

High Power LED

5W Ediline

EdiLine Emitter

Approved By Customer	Designer	Checker	Approval

Date：2007/1/29
Version：1.1

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EdiLine



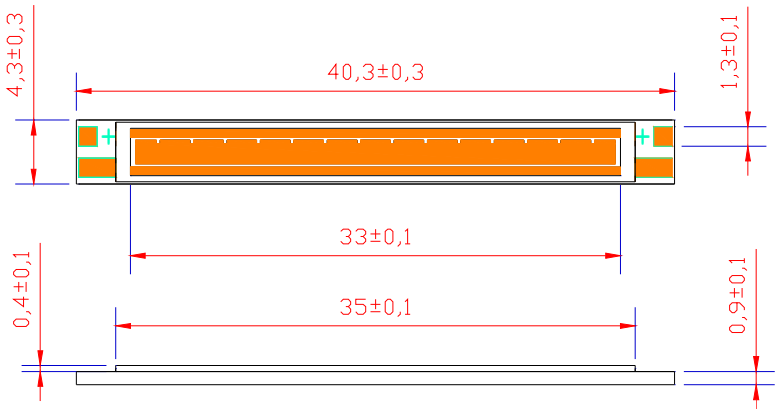
Features

- Linear type
- More energy efficient than incandescent 、 most halogen lamps, and fluorescent lamp.
- Low power consumption
- Instant light
- Long operating life

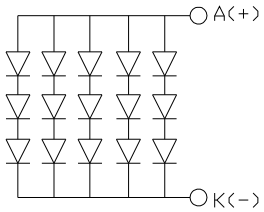
Typical Applications

- General lighting
- Contour lights
- Ceiling lights
- Decoration lights
- Architectural lighting

Package Outlines



Circuit diagram



Notes:

1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended that the temperature of lead be not higher than 55℃.

Absolute Maximum Ratings

Parameter	Symbol	Rating	Units/Color
DC Forward Current	I_F	**500mA**	W、WW、B、T
		600mA	R、A
Arc Voltage	V_{FC}	**20**	V
LED junction Temperature	T_j	**125**	℃
Operating Temperature	T_{opr}	**-30 ~ +110**	℃
Storage Temperature	T_{stg}	**-40 ~ +120**	℃
ESD Sensitivity	V_B	**500**	V
Manual Soldering Time at 260℃(Max.)	T_{sol}	**5**	*seconds*

Luminous Flux Characteristics (Tj=25℃):

Part Name	Color	Test Current	Flux			Units
			Min.	Typ.	Max.	
ELEW-5AA0-B00	White	500mA	***151.5***	***220***	**--**	*lm*
ELEX-5AA0-D00	Warm White	500mA	***89.5***	***160***	**--**	*lm*
ELER-5DA0-A00	Red	600mA	***50***	***80***	**--**	*lm*
ELEA-5DA0-A00	Amber	600mA	***50***	***130***	**--**	*lm*
ELET-5AA0-A00	True Green	500mA	***140***	***180***	**--**	*lm*
ELEB-5AA0-A00	Blue	500mA	***30***	***60***	**--**	*lm*

Forward Voltage Characteristics (Tj=25℃):

Part Name	Color	Test Current	V_F			Units
			Min.	Typ.	Max.	
ELEW-5AA0-B00	White	500mA	***9.3***	**--**	***12.0***	*V*
ELEX-5AA0-D00	Warm White	500mA	***9.3***	**--**	***12.0***	*V*
ELER-5DA0-A00	Red	600mA	***6.0***	**--**	***9.0***	*V*
ELEA-5DA0-A00	Amber	600mA	***6.0***	**--**	***9.0***	*V*
ELET-5AA0-A00	True Green	500mA	***9.3***	**--**	***12.0***	*V*
ELEB-5AA0-A00	Blue	500mA	***9.3***	**--**	***12.0***	*V*

Dominant Wavelength or Color Temperature Characteristics (Tj=25℃):

Part Name	Color	Test Current	λd/λp/CCT			Units
			Min.	Typ.	Max.	
ELEW-5AA0-B00	White	500mA	***5,200***	**--**	***7,200***	*K*
ELEX-5AA0-D00	Warm White	500mA	***2,700***	**--**	***3,500***	*K*
ELER-5DA0-A00	Red	600mA	***620***	**--**	***630***	*nm*
ELEA-5DA0-A00	Amber	600mA	***585***	**--**	***595***	*nm*
ELET-5AA0-A00	True Green	500mA	***515***	**--**	***535***	*nm*
ELEB-5AA0-A00	Blue	500mA	***460***	**--**	***475***	*nm*

Temperature Coefficient of Forward Voltage & Thermal Resistance Junction to Case Characteristics (Tj=25℃) :

Part Name	Color	Test Current	$\triangle V_F/\triangle T$		$R\theta_{J-B}$	
			Typ.	Units	Typ.	Units
ELEW-5AA0-B00	White	500mA	***-2***	*mV/℃*	***5***	*℃/W*
ELEX-5AA0-D00	Warm White	500mA	***-2***	*mV/℃*	***5***	*℃/W*
ELER-5DA0-A00	Red	600mA	***-2***	*mV/℃*	***5***	*℃/W*
ELEA-5DA0-A00	Amber	600mA	***-2***	*mV/℃*	***5***	*℃/W*
ELET-5AA0-A00	True Green	500mA	***-2***	*mV/℃*	***5***	*℃/W*
ELEB-5AA0-A00	Blue	500mA	***-2***	*mV/℃*	***5***	*℃/W*

Emission Angle Characteristics (Tj=25℃):

Part Name	Color	Test Current	2Θ½(Typ.)	2Θ½(Typ.)	Units
			X direction	Y direction	
ELEW-5AA0-B00	White	500mA	***120***	***130***	Degrees
ELEX-5AA0-D00	Warm White	500mA	***120***	***130***	Degrees
ELER-5DA0-A00	Red	600mA	***120***	***130***	Degrees
ELEA-5DA0-A00	Amber	600mA	***120***	***130***	Degrees
ELET-5AA0-A00	True Green	500mA	***120***	***130***	Degrees
ELEB-5AA0-A00	Blue	500mA	***120***	***130***	Degrees

Note

1. **Flux is measured with an accuracy of ± 10%.**
2. **CCT selection acc. to CCT groups and an accuracy of ± 300K**
3. **Forward Voltage is measured with an accuracy of ± 0.1V**
4. **Wavelength is measured with an accuracy of ± 0.5nm**
5. **White、warm white 、True green and blue emitters are built with InGaN**
6. **Red and amber emitters are built with AlGaInP**

Operating life, mechanical, and environmental tests performed on EdiLine package:

Stress Test	Stress Conditions	Stress Duration	Failure Criteria
Room Temperature Operating Life	25℃, I_F = max DC (Note 1)	1000 hours	Note 2
High Temperature High Humidity	85℃ / 85%RH	1000 hours	Note 2
Thermal Shock	-40 / 120℃, 20 min dwell /＜20 sec transfer	200 cycles	No catastrophics
Mechanical Test	3kg push		No catastrophics

Note

1. **Depending on the maximum derating curve.**
2. **Failure Criteria:**

Electrical failures

V_F shift >=10%

I_R<50uA @Vr=5V

Light Output Degradation

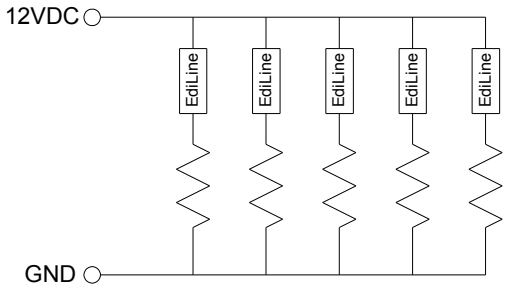
% Iv shift >= 30% @1,000hrs or 200cycle

Visual failures

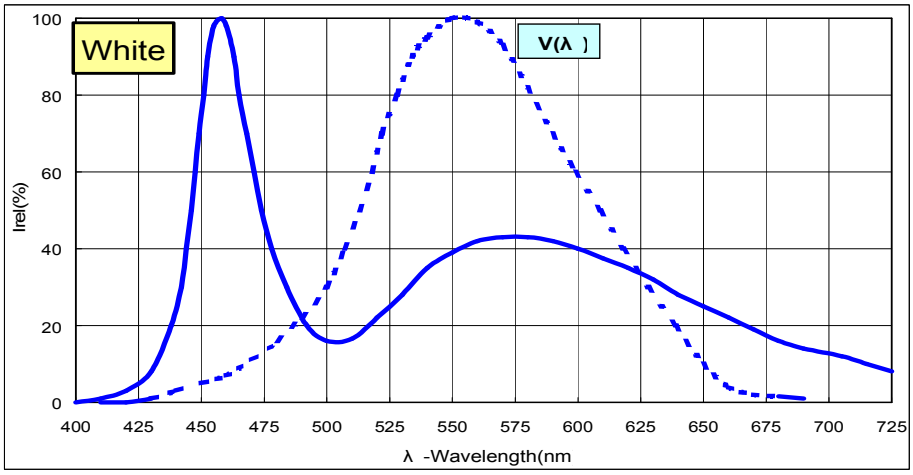
Broken or damaged package or ALPCB

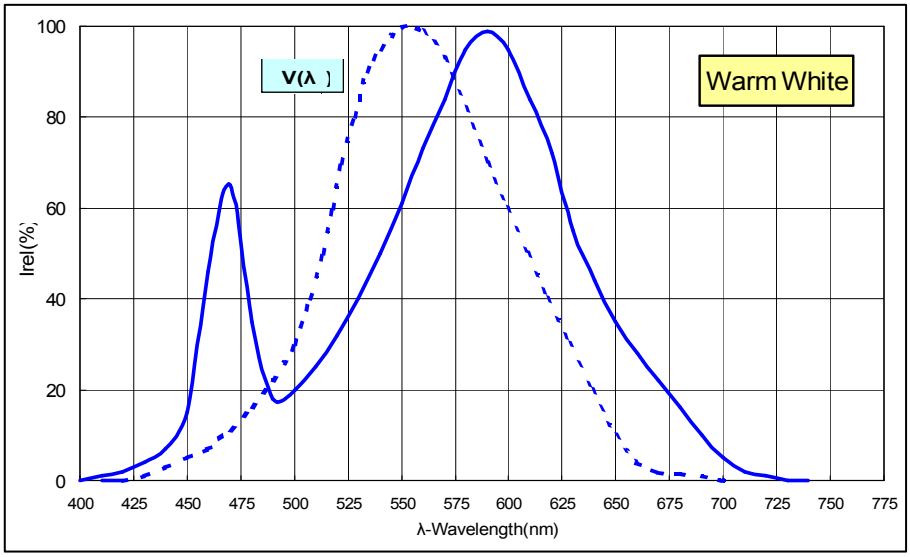
Dimension out of tolerance

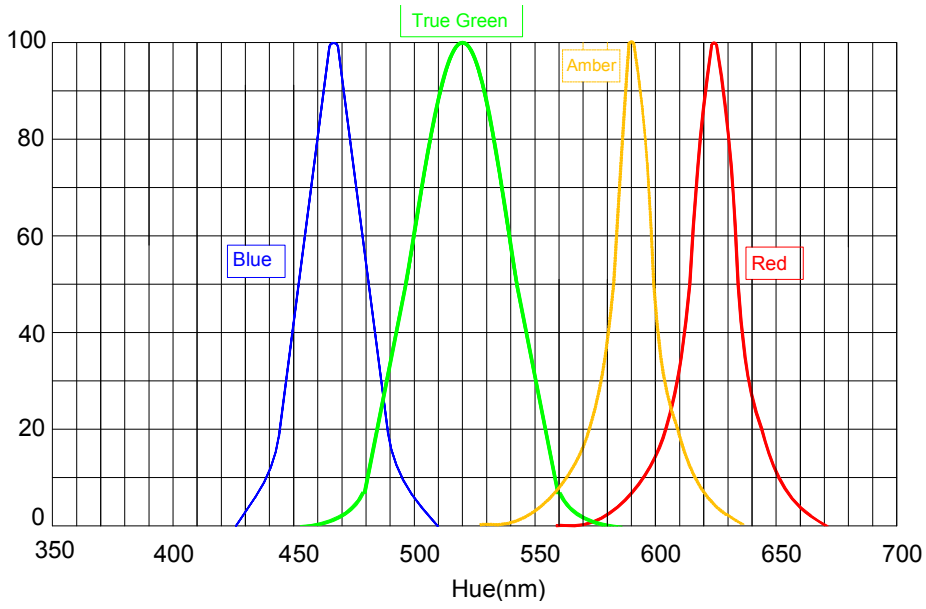
Burn-in Condition EdiLine Reliability



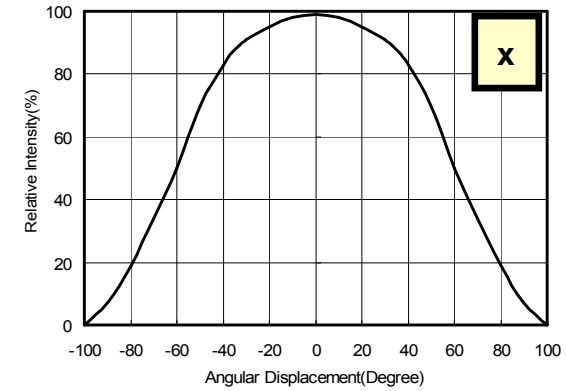
Optical Curves-Spectrum

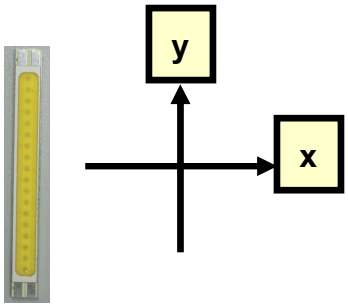


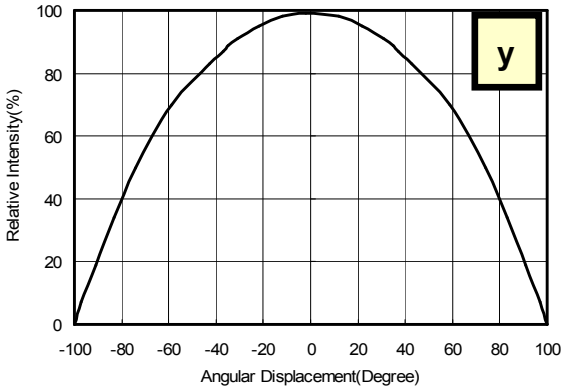




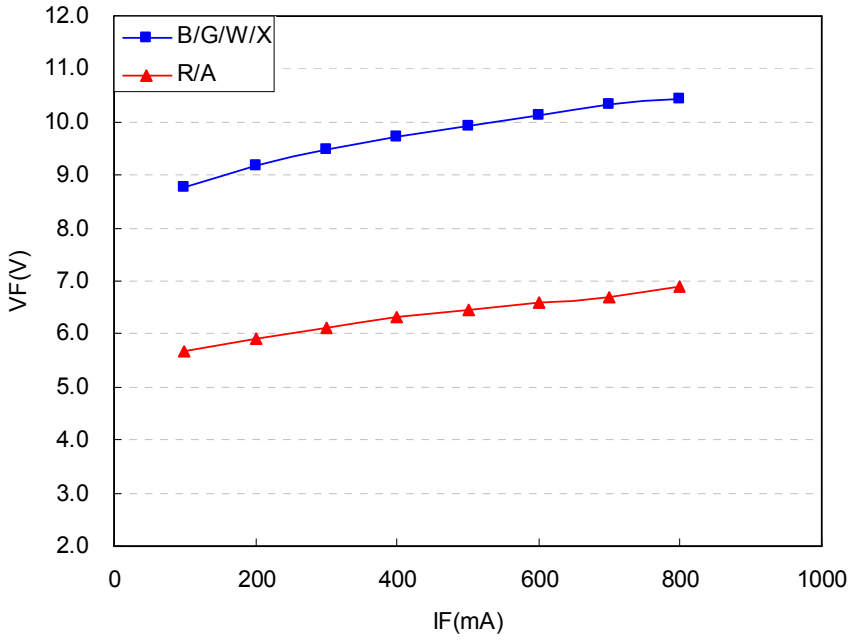
Typical Radiation Pattern





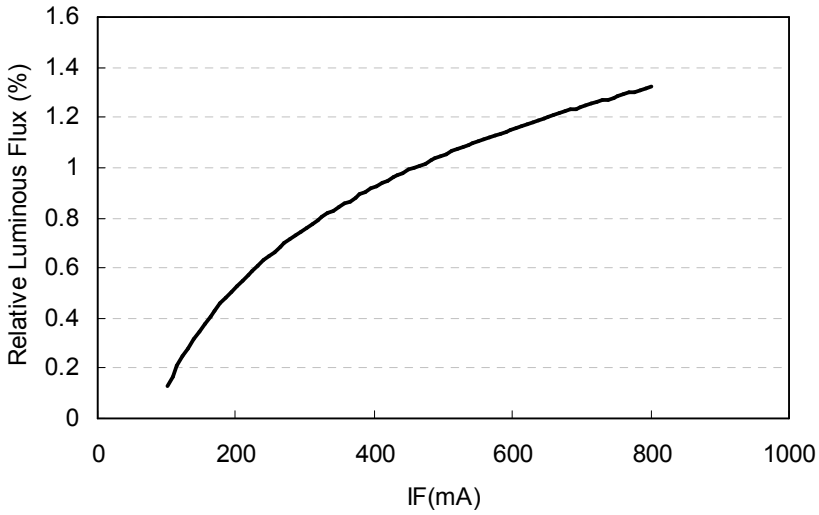


Typical Optical and Electrical Curves

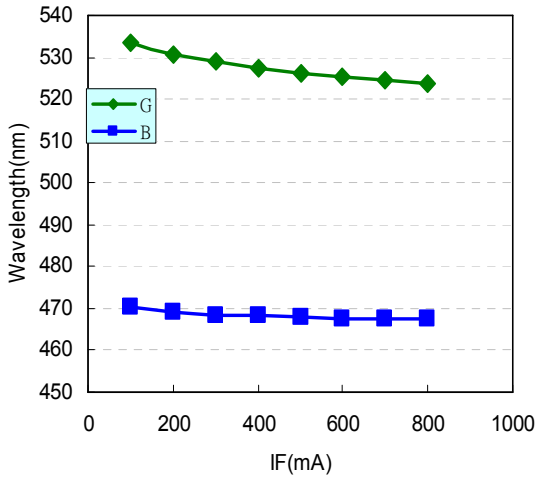


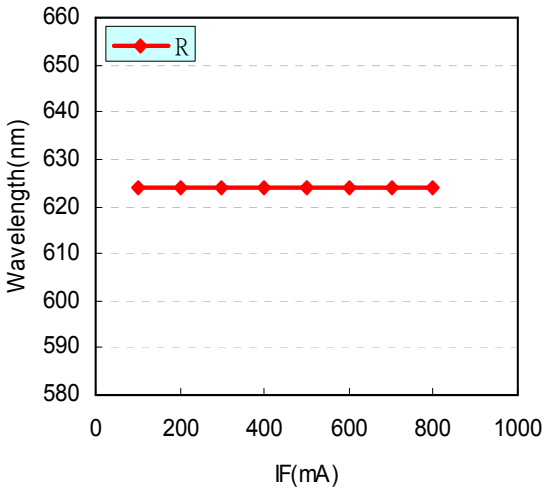
Operating Current & Forward Voltage

Typical Optical and Electrical Curves

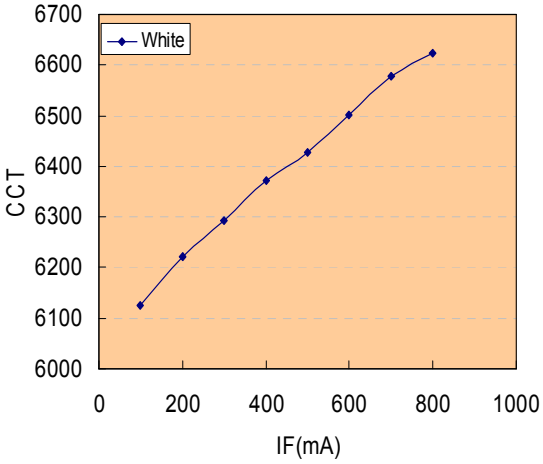


Forward Current & Luminous Flux

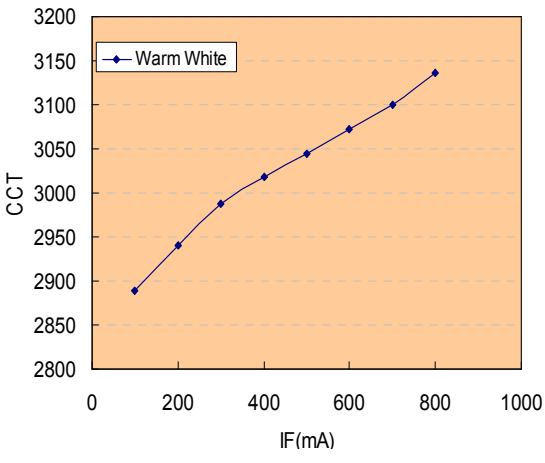




Forward Current & Wavelength



Forward Current & CCT

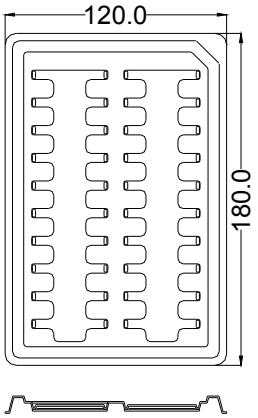


Forward Current &CCT

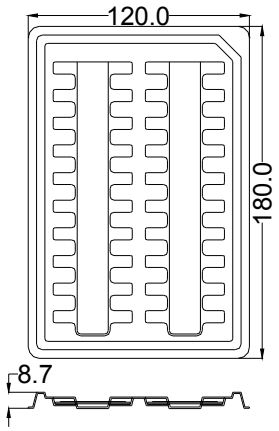
Package Specifications







Top Cover

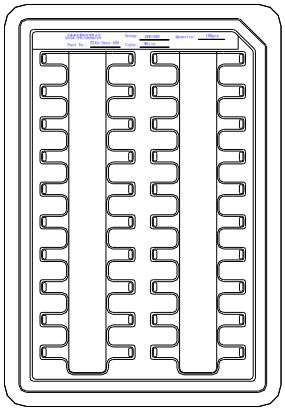
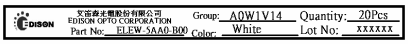
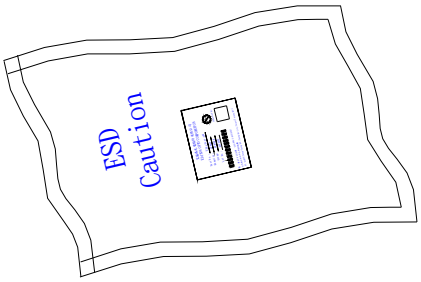
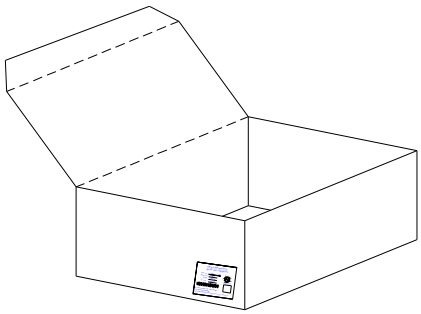
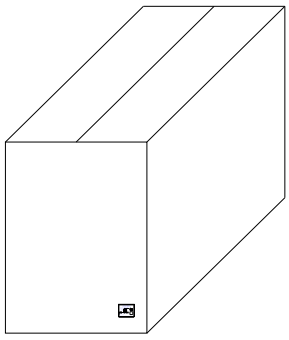


Bottom Cover

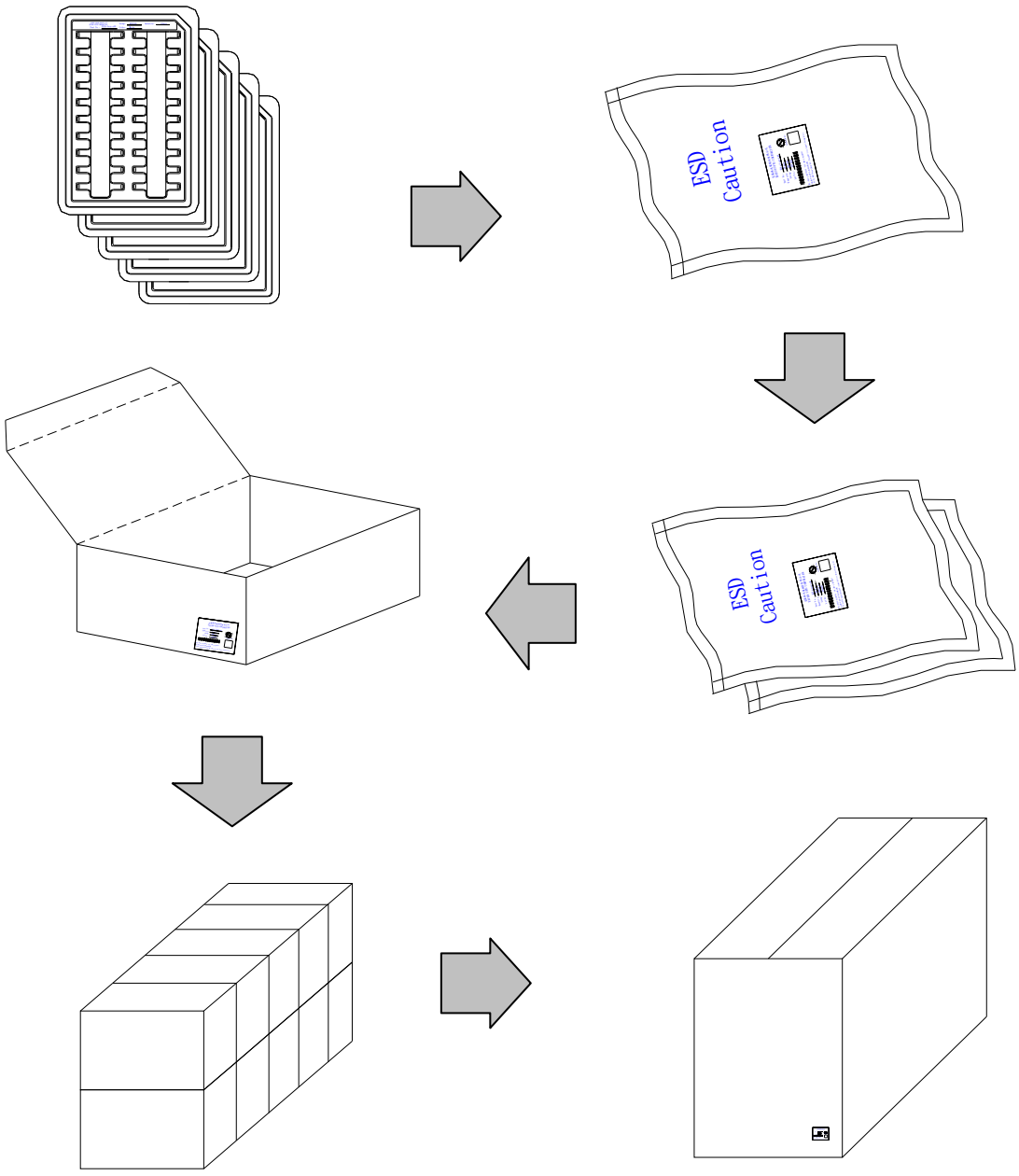
Notes

1. **Inner antistatic bag standard.**
2. **There are 20pcs emitters per tray.**
3. **5 trays per bag.**
4. **2 bags per box.**
5. **Package storage condition will be limited in temperature 20~30℃ RH 40~50%**

Label explanation

Level	Sign	Label
Tray Label		
ESD Shielding Bag Label		
Inner Box Label		
Outer Box Label		

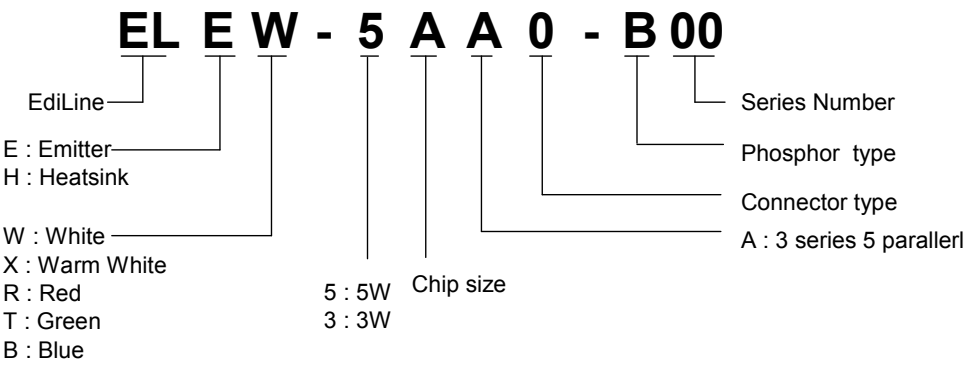
Package Step



Packaging Information

Item	Quantity	Total	Dimensions(L* W * H)
Tray	20 pcs/tray	20 pcs	120*180*9.3mm
ESD Shielding Bag	5 tray/bag	100 pcs	200*330*0.1mm
Inner Box	2 bag/box	200 pcs	240*170*95mm
Outer Box	10 inner box/outer box	2000 pcs	488*260*36.4mm

Coding Guideline

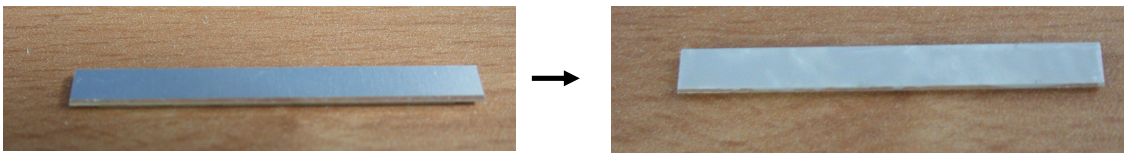


Thermal glue Application

Company: General Electric (http://www.gesilicones.com)

Product Name: GE-3282 (K=2 W/mK)

Step1: Spread glue on the rear surface of emitter



Rear surface Thermal glue on rear surface

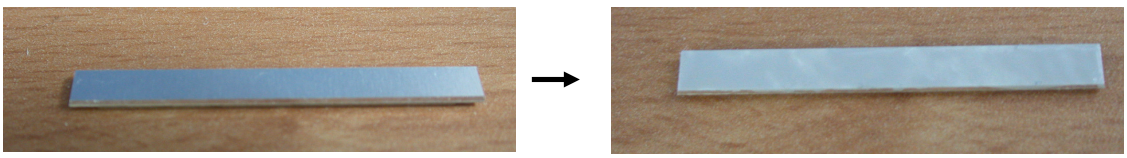
Step2: Fix emitter on heat sink or Aluminum PCB.

Step3: Put emitter and heat sink or Aluminum PCB in oven 150℃ 20 minutes

Company: SHINETSU (http://www.shinetsu.co.jp)

Product Name: KJR-9086-1 (K=2.3 W/mK)

Step1: Spread glue on the rear surface of emitter



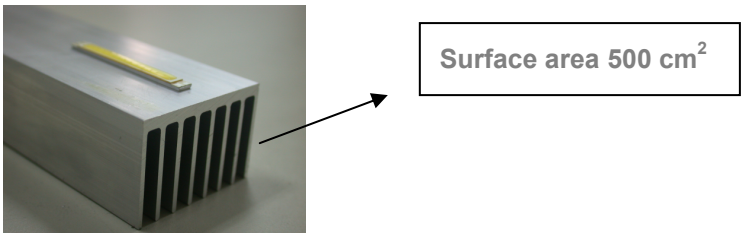
Rear surface Thermal glue on rear surface

Step2: Fix emitter on heat sink or Aluminum PCB.

Step3: Put emitter and heat sink or Aluminum PCB in oven 150℃ 20 minutes

The thickness of thermal glue between LED and heat sink should be less than 200 μm

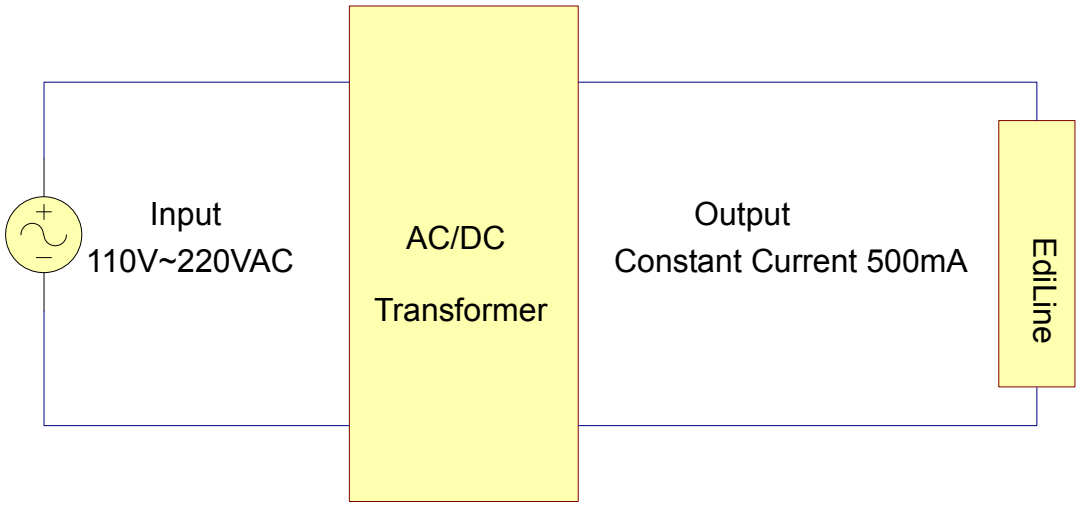
Recommend thermal Surface area of heat sink



Emitter	1pcs	5pcs	10pcs
Surface area	500cm²	2500cm²	5000cm²

It is strongly recommended that the temperature of pad be not higher than 55℃.

Recommend Simple Test Method



Driver

Input Constant Current ＝ 500mA for White、Warm white、True green and Blue
600mA for Red and Amber

Input Voltage (min) ＝ 12V

Recommend LED Driver supplier

Company: High Perfection Tech (http://www.highperfection.com.tw)

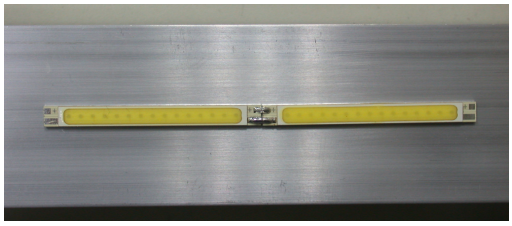
Part No. : LA1012-12-C0500 (Constant Current 500mA)

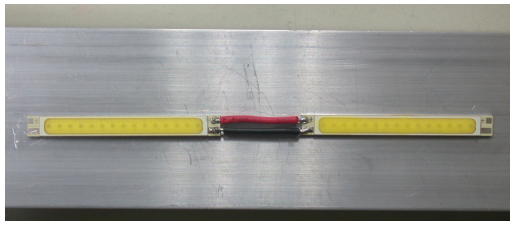
Company: Hightech Electronic Products(HEP) (http://www.hep-tech.com.tw)

Manual Soldering:

It is strongly recommended that solder tip temperature is limited under 400℃

10 seconds 3 times. Damage to the silicone layer can cause emitter failure.

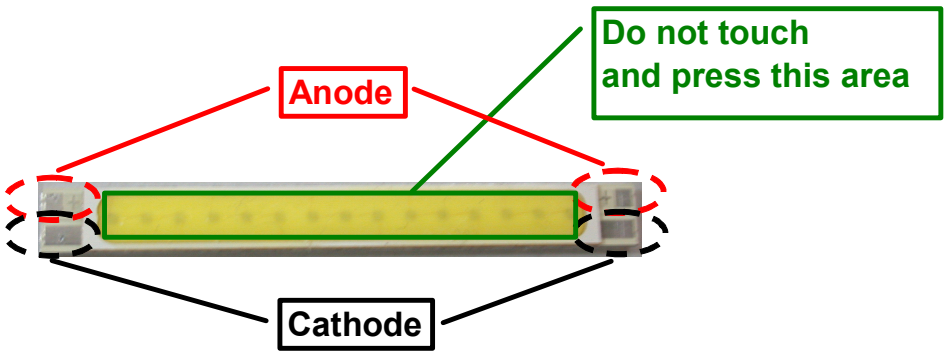




1. Capable of direct soldering connection
2. Capable of direct wiring connection

(Note: In both methods described above, electrical shortage may occur when excessive soldering flux is in contact with the side of EdiLine.)

Attentions



Assembly Steps:

1. Spread thermal glue on heat sink or the bottom of EdiLine uniformly.
2. Place EdiLine on heat sink and press it lightly.
3. The heat sink should be anodized.
4. Wire up EdiLine and connect to driver.
5. Use constant current driver.