PARA LIGHT ELECTRONICS CO., LTD.
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DATA SHEET

PART NO. : EP501W1L053WS

REV : A/1

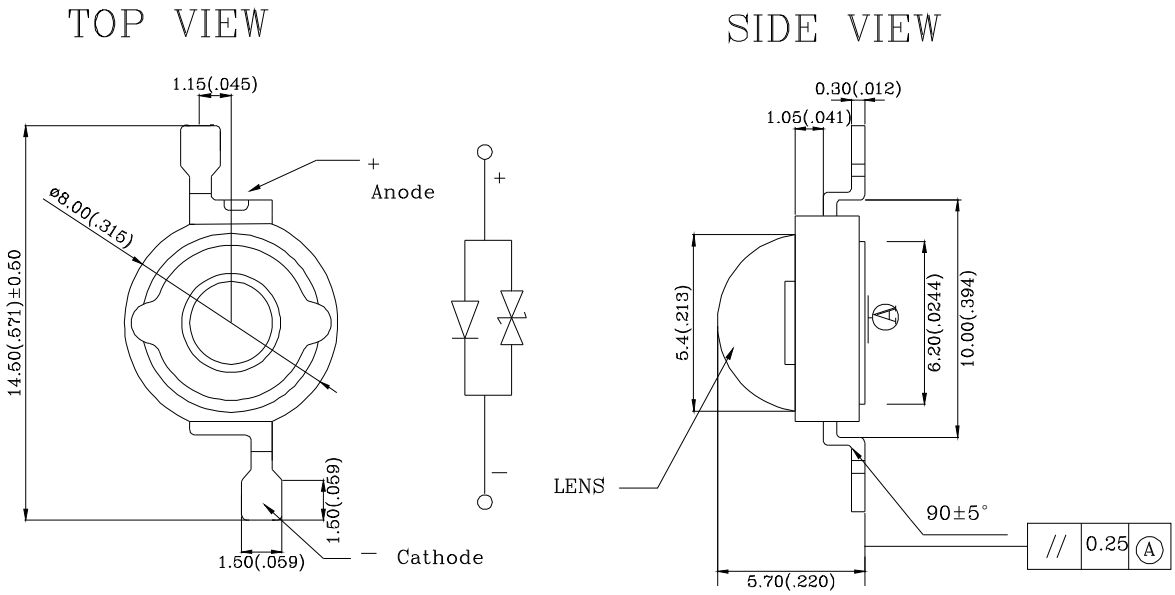
CUSTOMER'S APPROVAL : _____ DCC : _____

Enhance Power LED

EP501W1L053WS

REV:A/1

●Package Dimension



Note:

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

●Features

1. Long operating life.
2. Low voltage DC operated.
3. Instant light (Less than 100NS).
4. RoHS Compliant.
5. Compatible to assemble, lead free reflow soldering process.
6. No UV emission.
7. The led can withstand the max static level when assembling or operation（HBM）.

●Chip Material

1. Dice Material : InGaN
2. Light Color : White
3. Lens Color : Water Clear

●Absolute Maximum Rating(Ta=25℃)

Symbol	Parameter	Rating	Unit
IF	DC Forward Current	350	mA
Ipulse	Peak Pulse Current (tp≦100us, duty cycle=0.25)	500	mA
VR	Reverse Voltage	5	V
IR	Reverse Current(VR=5V)	50	uA
Tj	LED Junction Temperature(at IF=350mA)	115	℃
*Topr	Operating Temperature	-30 ~ +100	℃
*Tstg	Storage Temperature	-40 ~ +100	℃
Tsol	Manual Soldering Time at 260℃(Max.)	5	seconds
ESD	ESD Sensitivity（Human Body Model）	2000	V

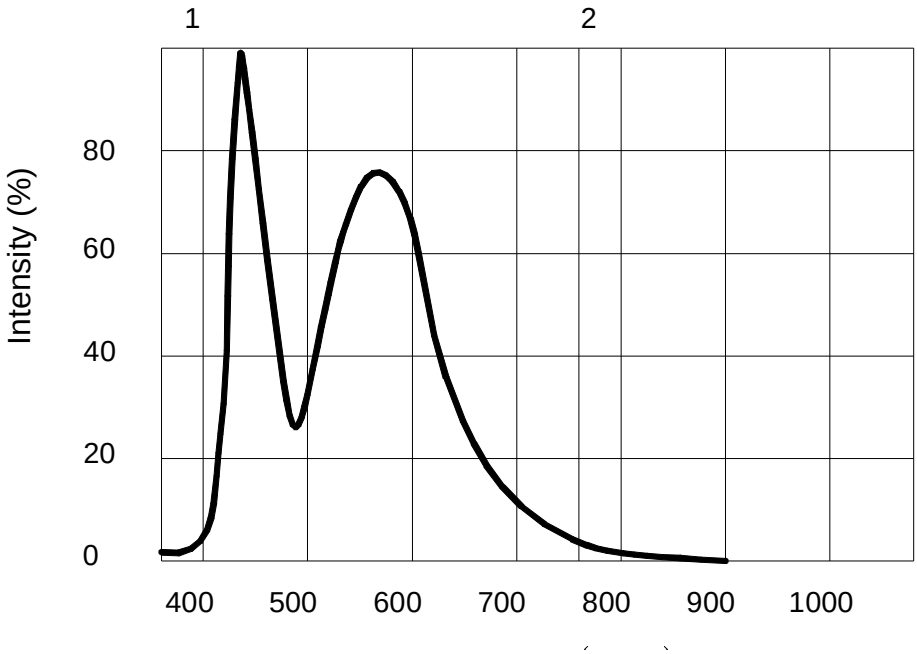
Note :

* : Temperature for using with aluminum board.

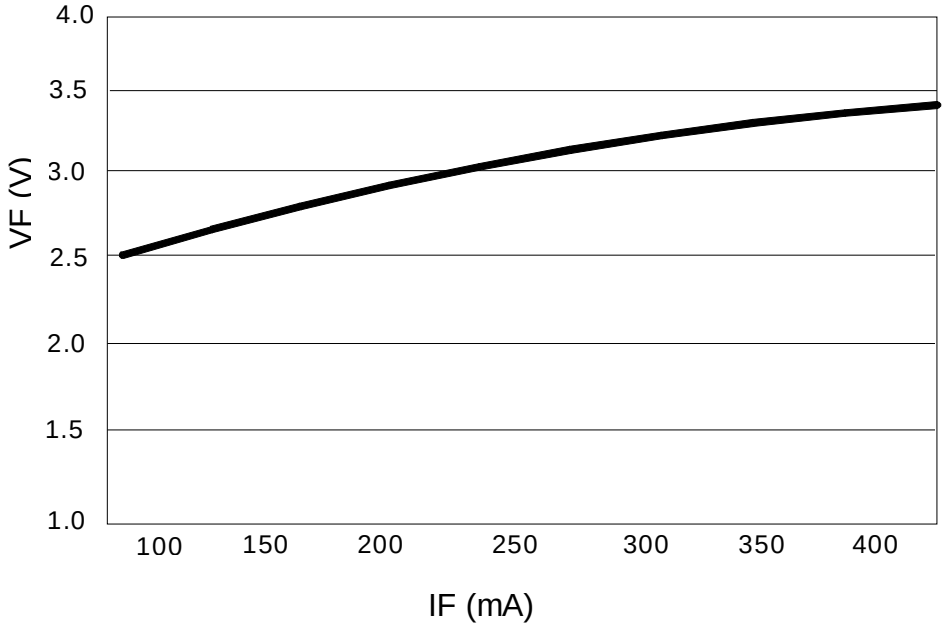
●Electro-Optical Characteristic(Ta=25℃, T_{opr}=100ms)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Flux	ΦV		120		lm	IF=350mA
Viewing Angle	2θ1/2		130		deg	
Color Temperature	CCT		6000		K	IF=350mA
Forward Voltage	VF		3.3	3.6	V	IF =350mA
Reverse Current	IR			50	μA	VR = 5V

●Typical Optical and Electrical

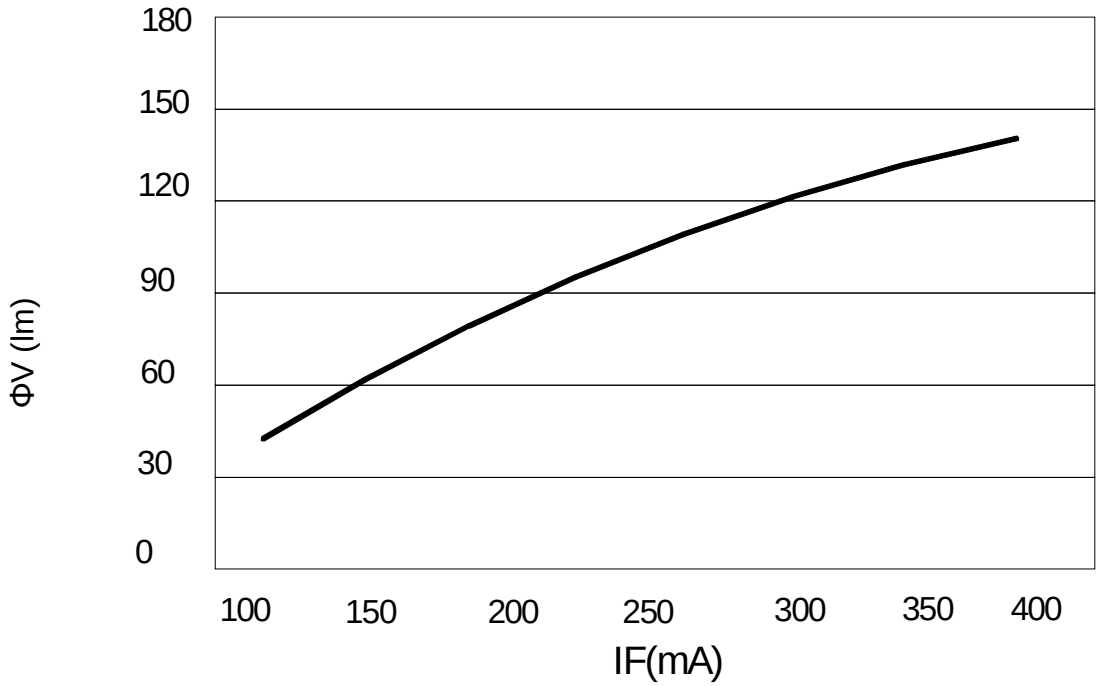


Relative Intensity VS Wavelength



Forward Current VS Forward Voltage

●Typical Optical and Electrical

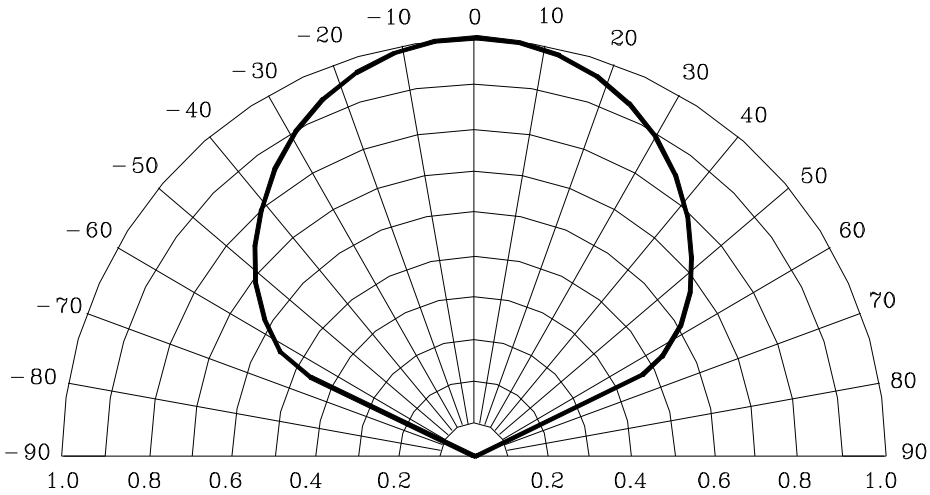


Forward C IF (mA) minous Flux

	Enhance Power LED	
PARA light	EP501W1L053WS	REV:A/1

Typical Optical and Electrical

typical polar radiation pattern for lambertian



●Bin Code List

Luminous Flux (ΦV),(Unit: lm ,IF=350mA)		
Bin Code	Min	Max
U	120	130
V	130	140

Including test tolerance ± 10%

Forward Voltage(VF),(Unit: V, IF=350mA)		
Bin Code	Min	Max
V8	3.00	3.20
V9	3.20	3.40
V10	3.40	3.60

Including test tolerance±0.1V

CCT,(Unit:K, IF=350mA)		
Bin Code	Min	Max
CCT1	5500	5700
CCT2	5700	5900
CCT3	5900	6100
CCT4	6100	6300
CCT5	6300	6500

Including test tolerance±1%

PARA ight	Enhance Power LED	
	EP501W1L053WS	REV:A/1

●Label Explanation

P/N: EP501W1L053WS
QTY: XXXX PCS
LOT NO.: LEM1001001
BIN NO.: S/W3/6000/V9

PART NO: EP501W1L053WS

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.

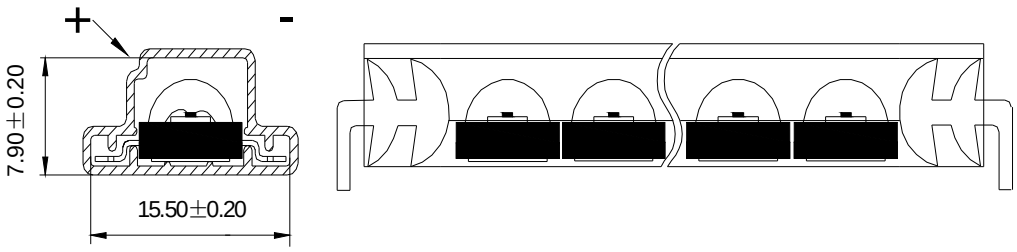
BIN NO: Bin Code

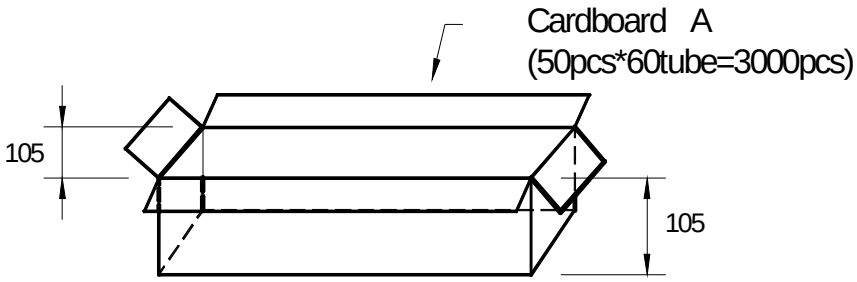
●Caution

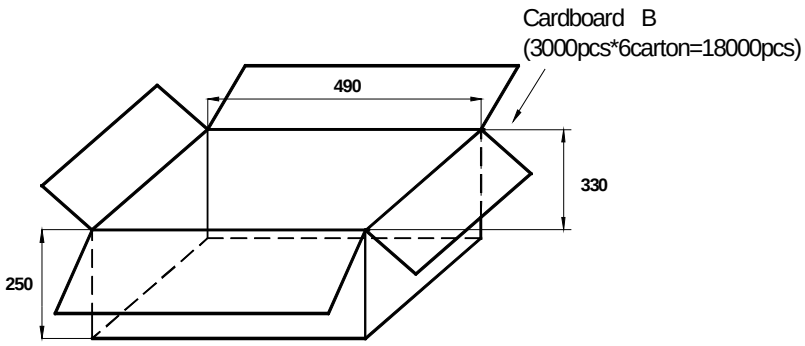
(1).Handling note: Do not touch LED's lens.

(2)Please wear anti-static wrist strap and gloves to prevent ESD damage when handling.

●Packing Specification



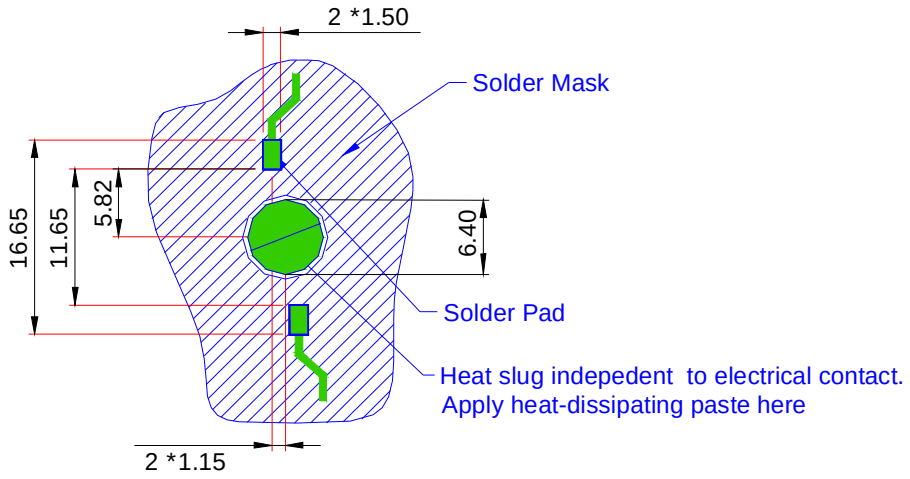




Note:

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

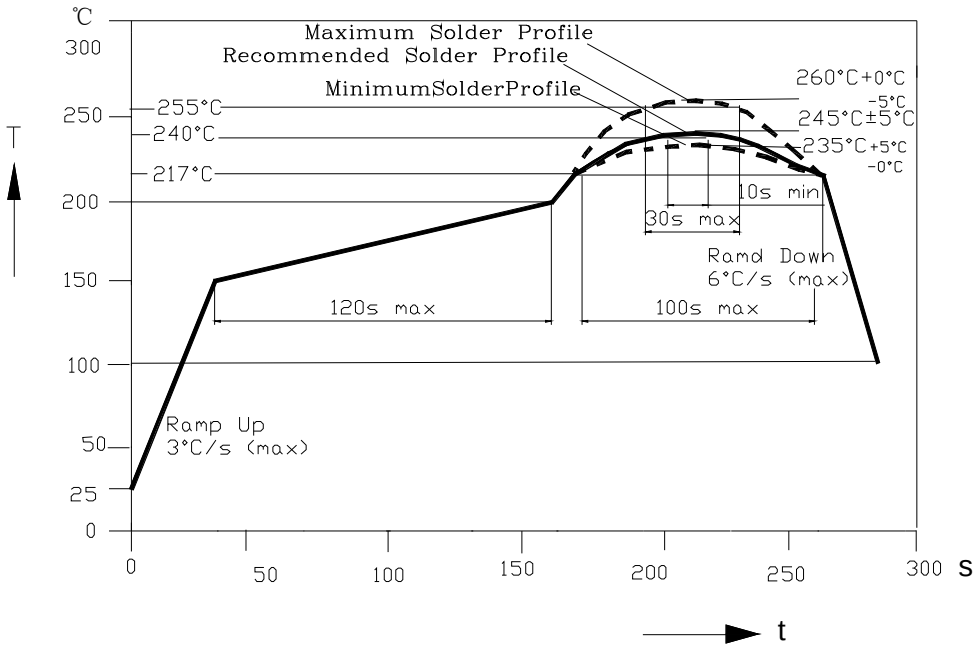
●Suggest Soldering Pad Dimension



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)



●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℃ 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℃ 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℃ for 24 hours.

●E-Power Operating Procedure

1. E-power 350 series products should be operated at 350 mA for ideal performance, but not more than 350mA.
2. E-power 350 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 ℃/W.
3. E-power 350 series products are sensitive to static. Operators must wear static wristband (wireless static wristband is prohibited) and be well grounded while working in the environment with an ionizing air blower. Anti-static requirement should be under ESD 2000V.
4. A non-conductive heat-dissipating paste should be applied between E-power and heat-sinking device.
5. Sufficient thermal management must be applied.Large LED forward current will cause high junction temperature and reduce LED life.

●Reliability Test

Test Item	number	Test Condition	Stress duration	result
Reflow	100pcs	Tsol=260℃,10sec	3 times	No Failure
Temperature Cycle	20pcs	H:+100±5℃ 15mins L：-40±5℃	300 Cycles	No Failure
High Temperature High Humidity Operation	20pcs	Ta=85℃±5℃ RH= 90～95% IF=350mA	500 hours	No Failure
High Temperature High Humidity Storage	20pcs	Ta:65℃±5℃ RH:90～95%RH	1000hours	No Failure
Room Temperature Operation	20pcs	Ta= 25±5℃ IF =350mA	1000hours	No Failure
Low Temperature Operation	20pcs	Ta= -40±5℃ IF=350mA	1000hours	No Failure
High Temperature Operation	20pcs	Ta= 110±5℃ IF=350mA	1000hours	No Failure
Salt Spray	20pcs	Ta=35℃	48 hours	No Failure

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

Failure Criteria:

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

● Part NO. System of E-Power LED

EP 5 01 W1 L 053WS

053WS	S: Street lamp
	Special mark：W:white, B:black
	Series Number
L	View Angle: 2: 2*5=10°　　L: L*5=130° 3: 3*5=15°　　M: M*5=160° 6 : 6*5=30°
W1	R1: λ d=625nm　　Y1: λ d=590nm G1: λ d=525nm　　B1: λ d= 460nm IR: λ p=850nm　　A1: λ d=615nm W1: white　　WY: warm white
01	Power： 01—1W，03—3W，05—5W,..... 0A-100W
5	Slug material: 1—Al,2—silicon,3—Fe,4—ceramic, 5—Cu
EP	EP：Enhance Power