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DATA SHEET

PART NO. : EP2034-150A1

V : A / 3

CUSTOMER'S APPROVAL: _____ DCC: _____

DRAWING NO. : DS-51-03-0028

DATE : 2006-06-09

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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 150mA.

TYPICAL APPLICATIONS

Reading Light / Flash Light / Track Lighting

Under Shelf / Task Lighting

Emergency Lighting / Traffic Signals

Bollards / Security / Garden Lighting

Full Color Sign Boards

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

Parameter	Symbol	Rating	Units
DC Forward Current	IF	150	mA
Pulsed Forward Current	I _{fp}	300	mA
Power Dissipation	P _d	330	mW
Reverse Current (VR=5V)	IR	10	uA
Electrostatic Discharge Threshold	ESD	400	V
Operating Temperature Range	Topr	-35 to 85	°C
Storage Temperature Range	Tstg	-35 to 85	°C
Thermal Resistance R _{θJ-BOARD} (°C/W)	R _{j-a}	65	°C /W
LED Junction Temperature	T _j	110	°C

OPERATING CONDITIONS:

1. 300mA operating condition under $f=1\text{K Hz}$ and 1/8 duty cycle.
2. 330mW: 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. Suggested operation current 150mA.
5. Heat-sink paste required.

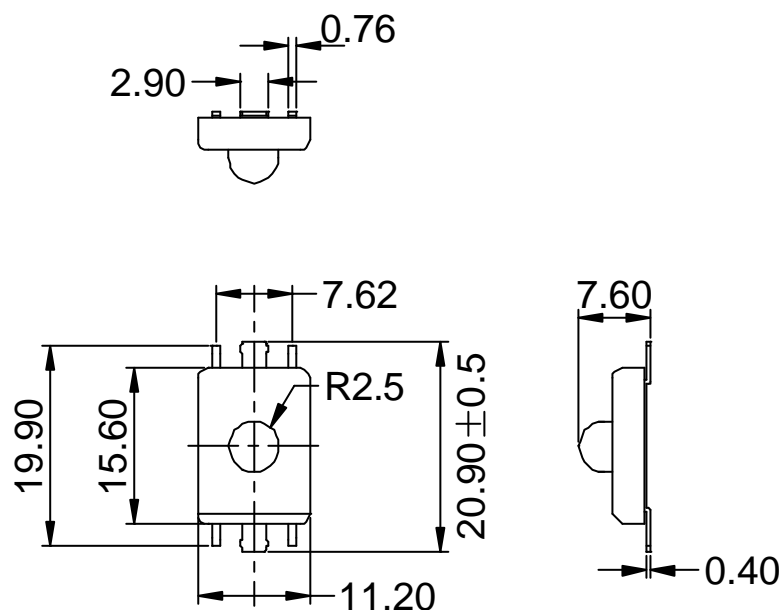
ELECTRICAL CHARACTERISTICS

Ta=25°C IF=150mA

Unit	Forward Voltage VF (Volts)		Reverse Current VR=5V IR=(uA)	Intensity IV (CD)		Total Flux (lm)	Wavelength λ_D (nm)	Viewing Angle 2 θ 1/2 (Degrees)
	Typ	Max	Max	Min	Typ	Typ	Typ	Typ
EP2034-150A1	2.2	2.6	10	24.71	41	5	590	20°

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.

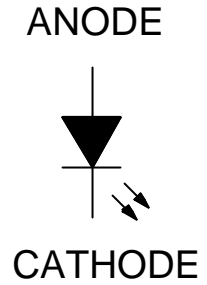
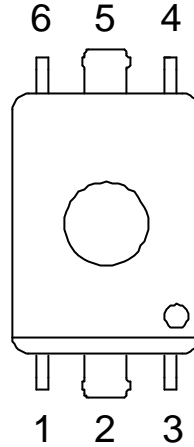
PIN CONNECTION

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COLOR A

ANODE 6

CATHODE 2
5

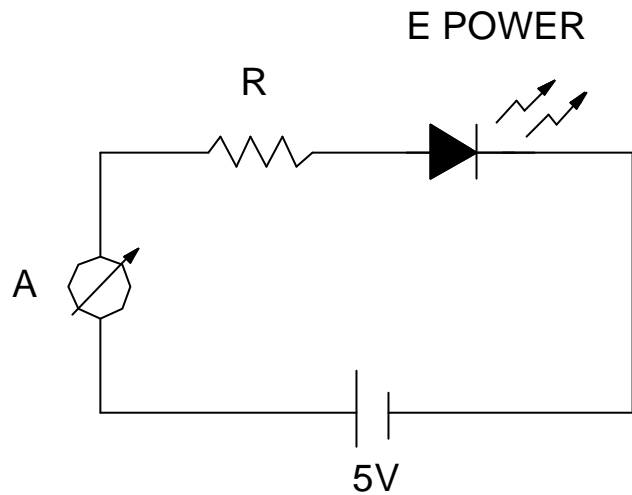


TEST CIRCUIT

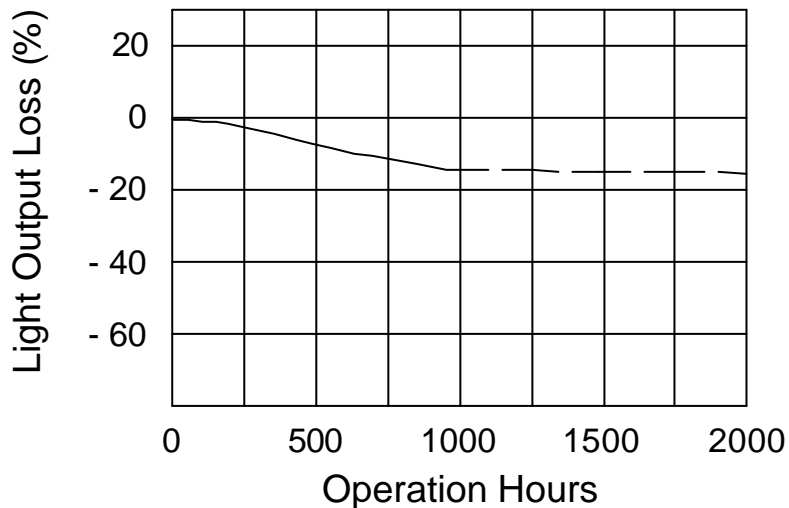
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COLOR VF R(150mA)

A 2.2V 19 Ohm

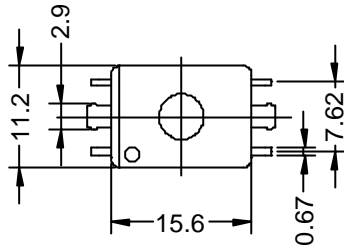


OPERATION LIFE

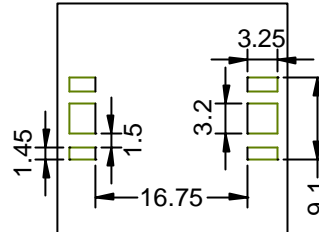


HOW TO USE E-POWER LED

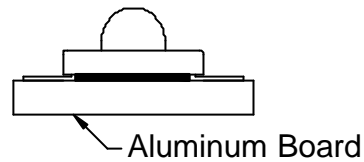
(1) E-Power LED dimensions



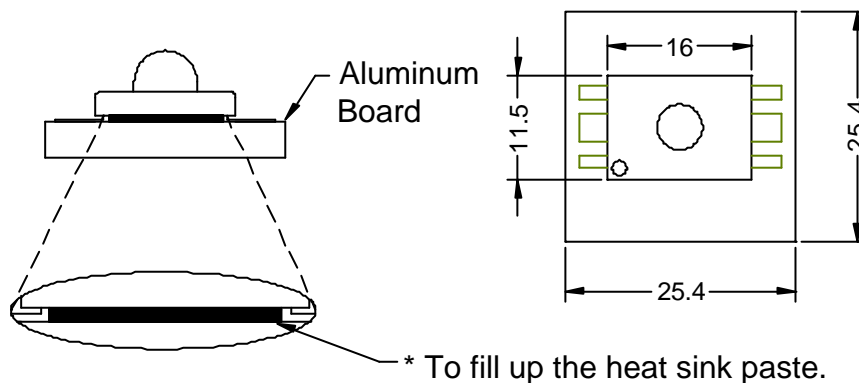
(3) Recommended layout pattern



All dimensions are in millimeters.



(2) Accelerate heat dissipation

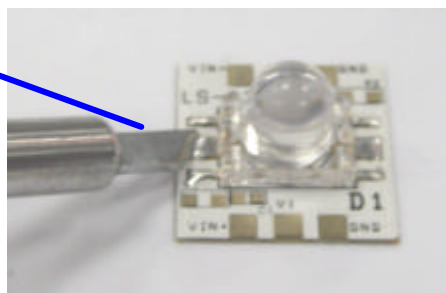


(4) Iron soldering only used constant temperature a soldering-iron 300°C/5sec by the iron with knife type head, the procedure as following(attached picture):

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)
V3	2.0	2.2
V4	2.2	2.4
V5	2.4	2.6

** E-POWER IV BIN DISTRIBUTION

BIN	MIN(CD)	MAX(CD)
V	24.71	32
W	32	42
X	42	54
Y	54	71

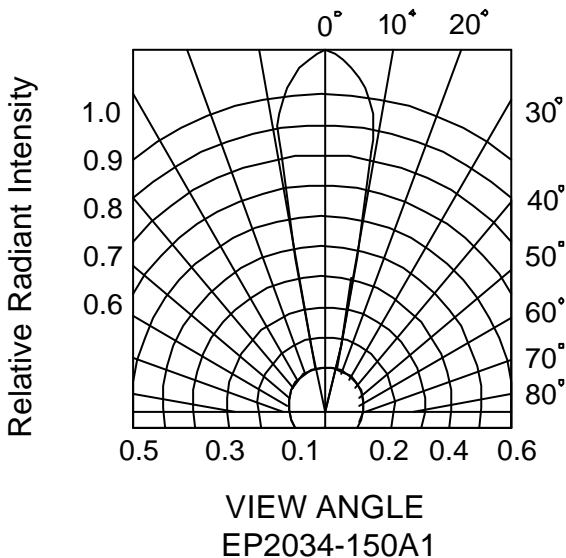
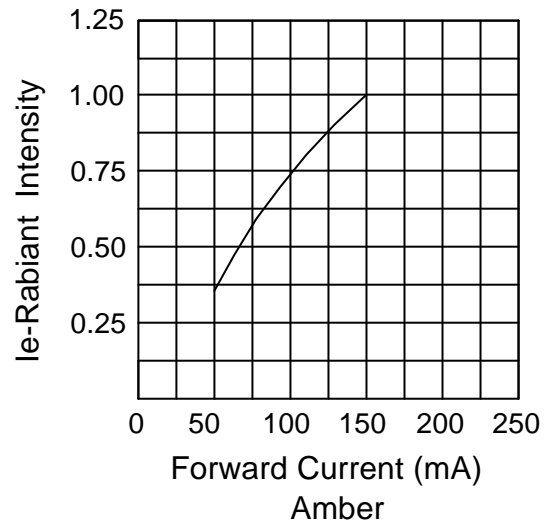
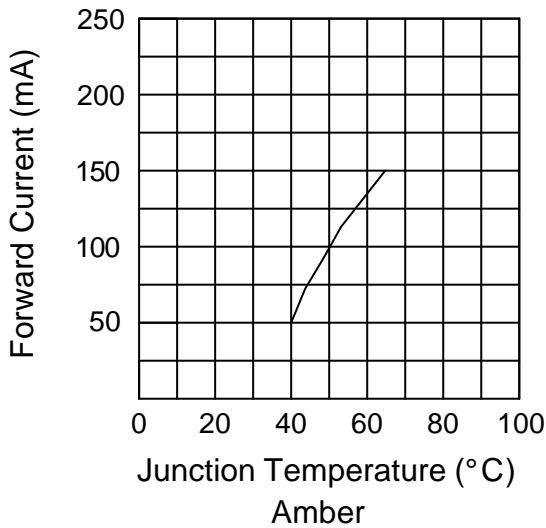
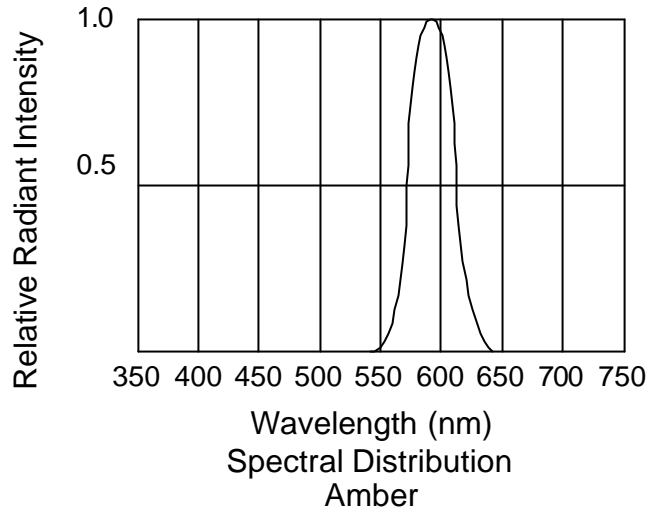
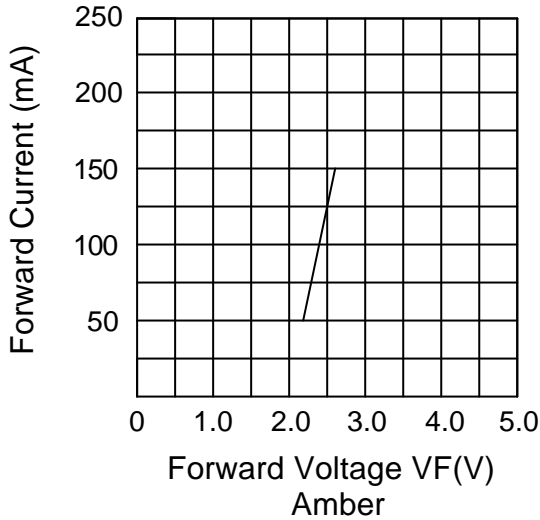
The IV guarantee should be added $\pm 15\%$

** E-POWER λ D (nm) BIN DISTRIBUTION

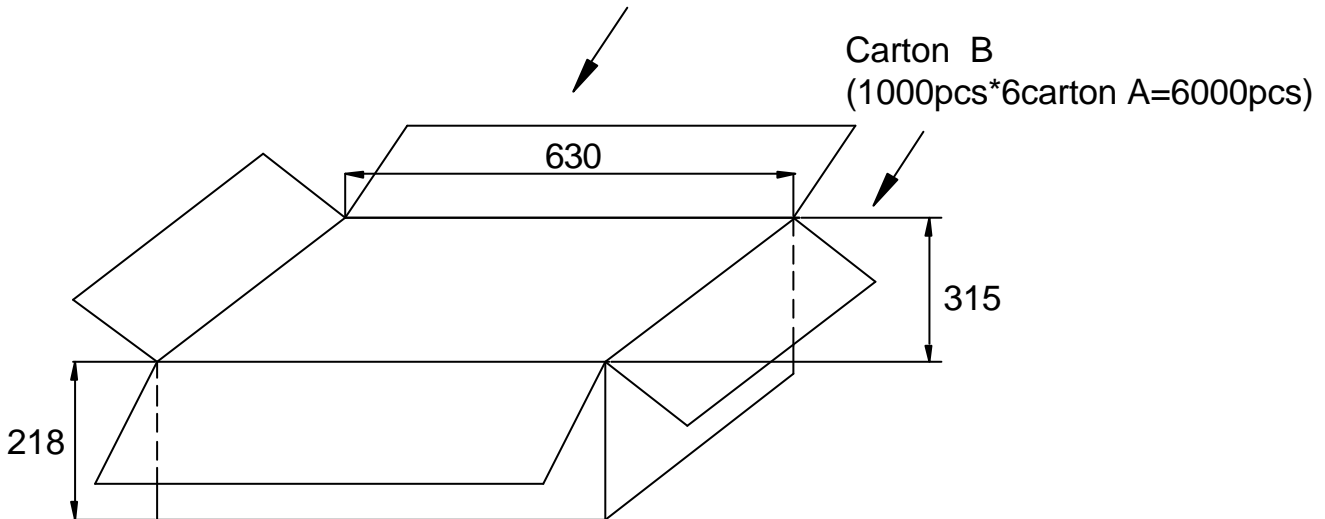
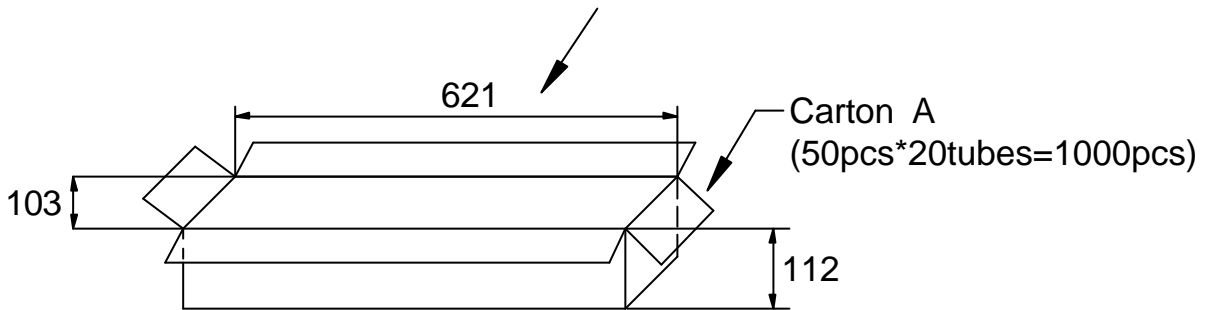
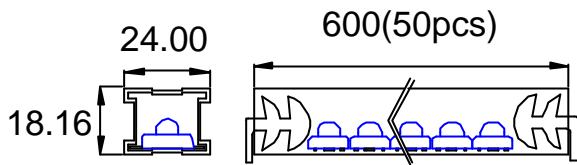
BIN	MIN(nm)	MAX(nm)
A1	585	590
A2	590	595

* **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=150mA 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 150 series should be operated at 150mA for ideal performance, but not more than 150mA.
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 03 4-150 A1

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: 4 = 20°
5. CURRENT: 150mA
6. λD(Typ): R1=625nm (Red) , B1=470nm (Blue) , G1=525nm (Green) , A1=590nm (Amber)