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DATA SHEET

PART NO. : EP2012-350IR1

V : A / 0

CUSTOMER'S APPROVAL: _____ DCC: _____



EP2012-350IR1

A/O

Enhanced Power LED Revolutionary Light Source Module

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FEATURES

Conventional LED design: Simple to use

High Flux and Low Cost: More competitive advantages in the LED industry

Special body frame: Excellent transiting heat from LED chip operating under 350mA.

TYPICAL APPLICATIONS

Free air transmission system/optoelectronic switch

Charge Coupled Device/Infrared applied system/smoke detector

Light source for remote control devices

ABSOLUTE MAXIMUM RATINGS, $T_a=25^{\circ}\text{C}$

| Parameter | Symbol | Rating | Units |
|---|------------------|-----------|-------|
| DC Forward Current | IF | 350 | mA |
| Pulsed Forward Current | I _{fp} | 700 | mA |
| Power Dissipation | P _d | 490 | mW |
| Reverse Current (V _R =5V) | I _R | 10 | uA |
| Operating Temperature Range | T _{opr} | -35 to 85 | °C |
| Storage Temperature Range | T _{stg} | -35 to 85 | °C |
| Thermal Resistance R _{θJ-BOARD} (°C/W) | R _{j-a} | 30 | °C/W |
| LED Junction Temperature | T _j | 110 | °C |

OPERATING CONDITIONS:

1. 700mA operating condition under f=1K Hz and 1/8 duty cycle.

2. 490mW: 6pins of E-Power LED must be mounted on Aluminum PCB.

(Aluminum PCB: 25.4mm*25.4mm 1.6t / two layers / 2.0 oz)

3. LED Operating required Anti-electrostatic devices in all equipment, machinery and manual assembly.

4. Heat-sink paste required.

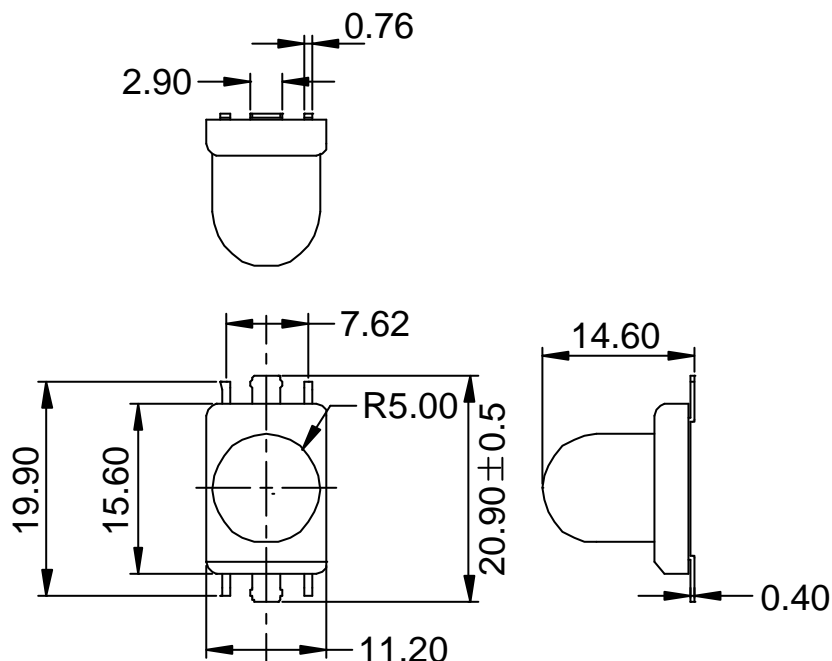
ELECTRICAL CHARACTERISTICS

Ta=25°C IF=350mA

| Unit | Forward Voltage VF (Volts) | | Reverse Current VR=5V IR=(uA) | Intensity (w/sr) | | Wavelength λ_P (nm) | Viewing Angle 2 θ 1/2 (Degrees) |
|---------------|-------------------------------|-----|-------------------------------------|---------------------|------|--------------------------------|--|
| | Typ | Max | Max | Min | Typ | Typ | Typ |
| EP2012-350IR1 | 1.4 | 2.0 | 10 | 0.63 | 1.06 | 945 | 10° |

The specification is subject to change without notice.

OUTLINE DRAWINGS



- NOTE: 1. All dimensions are in millimeters.
 2. Tolerance is ± 0.25 unless otherwise specified.
 3. The specification is subject to change without notice.

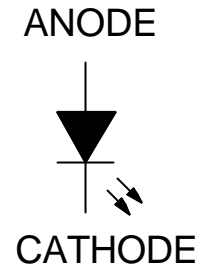
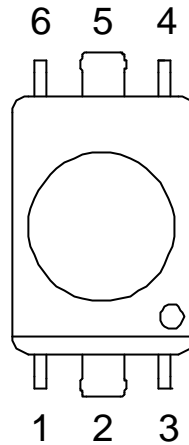
PIN CONNECTION

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COLOR IR

ANODE 6

CATHODE 2
5

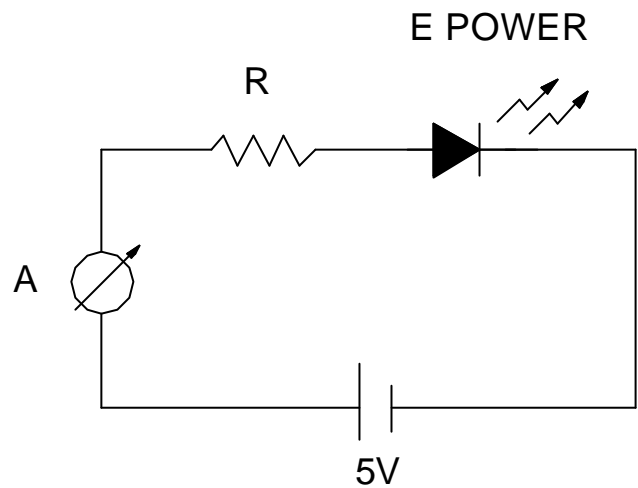


TEST CIRCUIT

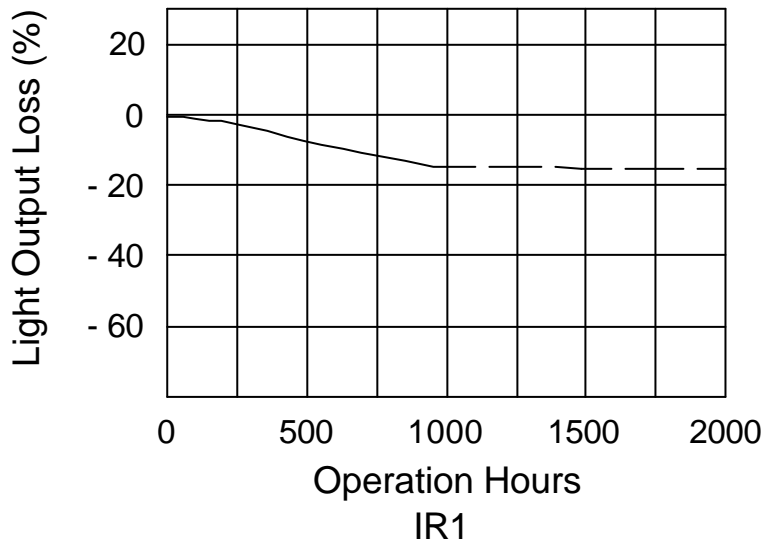
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COLOR VF R(350mA)

VIOLE 1.4V 10.3 Ohm

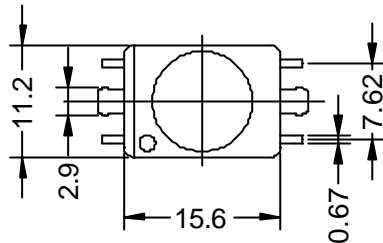


OPERATION LIFE

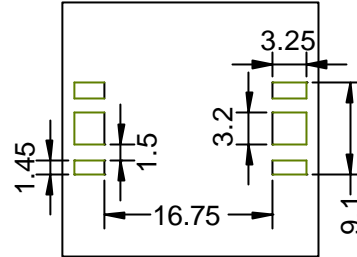


HOW TO USE E-POWER LED

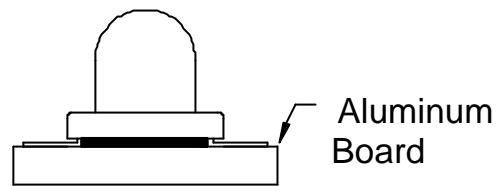
(1)E-Power LED dimensions



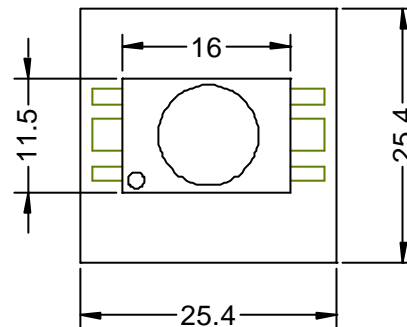
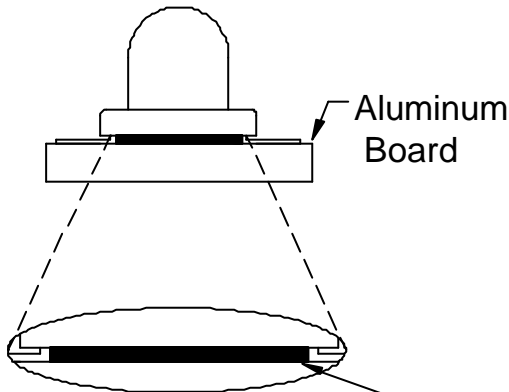
(3)Recommended layout pattern



All dimensions are in millimeters.



(2)Accelerate heat dissipation



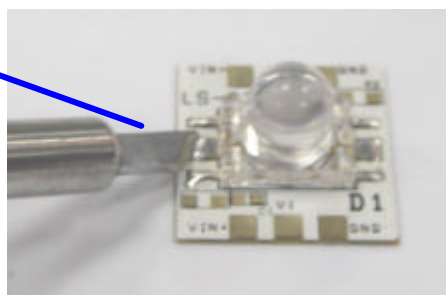
* To fill up the heat sink paste.

(4) Iron soldering only used constant temperature a soldering-iron 300°C/5sec by the iron with knife type head, the procedure as following(attached picture):

4-1 Put the iron head in Aluminum PCB PAD area, then add the tin (0.8mm) thawed between the pin head and iron head.

4-2 It can be soldered when the iron head is pressed to lead.

Soldering head





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•• E-POWER VF BIN DISTRIBUTION

| BIN | MIN(V) | MAX(V) |
|-----|--------|--------|
| V0 | 1.2 | 1.4 |
| V1 | 1.4 | 1.6 |
| V2 | 1.6 | 1.8 |
| V3 | 1.8 | 2.0 |

•• E-POWER I_e BIN DISTRIBUTION

| BIN | MIN(mw/sr) | Max(mw/sr) |
|-----|------------|------------|
| H | 0.63 | 0.82 |
| I | 0.82 | 1.06 |
| J | 1.06 | 1.38 |
| K | 1.38 | 1.79 |

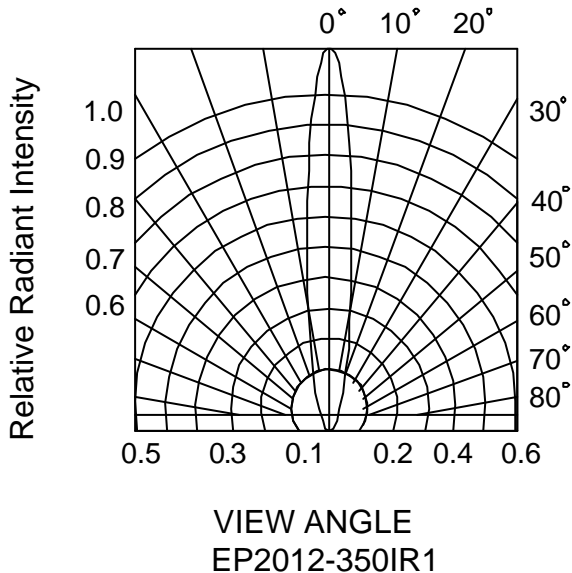
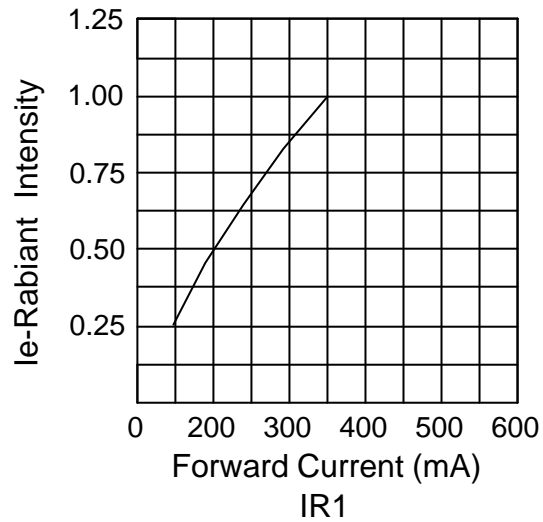
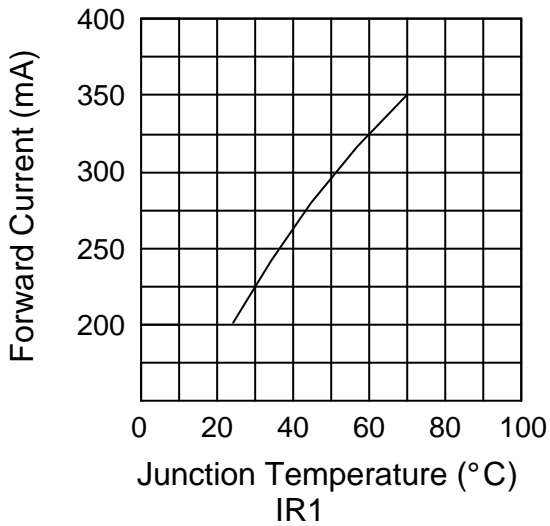
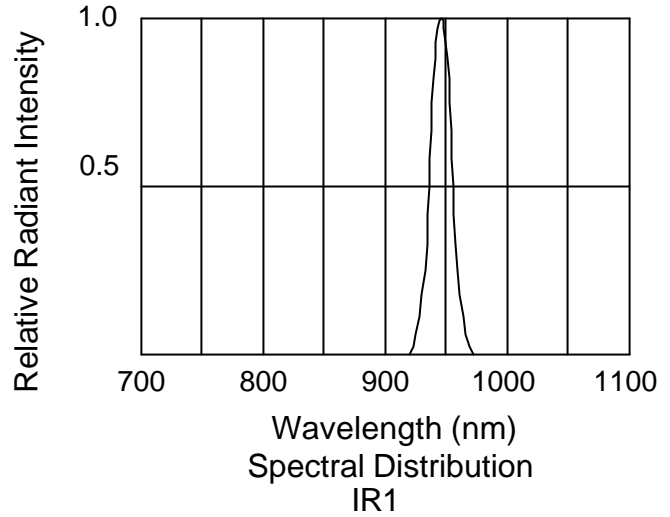
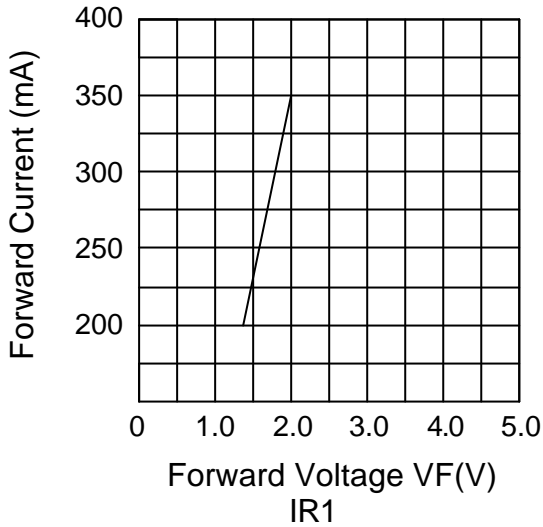
The I_e guarantee should be added $\pm 15\%$

•• E-POWER I_p (nm) BIN DISTRIBUTION

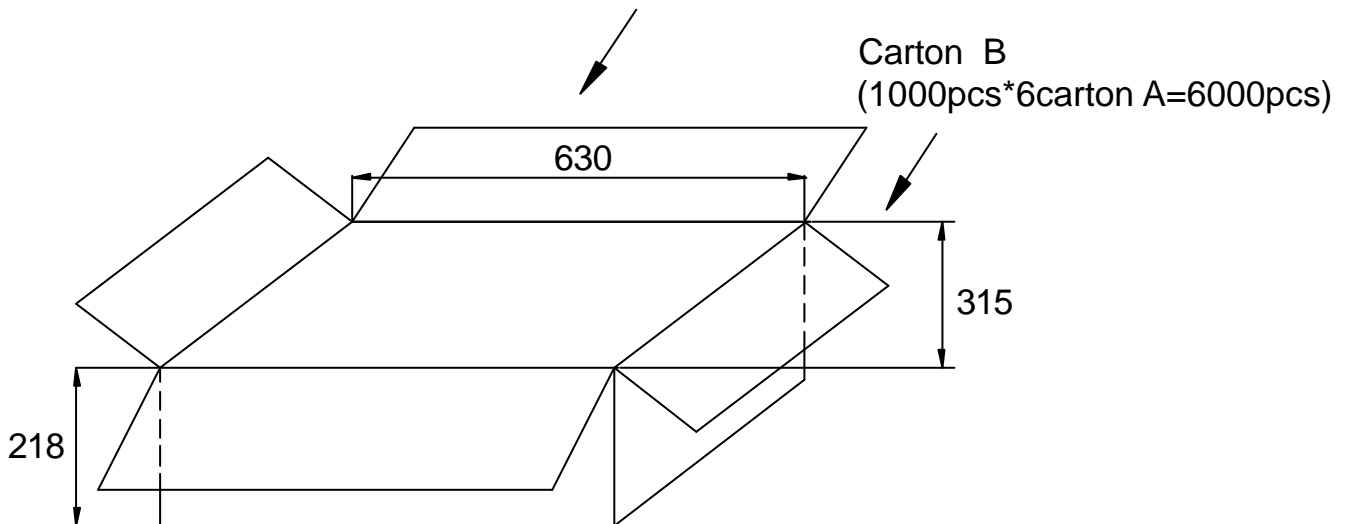
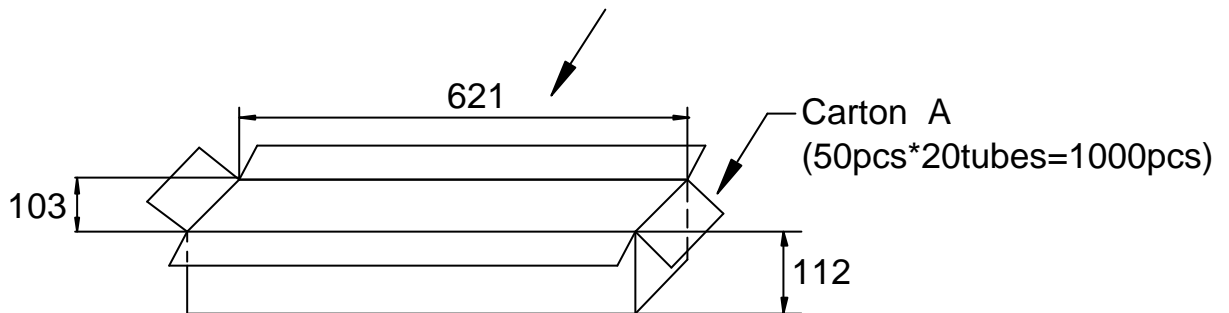
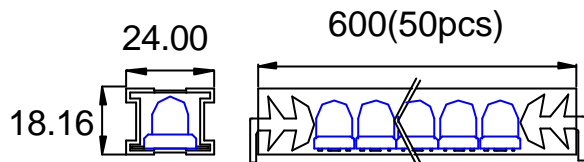
| BIN | TYP(nm) |
|-----|---------|
| IR1 | 945 |

* **Note: The specification is subject to change without notice.**

CHARACTERISTICS CURVE



PACKING SPECIFICATIONS



Notes:

- 1.All dimensions are in millimeters.
- 2.Normal packing Quantity:1000pcs.
- 3.The carton B contains 6 carton A at maximum.

RELIABILITY TEST FOR E-POWER LAMPS

| Classification | Test Item | Description and Test Condition | Reference Standard |
|--------------------|--------------------------|--|--|
| Endurance Test | Operation Life | Evaluates resistance of the device when operated at electrical stress Ta=under room temperature IF=350mA Test Time=1000hrs(-24hrs,+72hrs) | MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021:B-1 |
| | High Temperature Storage | Evaluates device durability for long term storage in high temperature Ta=85±5°C Test Time=1000hrs(-24hrs,+72hrs) | MIL-STD-883:1008 JIS C 7021:B-10 |
| | Low Temperature Storage | Evaluates device durability for long term storage in low temperature Ta=-35±5°C Test Time=1000hrs(-24hrs,+72hrs) | JIS C 7021:B-12 |
| Environmental Test | Temperature Cycling | Evaluates resistance of device at thermal stresses or expansion and contraction 85°C ~ 25°C ~ -35°C ~ 25°C 30min 5min 30min 5min 10Cycles | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021:A-4 |
| | Thermal Shock | Evaluates device's structure and mechanical resistance when suddenly exposed at severe changes 85±5°C ~ -35±5°C 30min 30min 10 Cycles | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011 |
| | Solder Resistance | Evaluates resistance to thermal stress caused by soldering T.Sol =245±5°C Dwell Time=6±1sec | MIL-STD-202:210A MIL-STD-750:2031 JIS C 7021:A-1 |
| | Solderability | Evaluates solderability on leads of device T.Sol =230±5°C Dwell Time=3±1sec | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-833:2003 |



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E-POWER OPERATING PROCEDURE

1. E-power 350 series should be operated at 350mA for ideal performance, but not more than 350mA.
2. Blue, Cyan, Green and White colors must be used in conjunction with heat-sinking devices. Soldering on Aluminum PCB with mid-connection point while keeping the layout pattern (25.4mm X 25.4mm) is another way to help heat dissipation.
3. Please be aware that the mid-connection point for Red and Amber is negative-polarity while it is non-polarity in Blue, Cyan, Green and White.
4. All products are not sensitive to ESD damage (+ / -400 Volts by HBM condition)
5. E-power products are fully tested and shipped in anti-static packaging.
6. A non-conductive to fill up the heat sink paste should be applied between E-power and heat-sinking device.
7. It is recommended to design circuit in series with protected IC to limit current flow. In a parallel connection, each IC should be protected individually.

* **Note: Iron soldering only used constant temperature a soldering-iron 300±5° C/5sec**

PART NO. SYSTEM OF E-POWER LED

EP 2 01 2-350 IR1

1---2-3--4---5----6

1. E -Power LED
2. YEAR 2002
3. PACKAGE TYPE: 01 = 10mm LENS , 03=5mm LENS , 04=11 mm LENS
4. VIEWING ANGLE: 2*5=10° , 4*5=20° , 6*5=30° , C*5=60° , K*5=100°
5. CURRENT: 350mA
6. λ P: IR1 (Typ) = 945nm
7. L/F CUP Bottom of Diameter 1.0mm