EMITTER
DATA SHEET

Issue Date: 2013/04/29

APPROVAL SHEET

RoHS

Customer :

Customer P/N :

SW P/N : SW-IR85042W190-EPIH11

Model : EMITTER

APPROVED	CHECKED	PREPARED
Derek	***James***	***KIKI***
APPROVED BY：		

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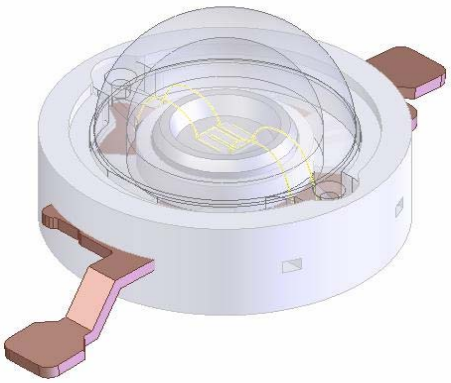
Power Light Source

Introduction：

Soaraway infrared emitter is one the highest flux LEDs in the world. Due to the special design of chip and package, the Soaraway infrared emitter is designed by particular package for high power LED.



Feature：

- Long operating life
- Energy efficiency
- Low thermal resistance
- Compact design
- Instant light
- Fully dimmable
- Superior ESD protection
- ROHS compatibility

Typical Applications:

- CCTV
- Wireless communication

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Soraway P/N	:	SW-IR85042W190-EPIH11
COLOR	:	IR(850nm)
Dominant Wavelength λp	:	840~870nm
Radiant flux (Bare chip test)	:	190~220mW @350mA
Forward Voltage Vf	:	Max 2.2V @1000mA

Num	Vf(@700mA)	LE(@350mA)	λp(@350mA)
1	1.94	200.5	843.3
2	1.92	201.7	843.3
3	1.92	200.7	843.3
4	1.94	198.5	843.0
5	1.91	201.3	843.3
6	1.92	201.6	843.3
7	1.91	202.0	843.6
8	1.91	202.5	843.3
9	1.91	202.7	843.3
10	1.92	198.1	843.3

Absolute Maximum Ratings

Parameter	Conditions
DC Forward Current (mA)	1000
Peak Pulse Current (mA) (1/10 Duty Cycle at 1KHz)	1200
LED Junction Temperature (℃)	120
Operating Temperature (℃)	-30~110
Storage Temperature (℃)	-40~120
Soldering Temperature	JEDEC 020℃ 260℃
Reverse Voltage	Not design to be driven in reverse bias
ESD Sensitivity	> 8,000V Human Body Model (HBM)

Flux Characteristics at 350mA (Ta=25℃)

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Radiometric power	08	190	--	220	mW
Peak wavelength	λp	840	850	870	nm
View angle	$2\Theta_{1/2}$	120	130	140	degree
Forward voltage(@1000mA)	Vf	1.6	--	2.2	V

Note:

1. The typical radiometric power of Soaraway will be upgraded per season.
2. Minimum radiometric power performance guaranteed within published operating conditions. Soaraway maintains a tolerance of ±10% on radiometric power measurements.
3. Soaraway maintains a tolerance of ±1nm for peak wavelength measurement.
4. Soaraway maintains a tolerance of±0.06V on forward voltage measurement.

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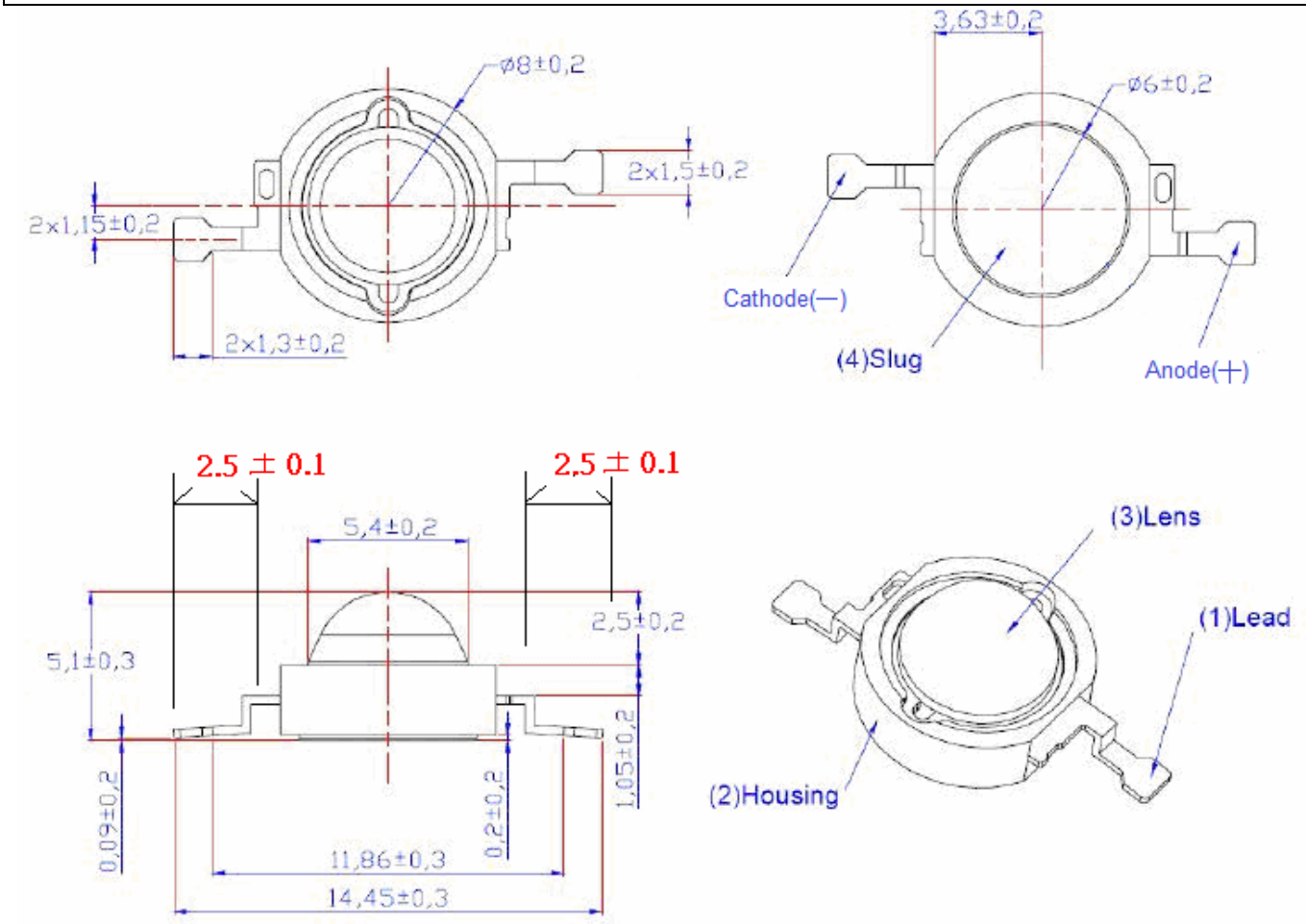
Emitter Mechanical Dimensions



Notes：

1. Drawings are not to scale.
2. All dimensions are in millimeter.
3. General tolerance is 0.2mm.
4. The polarity of slug at bottom is anode.
5. It is important that the slug can't direct contact aluminum surface, it is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the surface.
6. It is strongly recommended that the temperature of lead be not higher than 55℃.

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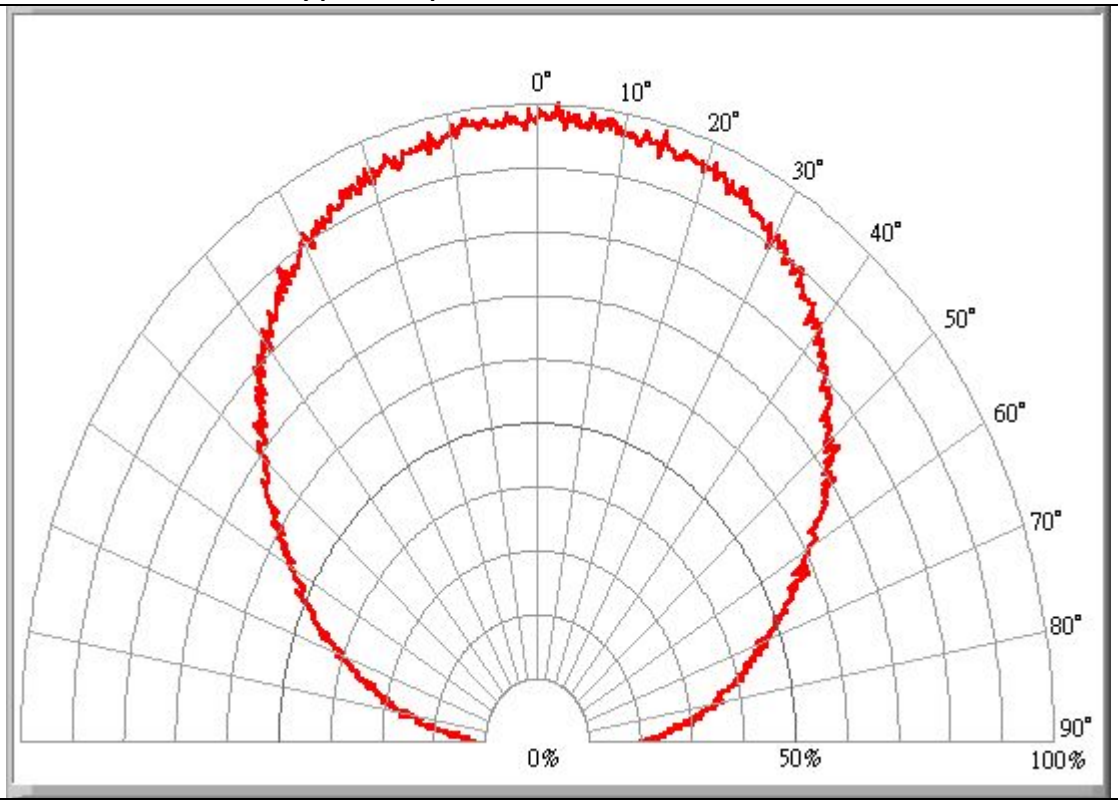
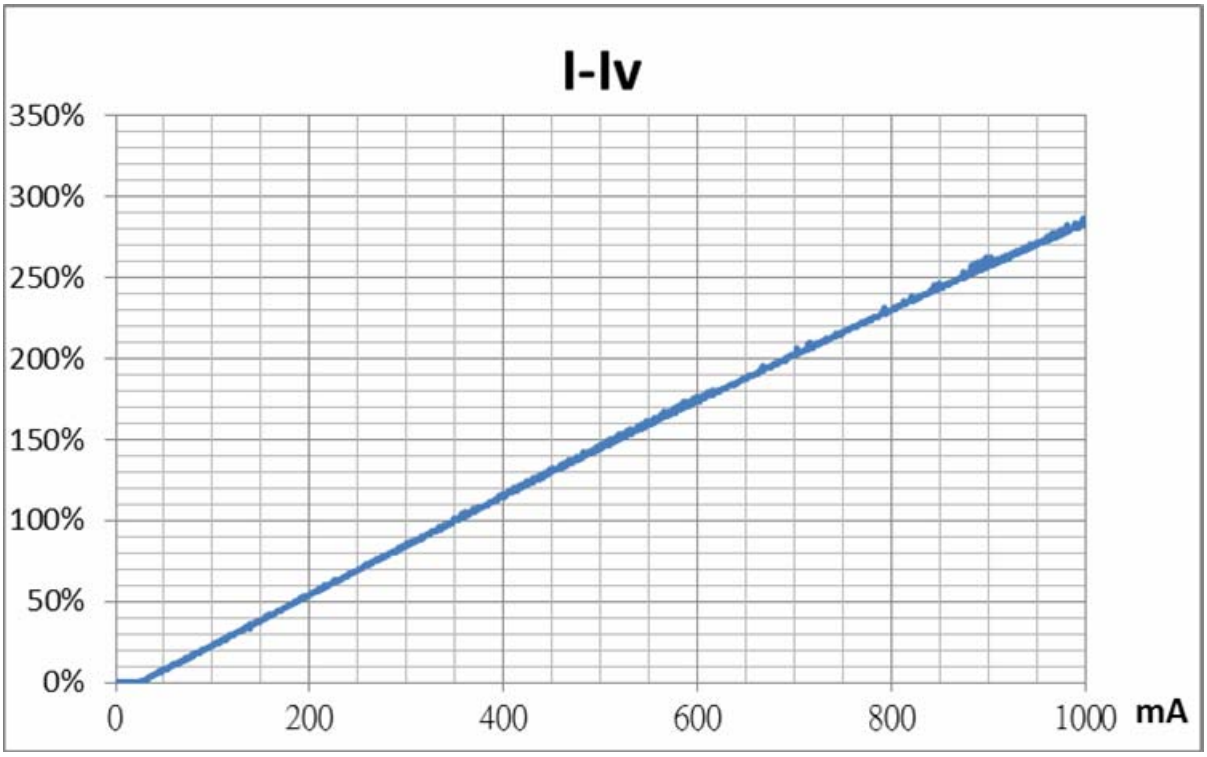
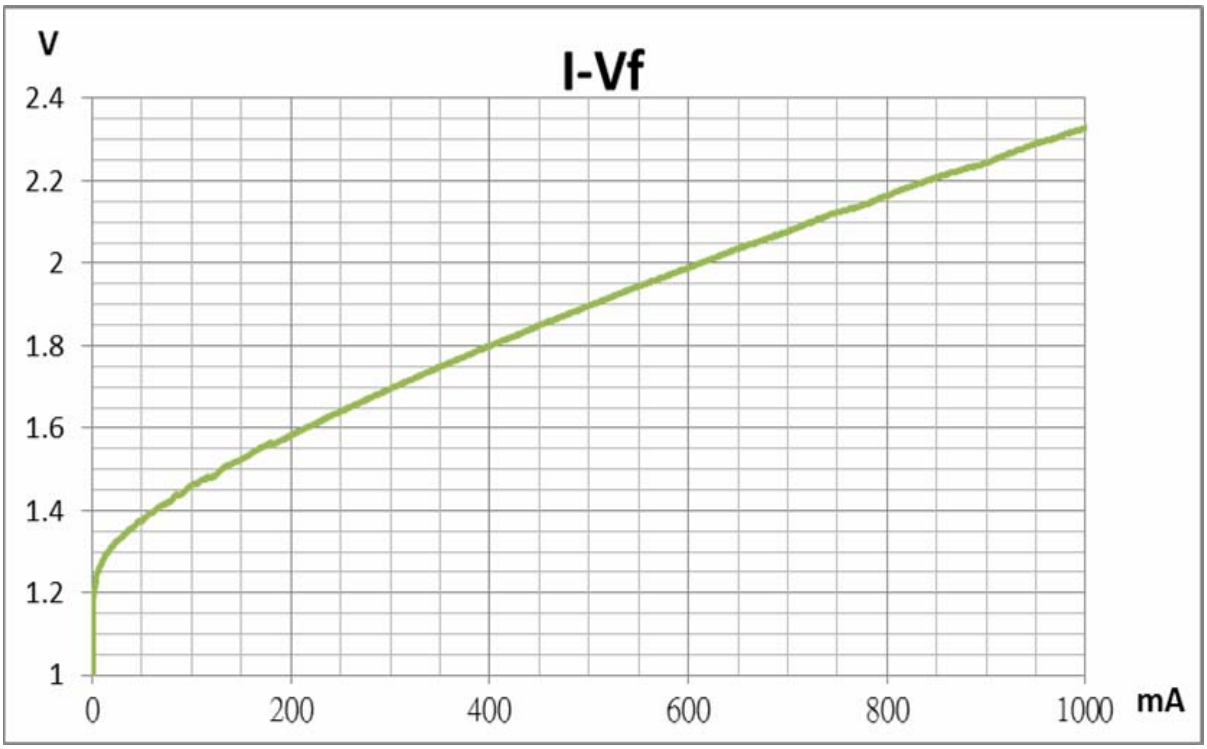
Typical Spatial Radiation Pattern


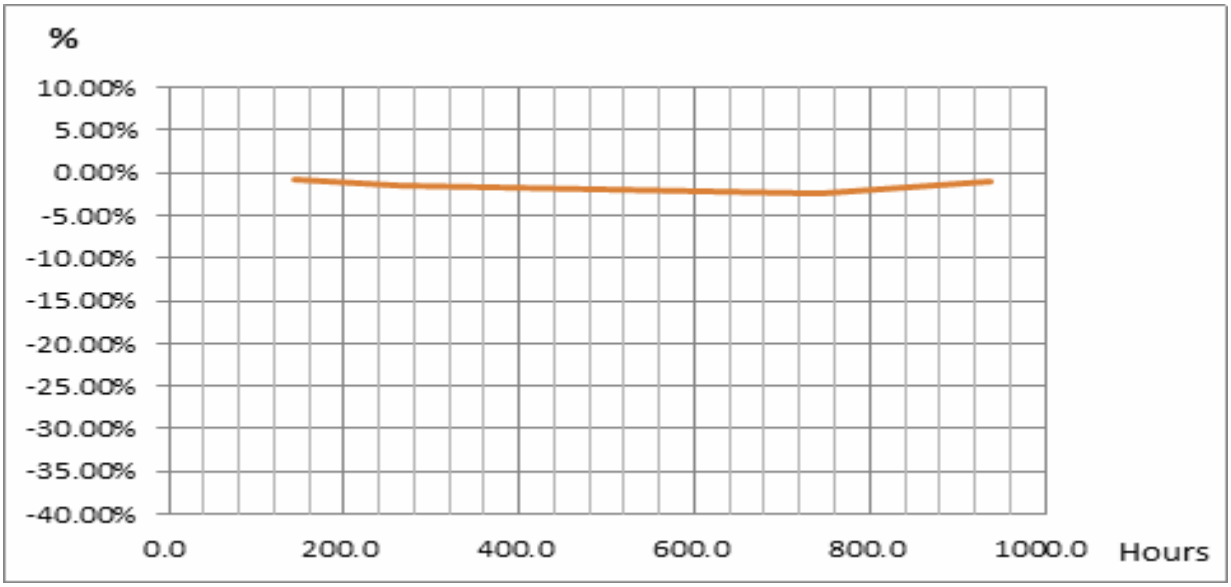
Forward L-I Characteristics



Forward I-V Characteristics



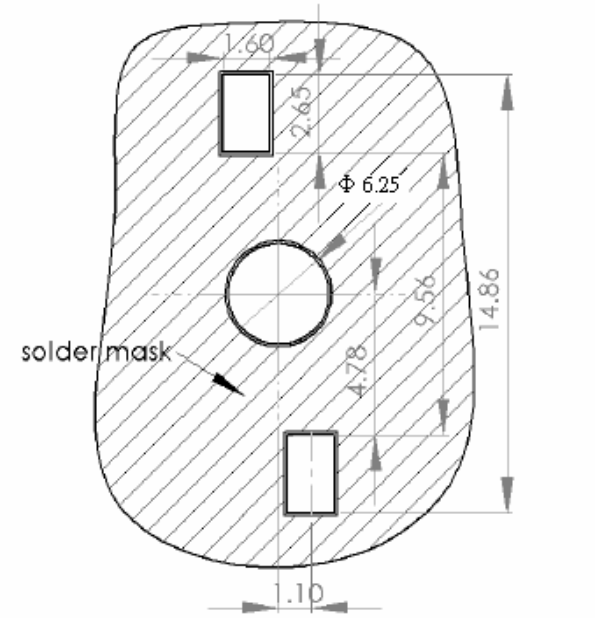
Lm decay@1200mA (Ambient Temperature)光衰圖



RELIABILITY ITEMS and SPECTIONS

No	Test Item	Test Conditions	units	Result
1	High Temperature Storage	Temperature：110±10℃ Time：1000 Hours	20	Pass
2	Solder Heat Resistance	Pre-heat：125℃ Pre-heat time：60~120 sec. Solder Temperature：260±10℃ Time：10 sec.	20	Pass
3	Thermal shock	0℃ ~100℃ 300cycle 5mins 5mins	20	Pass
4	High Temperature，High Humidity Storage	Temperature：85℃ Relative Humidity：85% Time：1000 Hours	20	Pass
5	Low Temperature Storage	Temperature：-40℃ Time：1000 Hours	20	Pass
6	Solderability	Pad immersion in flux 5~10 sec. Temperature：230±10℃ Time：5 sec.	20	Pass
7	Room Temperature Operating Life	Ta=25℃, @ 350 mA Time：1000 Hours	20	Pass

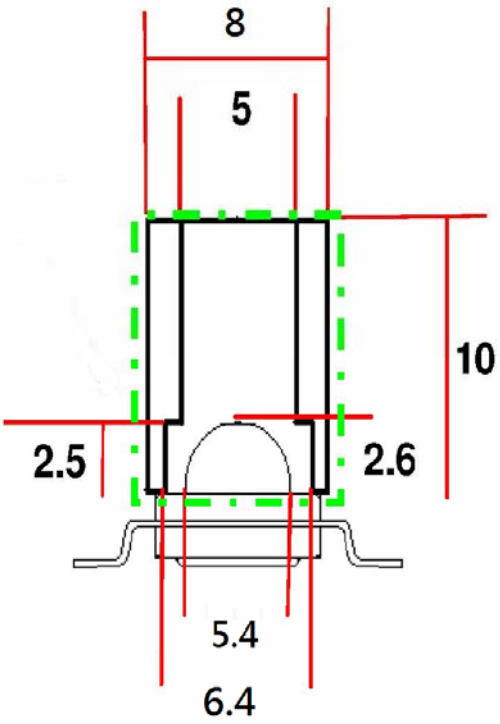
1. Recommended Solder Pad Design

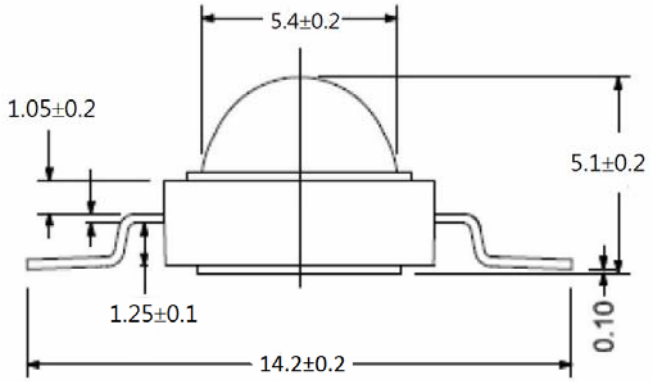


Notes :

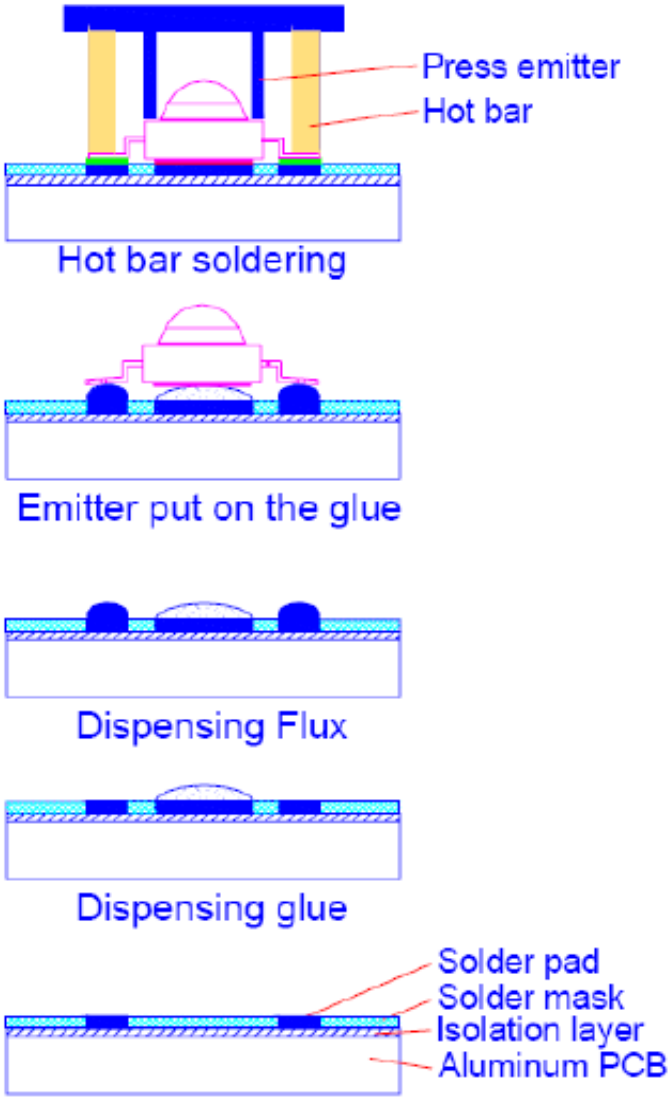
1. Drawing is not to scale
2. All dimensions are in millimeter
3. Solder pad can't be connected to slug

2. Recommended nozzle style





(the inner diameter of the nozzle the untouchable moliding colloidal)

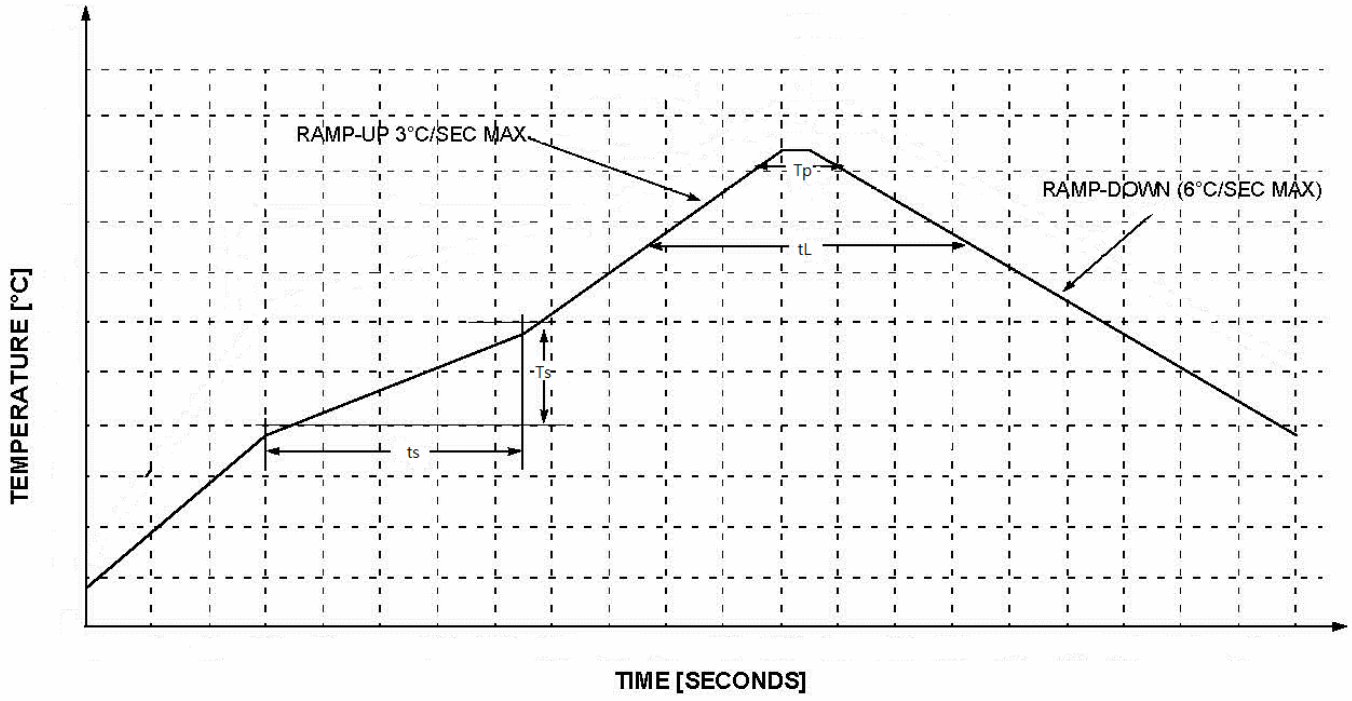


Notes:

1. Aluminum PCB material with a thermal conductivity greater than 2.0 W/mK.
2. Solder pad can't be connected to slug.
3. The thermal glue should be as thin as possible for better heat conductivity.
4. During any assembly process touching lens is avoided. This will cause pollution or scratch on the surface of lens.
5. Thermal glue with a thermal conductivity greater than 1.0 W/mK and the thickness must be less than 100um

Recommended Soldering Profile

The LEDs can be soldered using the parameter listed below. As a general guideline, the users are suggested to follow the recommended soldering profile provided by the manufacturer of the solder paste. Although the recommended soldering conditions are specified in the list, reflow soldering at the lowest possible temperature is preferred for the LEDs.



Sym.	Min.	Max.	Units
Ts	100	150	°C
ts	60	120	Sec
tl	60	150	Sec
Tp	225	250	C

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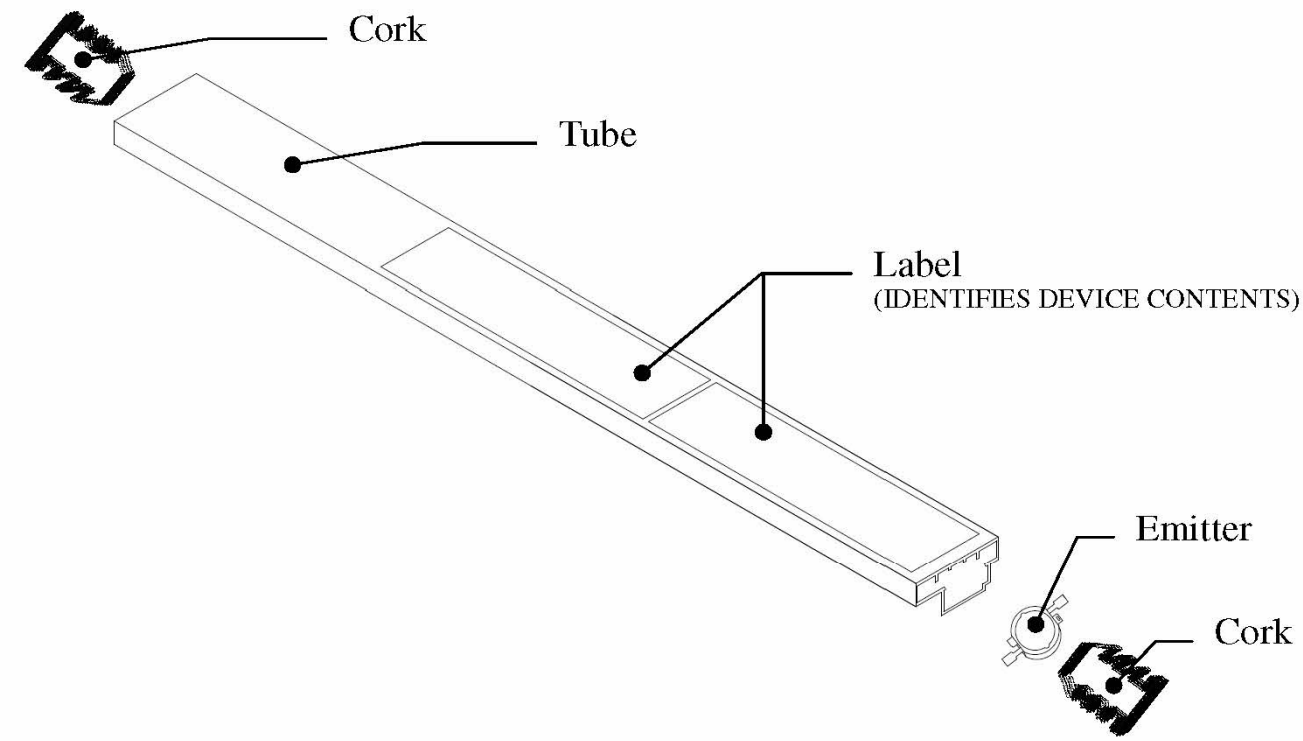
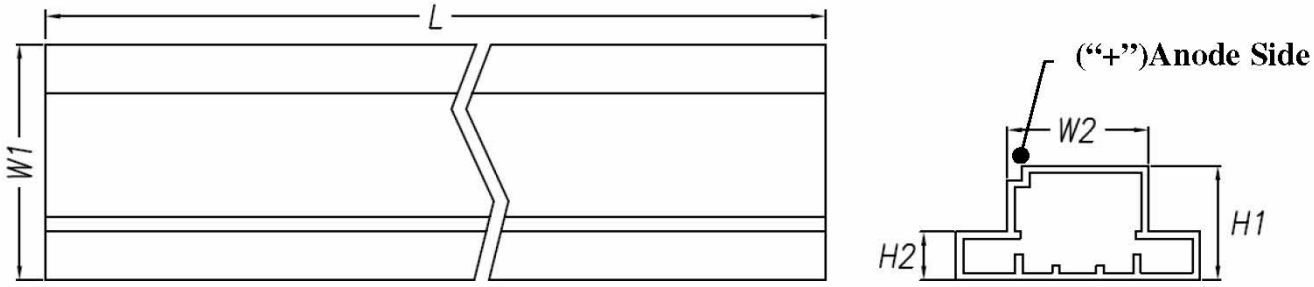
Tube Package Specifications





Unit：mm

W1	W2	H1	H2	L
16.5	9.6	8	3.4	424

Notes

1. There are 50pcs emitters in a tube.

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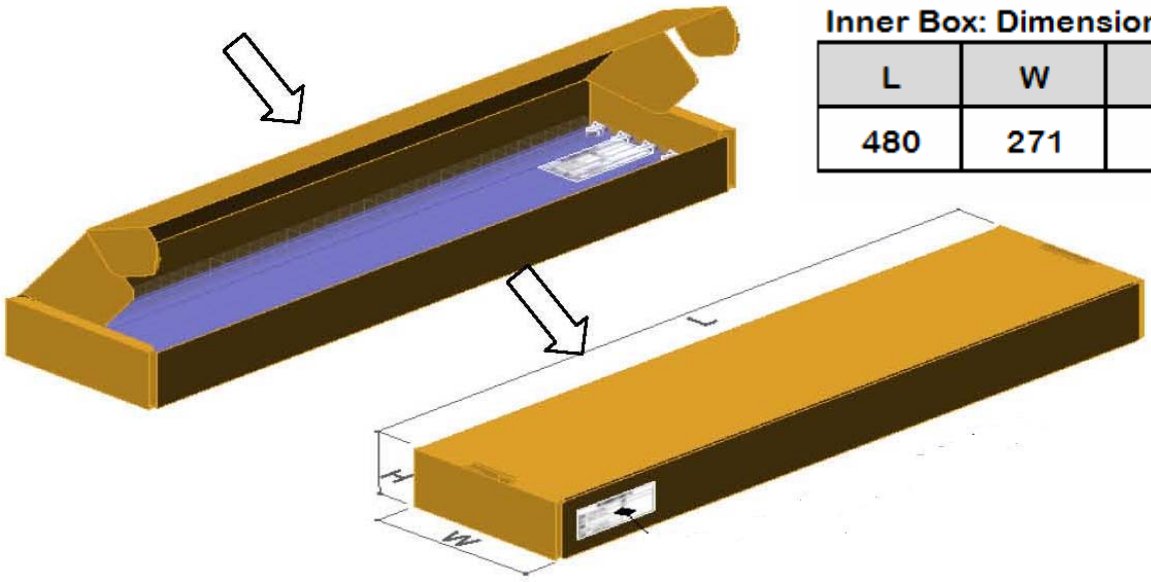
Package



Inner Box: Dimension(mm)

L	W	H
480	271	172

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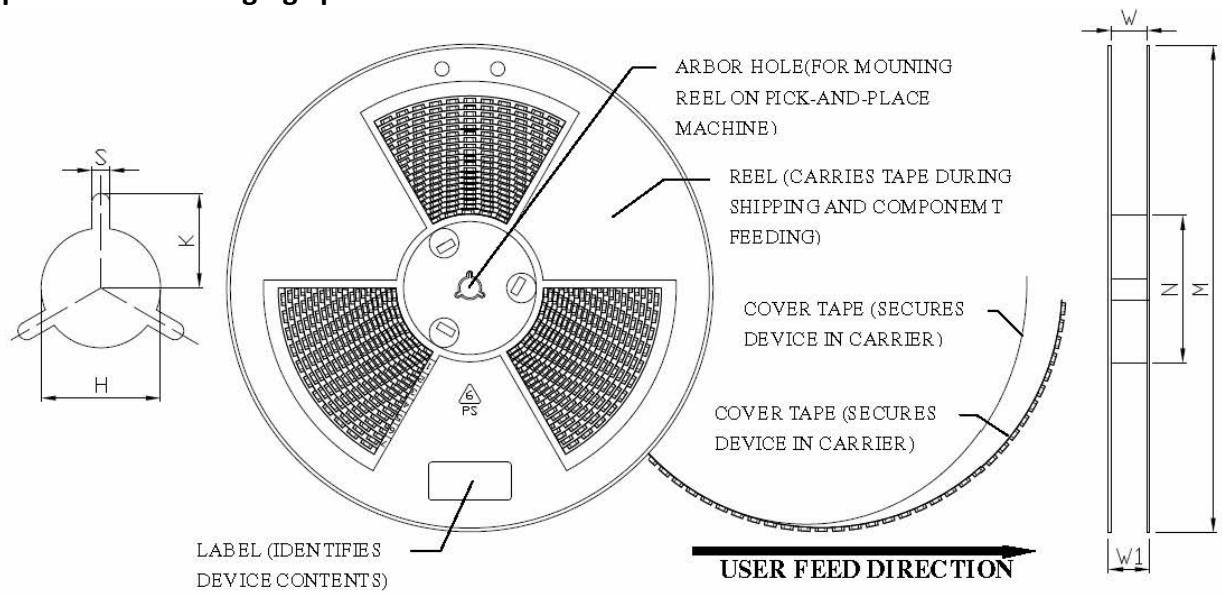
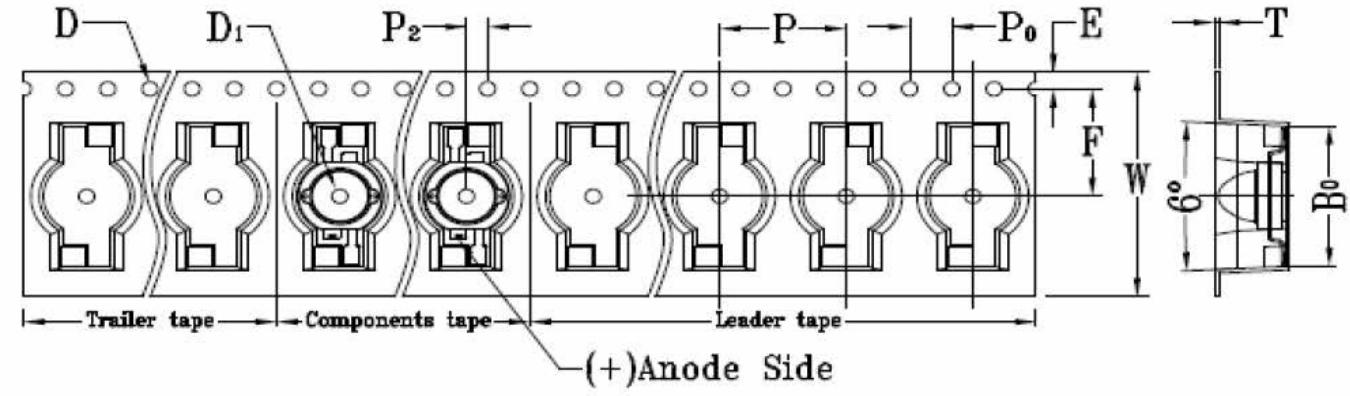
Tape and Reel Packaging Specifications



Unit：mm

M	N	W	W1	H	K	S
Φ330.0	Φ99.5	24.4	29	Φ13.5	10.75	2.5
±1.0	±1.0	±1.0	±1.0	±0.5	±0.5	±0.5

Carrier tape dimensions



Unit：mm

W	P	E	F	P_2	D	D_1	P_0	A_0	B_0	K_0	T
24.0	12.0	1.75	11.5	2.0	1.5	1.5	4.0	8.2	15.0	6.7	0.4
±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.25	±0.1	±0.1	±0.1	±0.1	±0.05

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Notice

1. Unavailable directly touch the colloid surface and squeeze
2. Use tweezers to pick up the external sides of the housing part carefully. Do not grab, puncture or push the emitting region. Over stress on the lens may cause the gamage of component and raise the risk to break the wire inside the package.
3. In order to avoid absorption of moisture, it is recommended that the products are stored in the dry box (or desiccators) with a desiccants. Alternatively the following environment is recommended: Storage temperature : 5°C~30°C Humidity:60% HR max.
4. If the storage conditions are of high humidity the product should be dried before use. Recommended drying conditions: 12 hours at 60°C±5°C
5. Any mechanical force or any excess vibration should be avoid during the cooling process after soldering.
6. Reflow rapidly cooling should be avoided.
7. Components should not be mounted on distorted Printed Circuit Boards.
8. Devices should not contact with any types of fluid, such as water , oil , organic solvents…. etc.
9. The maximum ambient temperature should be taken into consideration when determining the operating current.