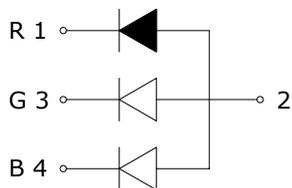
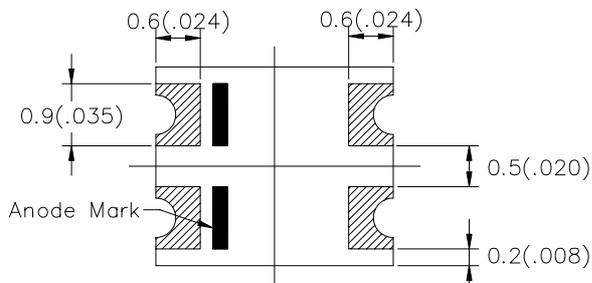
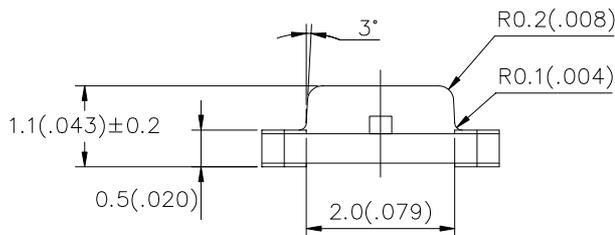
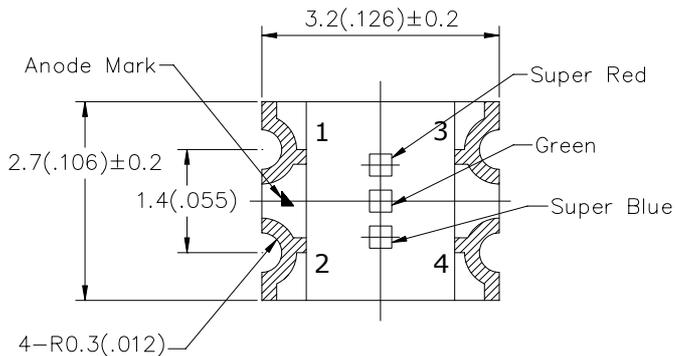


# **A-BRIGHT** A-BRIGHT INDUSTRIAL CO., LTD. SURFACE MOUNT LED LAMPS

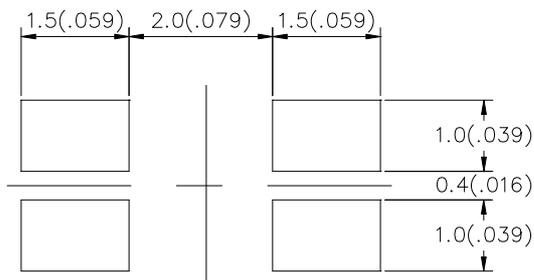
## Full Color Chip LED Lamps

Part Number: AL-HD1G6B433T

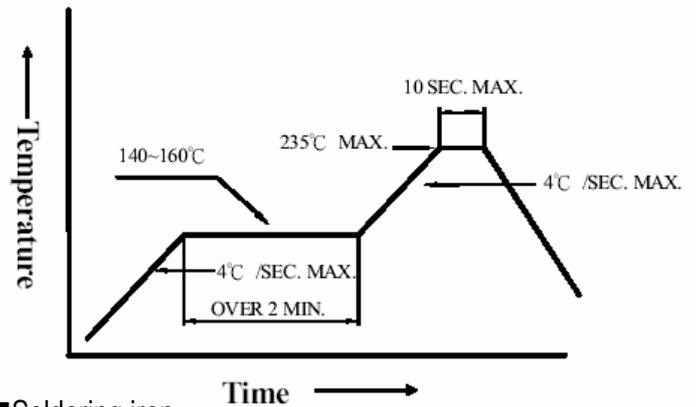
## Package outlines & Re-flow Profile



For Reflow Soldering



### Reflow Temp/Time



### Soldering iron

Basic spec is  $\leq 5\text{sec}$  when  $260^\circ\text{C}$ . If temperature is higher, time should be shorter ( $+10^\circ\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of iron should be smaller than 15W, and temperatures should be controllable. Surface temperature of the device should be under  $230^\circ\text{C}$ .

ITEM	MATERIALS
Resin (mold)	Epoxy
Lens color	Water Clear
Printed circuit board	BT
Dice	GaAlAs/GaAs
	InGaN
	InGaN
Emitted color	Super Red
	Green
	Super Blue

### NOTES:

- All dimensions are in millimeters (inches).
- Tolerances are  $\pm 0.1\text{mm}$  (0.004inch) unless otherwise noted.
- Polarity referring onto the cathode mark is reversed on the red.

**A-BRIGHT** A-BRIGHT INDUSTRIAL CO., LTD.  
**SURFACE MOUNT LED LAMPS**

Part Number: AL-HD1G6B433T

**ELECTRO-OPTICAL CHARACTERISTICS** (T<sub>A</sub>=25°C)

Parameter	Emitted Color	Test Condition	Symbol	Value			Unit
				MIN.	TYP.	MAX.	
Forward voltage	Super Red	I <sub>F</sub> =20mA	V <sub>F</sub>	—	1.8	2.6	V
	Green			—	3.4	3.8	
	Super Blue			—	3.5	4.0	
Luminous intensity	Super Red	I <sub>F</sub> =20mA	I <sub>v</sub>	12.3	25	—	mcd
	Green			94	180	—	
	Super Blue			28	50	—	
Wavelength	Super Red	I <sub>F</sub> =20mA	λ <sub>p</sub>	—	660	—	nm
	Green			—	525	—	
	Super Blue			—	470	—	
	Super Red		λ <sub>d</sub>	638	—	648	
	Green			520	—	530	
	Super Blue			465	—	475	
Spectral Line Half-Width	Super Red	I <sub>F</sub> =20mA	Δλ	—	20	—	nm
	Green			—	30	—	
	Super Blue			—	30	—	
Peak pulsing current (1/10 duty f=1kHz)	Super Red	I <sub>F</sub> =20mA	I <sub>FP</sub>	100			mA
	Green						
	Super Blue						
Power Dissipation	Super Red	I <sub>F</sub> =20mA	P <sub>D</sub>	60			mW
	Green			120			
	Super Blue			120			

**Absolute maximum ratings** (T<sub>A</sub>=25°C)

Parameter	Symbol	Value	Unit
Viewing angle at 50% I <sub>v</sub>	2θ 1/2	120	Deg
Forward current	I <sub>F</sub>	30	mA
Reverse voltage	V <sub>R</sub>	5	V
Reverse current	I <sub>R</sub>	100	μA
Operating temperature range	Top	-25 ~+80	°C
Storage temperature range	Tstg	-30 ~+85	°C

**A-BRIGHT A-BRIGHT INDUSTRIAL CO., LTD.**  
**SURFACE MOUNT LED LAMPS**

**Part Number: AL-HD1G6B433T**

**Test items and results of reliability**

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	Connect with a power If=20mA Ta=Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	Ta=+65°C±5°C RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High Ta=+85°C±5°C Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-35°C±5°C Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	-35°C ~ +25°C ~ +85°C ~ +25°C 60min 20min 60min 20min Test Time=5cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	-35°C±5°C ~+85°C±5°C 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : 140°C-160°C, within 2 minutes. Operation heating : 235°C (Max.), within 10seconds. (Max.)	0/20

\* Refer to reliability test standard specification for in this line.

# **A-BRIGHT** A-BRIGHT INDUSTRIAL CO., LTD. SURFACE MOUNT LED LAMPS

Part Number: AL-HD1G6B433T

## Typical Electro-Optical Characteristics Curves

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

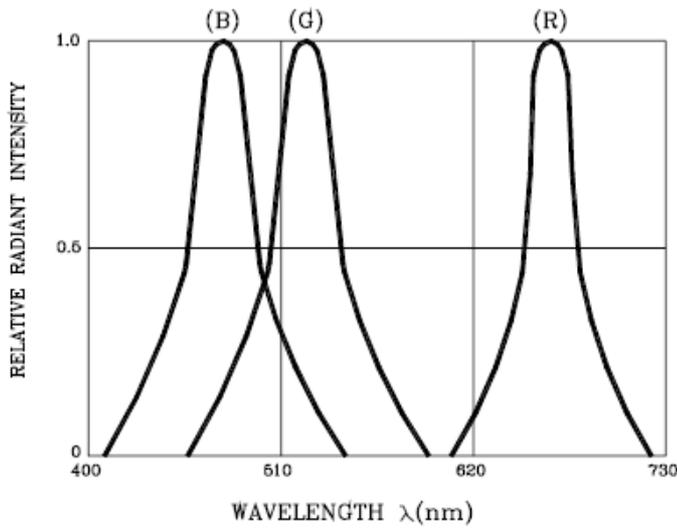


Fig.2 FORWARD CURRENT DERATING CURVE

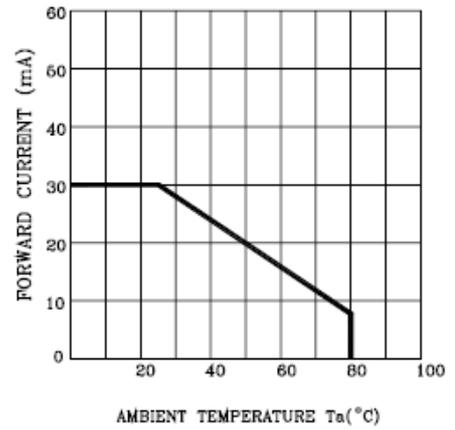


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

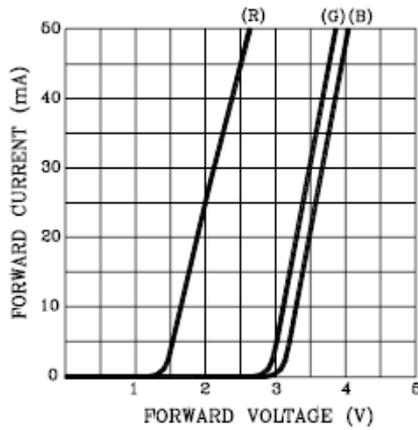


Fig.4 RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

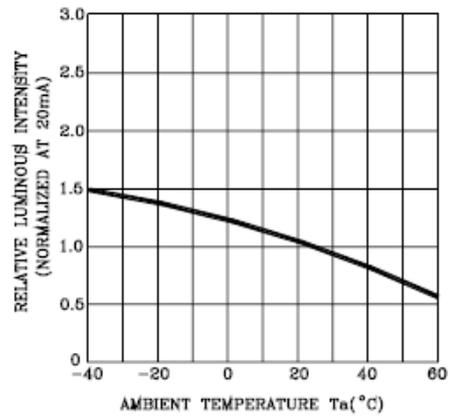


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

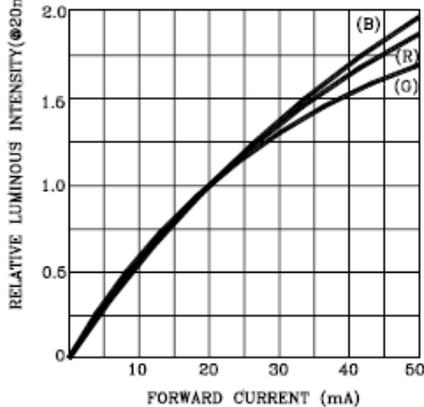
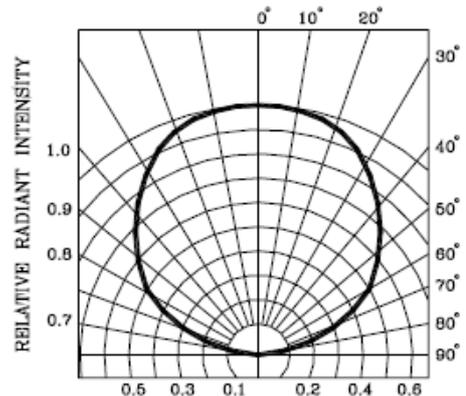


Fig.6 RADIATION DIAGRAM



# **A-BRIGHT** A-BRIGHT INDUSTRIAL CO., LTD. SURFACE MOUNT LED LAMPS

**Part Number: AL-HD1G6B433T**

## **Precautions For Use**

### 1. Over-current proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

### 2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.

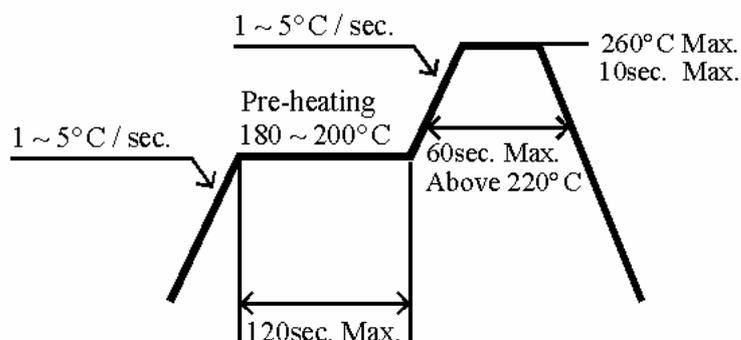
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

### 3. Soldering Condition

#### 3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280°C for 3 seconds within once in less than soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.