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DATA SHEET

PART NO. : EP503IR4L091W

REV : A/0

CUSTOMER'S APPROVAL : _____

DCC : _____

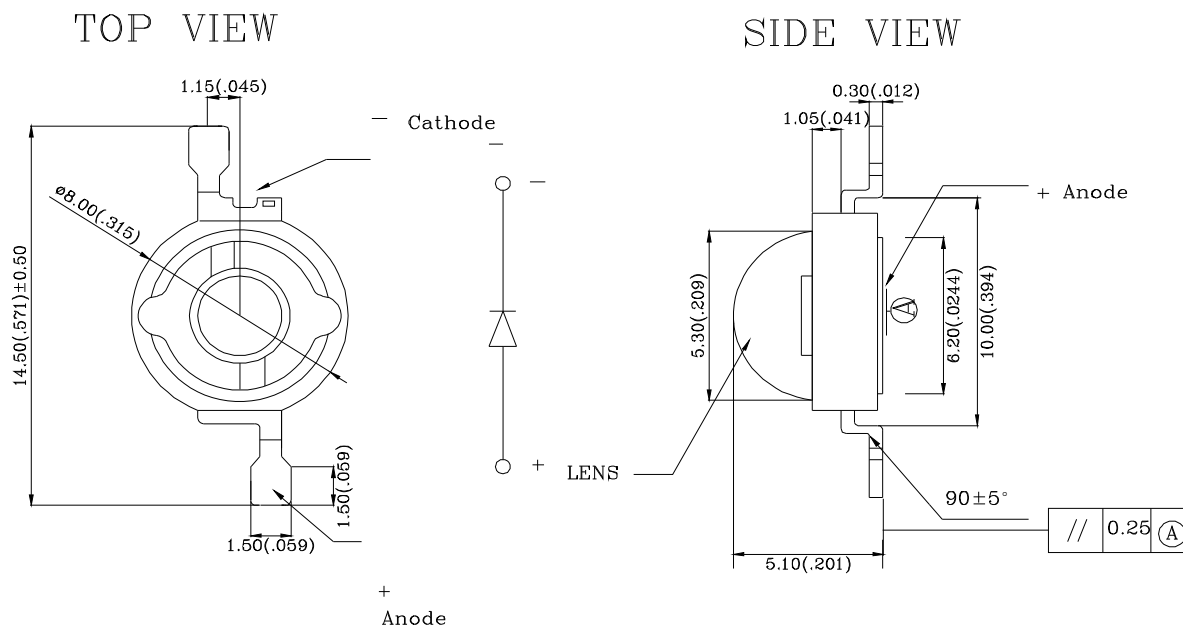


Enhance Power LED

EP503IR4L091W

REV: A/0

●Package Dimension



Note:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25 mm (.010") unless otherwise noted.

●Feature

1. Long operating life.
2. Low voltage DC operated.
3. Instant light (Less than 100NS).
4. RoHS Compliant.
5. Cool beam safe to touch.
6. Compatible to assemble, lead free reflow soldering process.
7. Night surveillance CCD camera illumination.



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●Chip Material

1. Dice Material : GaAIAs
2. Light Color : Infrared
3. Lens Color : Water Clear

●Absolute Maximum Rating(Ta=25°C)

Symbol	Parameter	Rating	Unit
IF	DC Forward Current	1000	mA
I _{pulse}	Peak Pulse Current; (t _p ≤ 100us, duty cycle=0.25)	1250	mA
VR	Reverse Voltage	5	V
I _r	Reverse Current(VR=5V)	50	uA
T _j	LED Junction Temperature(at IF=1000mA)	115	°C
*Topr	Operating Temperature	-30 ~ +100	°C
*Tstg	Storage Temperature	-40 ~ +100	°C
Tsol	Manual Soldering Time at 260°C(Max.)	5	seconds

Note :

* : Temperature for using with aluminum board.

●Electro-Optical Characteristic(Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Radiant Intensity	IE	115	145		mw/sr	IF=1000mA
Viewing Angle	2θ _{1/2}		130		deg	
Peak Emission Wavelength	λ _p		850		nm	IF=1000mA
Spectral Line Half-Width	Δλ		50		nm	
Forward Voltage	V _F		2.2		V	IF =1000mA
Radiant Power	Power	400	500			mW
Reverse Current	I _R			50	μA	VR = 5V

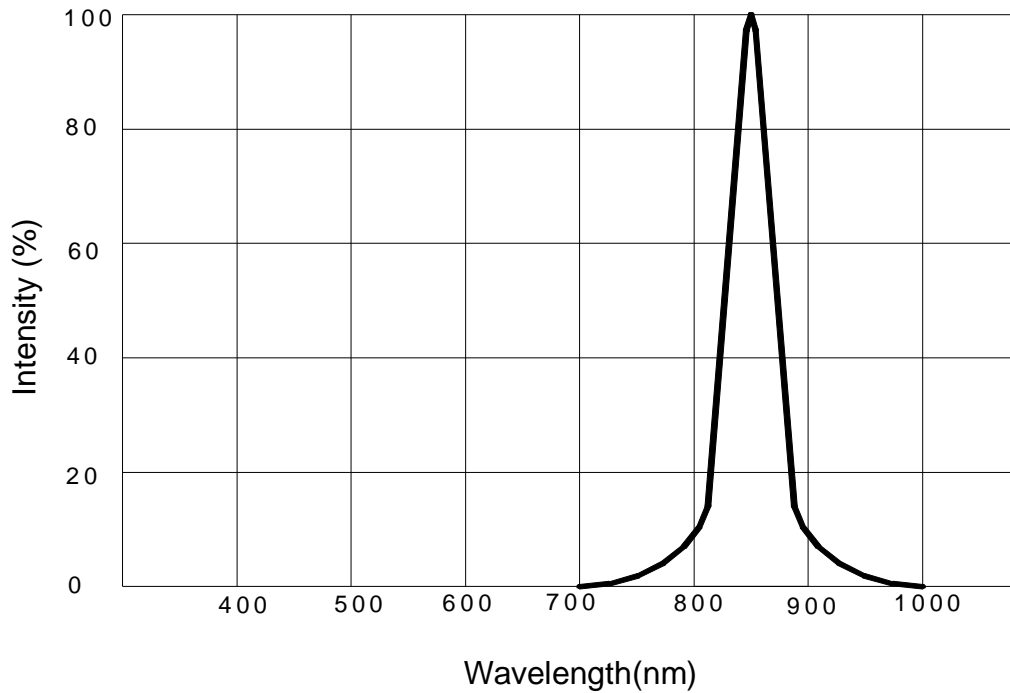


Enhance Power LED

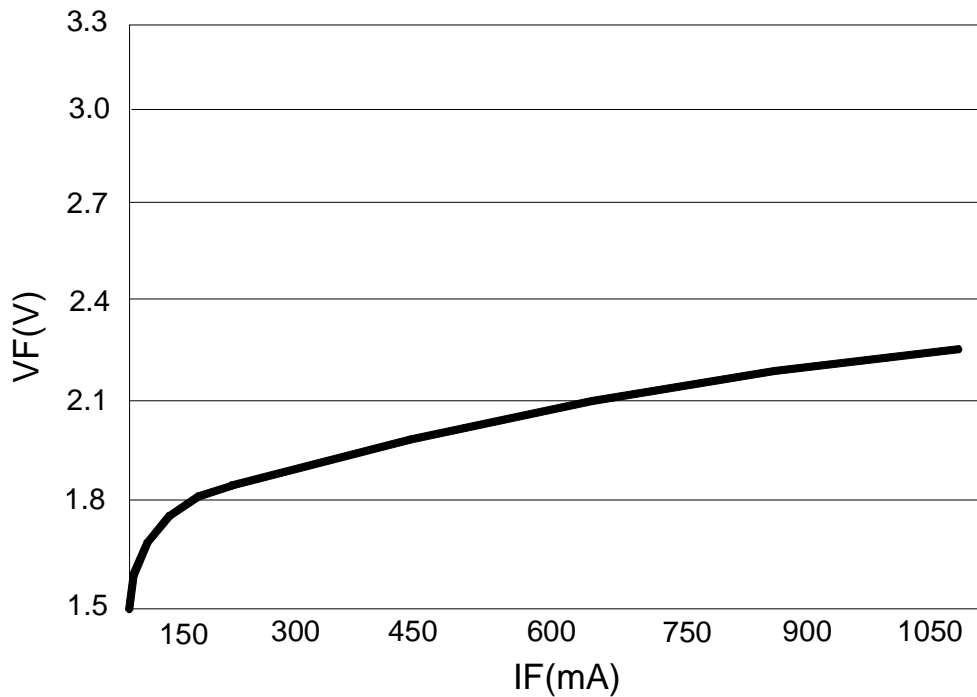
EP503IR4L091W

REV: A/0

• Typical Optical and Electrical



Relative Intensity VS Wavelength



Operating Current VS Forward Voltage

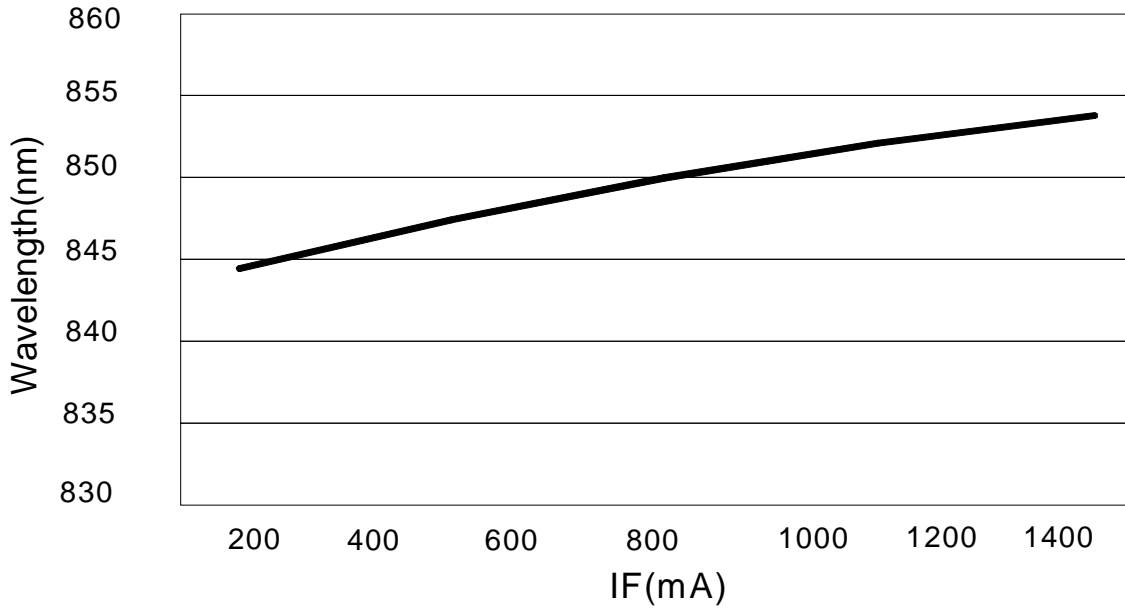


Enhance Power LED

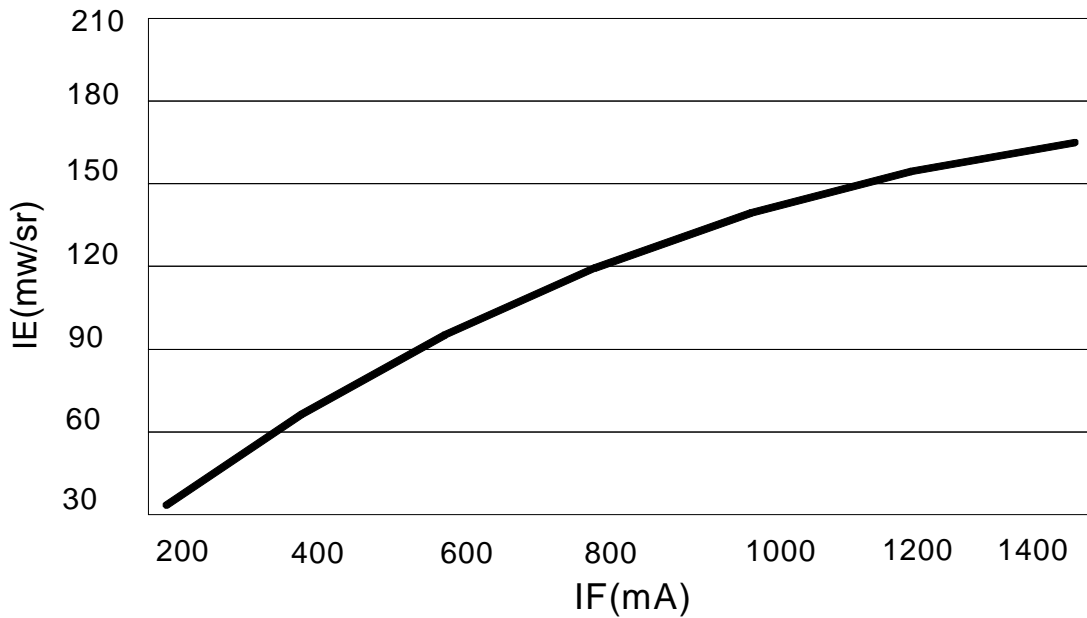
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REV: A/0

• Typical Optical and Electrical



Forward Current VS Wavelength



Forward Current VS IE



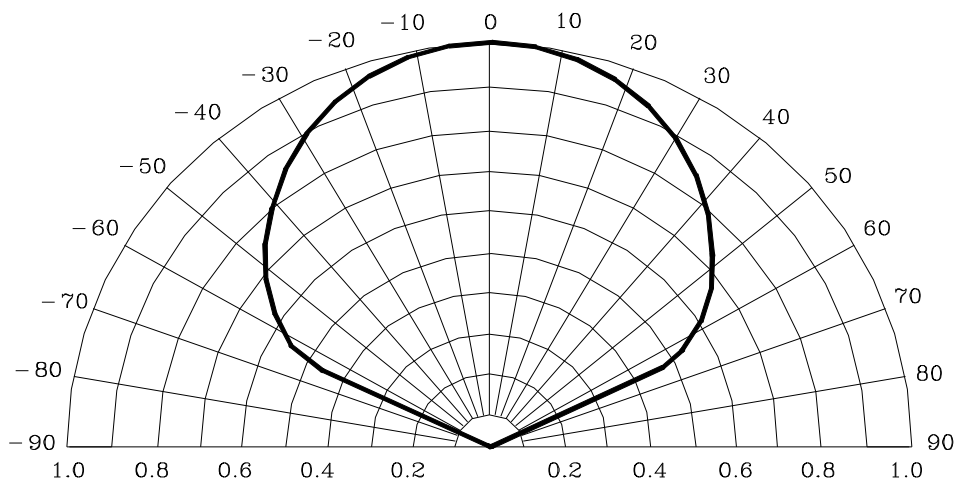
Enhance Power LED

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●Typical Optical and Electrical

typical polar radiation pattern for lambertian



●Bin Code List

Radiant Intensity(IE)(Unit: mw/sr ,IF=1000mA)		
Bin Code	Min	Max
Z5	115	125
Z6	125	140
Z7	140	160
Z8	160	180

Including test tolerance $\pm 10\%$

Forward Voltage(VF)(Unit: V ,IF=1000mA)		
Bin Code	Min	Max
V4	1.80	1.95
V5	1.95	2.05
V6	2.05	2.15
V7	2.15	2.25
V8	2.25	2.35
V9	2.35	2.45

Including test tolerance $\pm 0.1V$

Dominant Wavelength (Hue)(Unit: nm , IF=1000mA)		
Bin Code	Min	Max
IR4	840	870

Including $\pm 2nm$ test tolerance



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●Label Explanation

P/N:	EP503IR4L091W	
QTY:	XXXX	PCS
LOT NO.:	LEM1001001	
BIN NO.:	Z7/IR4/V8	

PART NO: EP503IR4L091W

LOT NO: L E M 10 1 001
A B C D E F

A---L: Local F: Foreign

B---E: E-power

C---M: For series number

D---Year

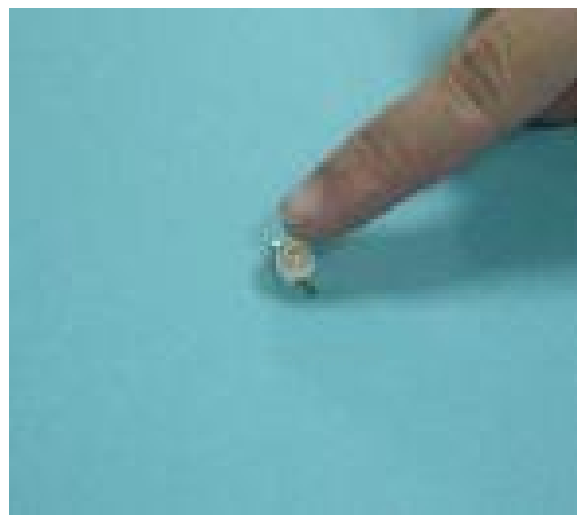
E---Month

F---Spec.

BIN NO: Bin Code

●Caution

Handling note: Do not touch LED's lens.



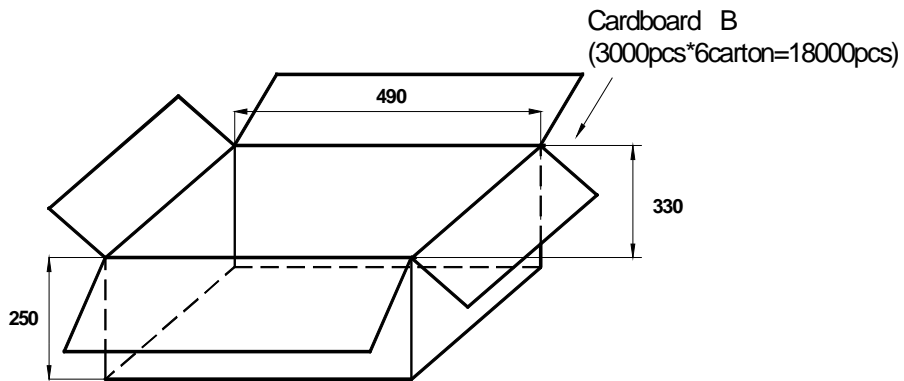
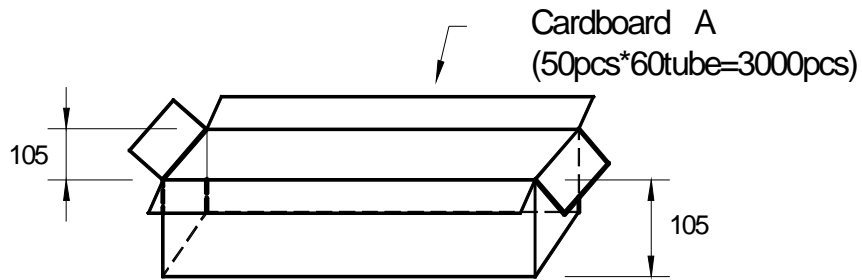
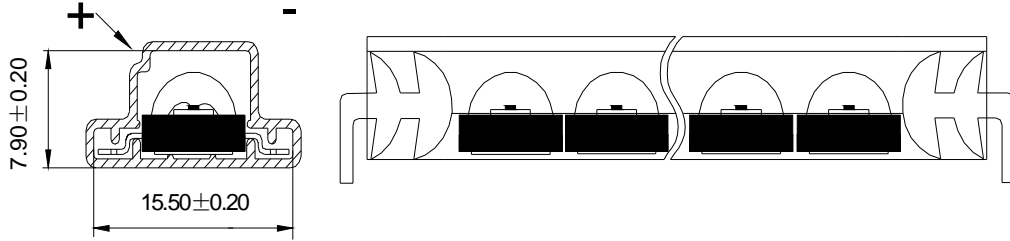


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●Packing Specification



Note:

1. All dimensions are in millimeters.
2. Normal packing Quantity:3000pcs.
3. The carton B contains 6 cartons A at maximum.

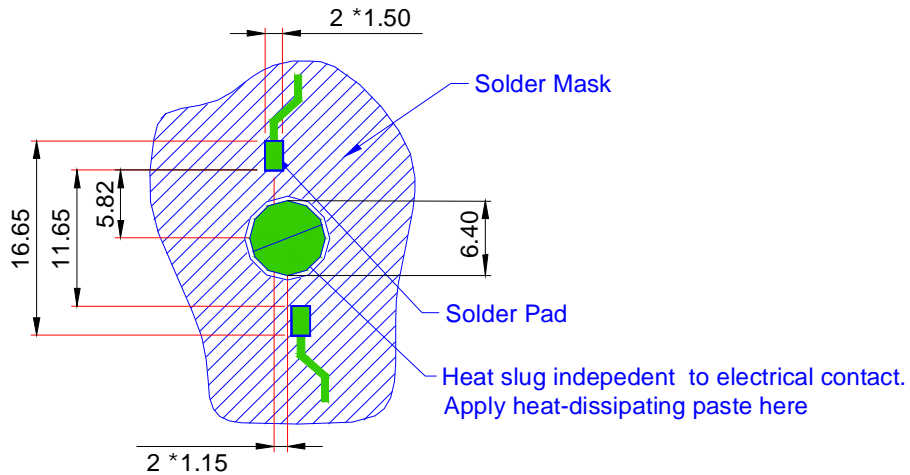


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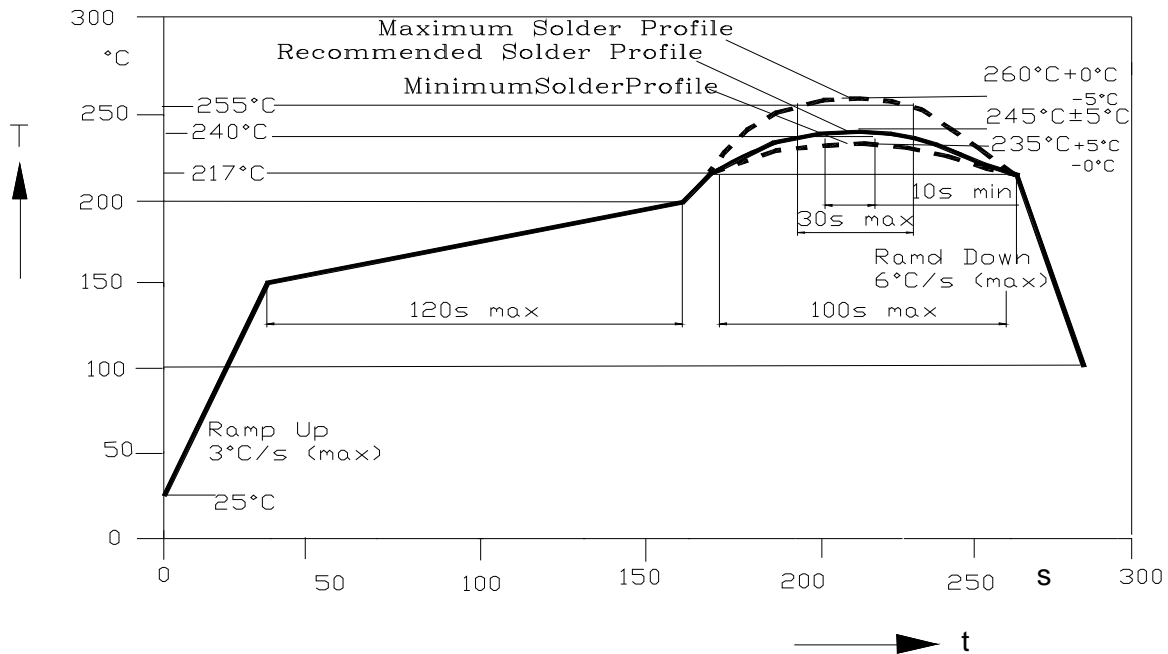
●Suggest Soldering Pad Dimension



Note:

1. All dimensions are in millimeters.
2. The drawings are not to scale.
3. Solder pad can't be connected to slug.

●IR Reflow soldering profile for lead free soldering(J-STD-020C)





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●Storage

1. Do not open the moisture proof bag before the devices are ready to use.
2. Before the package is opened, LED should be stored at temperatures less than 30°C and humidity less than 50%.
3. LED may be stored for 6 months. When the storage time has reached more than 6 months, LED should be stored in a sealed container filled with Nitrogen gas.
4. After the package is opened, LED should be stored at temperatures less than 30°C and humidity less than 30%.
5. LED should be used within 168 hours (7 days) after the package is opened.
6. Before using LED, baking treatment should be implemented based on the following condition: pre-curing at 60±5°C for 24 hours.

●E-Power Operating Procedure

1. E-power700 series products should be operated at 1000 mA for ideal performance, but not more than 1000mA.
2. E-power 1000 series products must be used in conjunction with heat-sinking devices. Soldering on Al PCB with mid-connection point while keeping the layout pattern (∅ 19.9mm,thickness2.5mm) is another way to help heat dissipation. Thermal Resistance for aluminum board must be less than 0.65 °C/W.
3. A non-conductive heat-dissipating paste should be applied between E-power and heat-sinking device.
4. Sufficient thermal management must be applied. Large LED forward current will cause high junction temperature and reduce LED life.



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●Reliability Test

Test Item	Test Condition	Stress Duration
Reflow	Tsol=260°C,10sec	3 times
Temperature Cycle	H:+100±5°C 15mins L: -40±5°C 15mins	300 Cycles
High Temperature High Humidity Operation	Ta=85°C±5°C RH= 90~95% IF=1000mA	500 hours
High Temperature High Humidity Storage	Ta:65°C±5°C RH:90~95%RH	1000hours
Room Temperature Operation	Ta= 25±5°C IF =1000mA	1000hours
Low Temperature Operation	Ta= -40±5°C IF=1000mA	1000hours
High Temperature Operation	Ta= 110±5°C IF=1000mA	1000hours
Salt Spray	Ta=35°C	48 hours

Temperature for using with aluminum board, in a good thermal-exchange surroundings.

Failure Criteria:

1. LED are open or shorted,
2. Radiant intensity attenuate difference(1000hours)> 30%,
3. Forward voltage difference(1000hours) >20%.



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● Part NO. System of E-Power LED

EP 5 03 IR4 L 091 W

