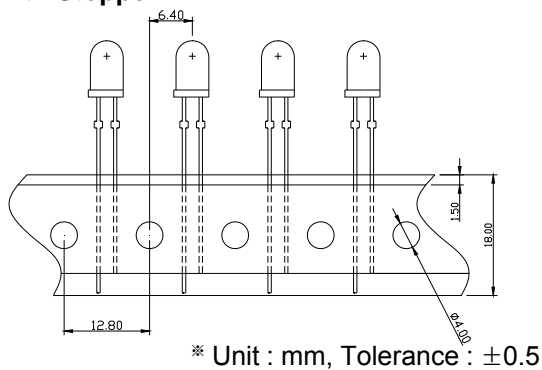


- Out Packing

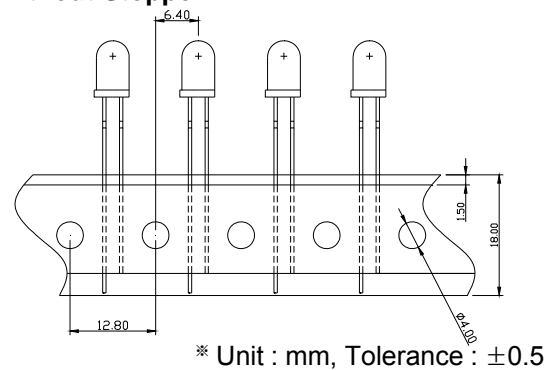
- Maximum Inner Box 20 / 1 Box
30,000 pcs/ 1 Box
- Out box material : Carton

7.2 Tapping Packing

- With Stopper

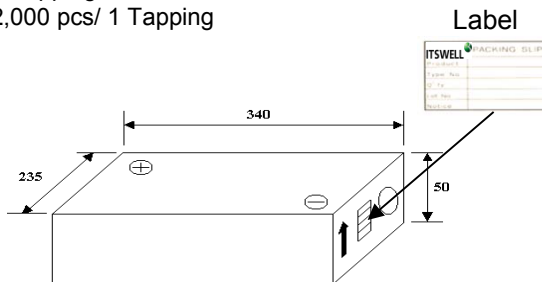


- Without Stopper



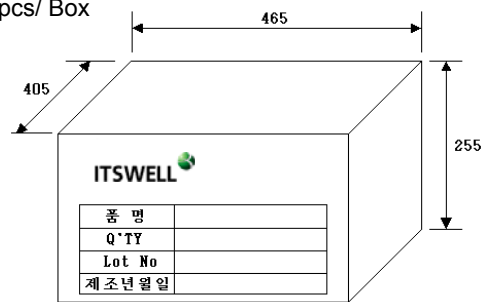
- Taping Box

- Tapping Box (Carton)
- 1 Tapping Box / Pack with Silica Gel
- 2,000 pcs/ 1 Tapping



- Out Box

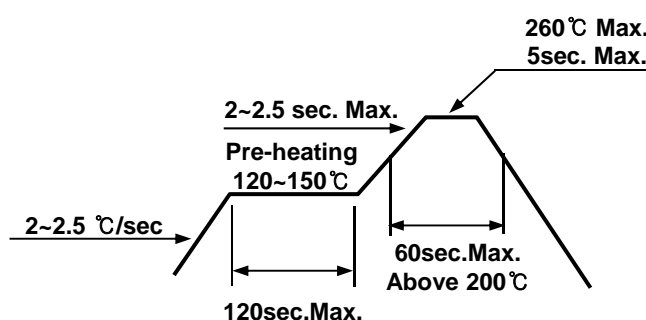
- Maximum 10 Tapping Box / Box
- 20,000 pcs/ Box



8. Precaution in use

8.1 Soldering Conditions

- When soldering DIP LED , Heat may affect the electrical and optical characteristics of the LEDs.
- In soldering, do not stress the lead frame and the resin part under the high temperature.
- The epoxy part should be protected from mechanical stress or vibration until the DIP LEDs return to room temperature after soldering.
- Preliminary heating to be at 120~150°C max. for 120 Seconds max.
- Soldering heat to be at 260°C max. for 5sec. Max.
- For manual Soldering is Not more than 3sec @MAX350°C , under soldering iron



8.2 Storage

- Use within 7 days after opening packing. Store in 10 to 30 °C. DIP LED lead frames are plated Silver. The silver surface may be affected by environment which contains corrosive gases and so on. Please avoid conditions which may cause the DIP LED to corrode, tarnish or discolor.

8.3 Static Electricity

- Static electricity or surge voltage damages the DIP LEDs. It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- A tip soldering iron is requested to be grounded. An ionizer should also be installed where risk of static.
- All devices, equipment and machinery must be properly grounded (via 1MΩ). It is recommended that measures be taken against surge voltage to the equipment that mounts the DIP LEDs.

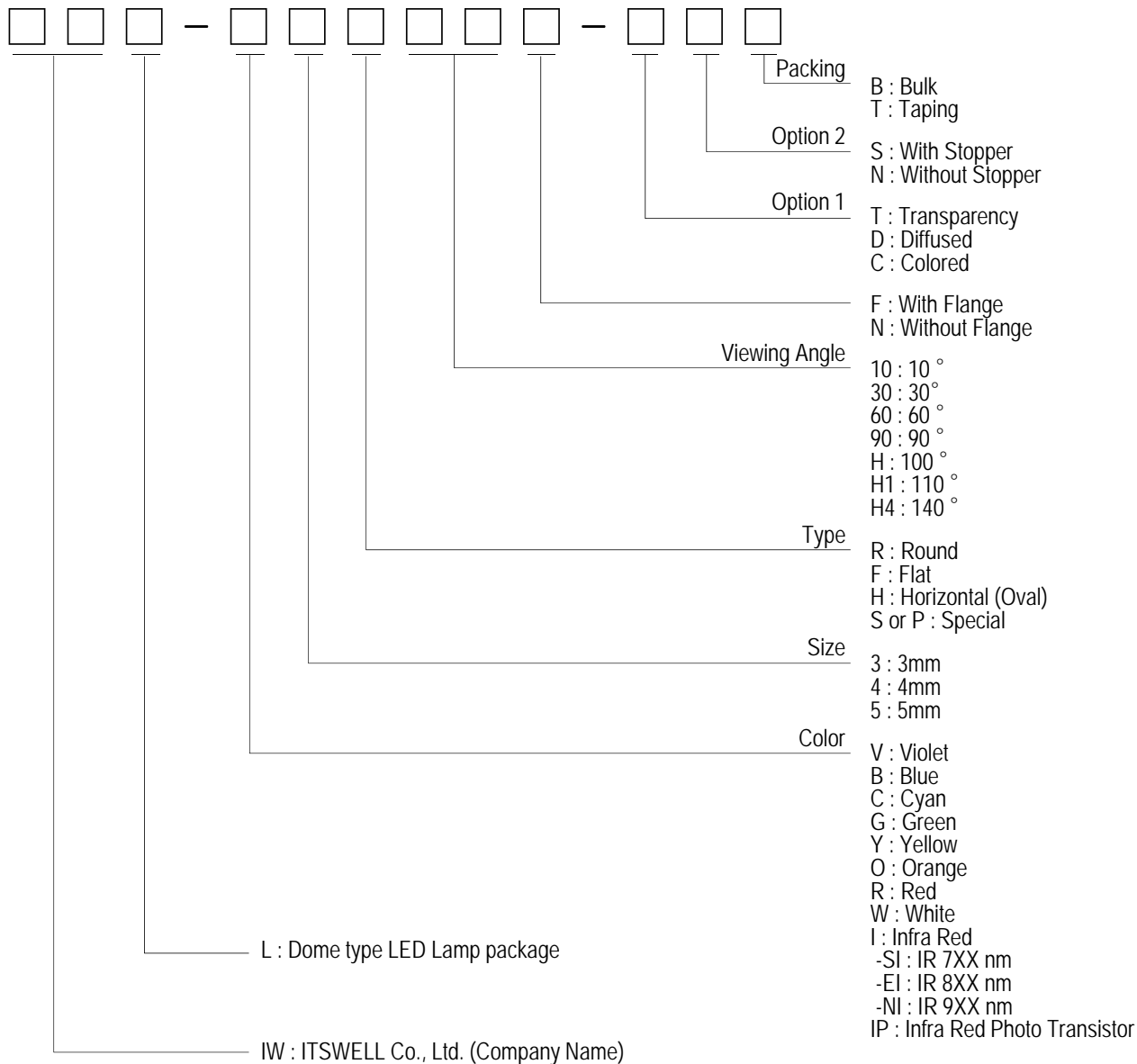
9.4 Cleaning

- Isopropyl Alcohol or Ethylene Alcohol is recommended in 5 minutes at room temperature. Don't use unspecified chemicals; they may cause cracks or haze on the surface of the epoxy resin.
- Before cleaning, a pre-test should be done to confirm whether any damage to the DIP LED will occur.
- Freon solvents should not be used to clean the DIP LEDs because of worldwide regulations.

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9. Part Name Description



10. Attention : Electric Static Discharge (ESD) Protection



The symbol shown on the page herein to introduce 'Electro-Optical Characteristics'. ESD protection for GaP and AlGaAs based chips is still necessary even though they are safe in low static-electric discharge. Material in AlInGaP, GaP, or/and InGaN based chips are STATIC SENSITIVE devices. ESD protection has to be considered and taken in the initial design stage. If manual work/process is needed, please ensure the device is well protected from ESD during all the process.

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■ Spec. Review History

Review Ver.	Date	Correction List	Etc.
Ver 1.0	2009.02.17	Establish	
Ver 2.0	2009.06.23	Changed Symbol Mark	
Ver 3.0	2009.07.16	Changed Part No. , Optical Characteristics & Typical Characteristics Curve	
Ver 4.0	2010.05.24	Changed Taping Dimension & Packing	
Ver 5.0	2011.03.30	Changed Soldering Conditions	
Ver 6.0	2013.07.26	Revision	