

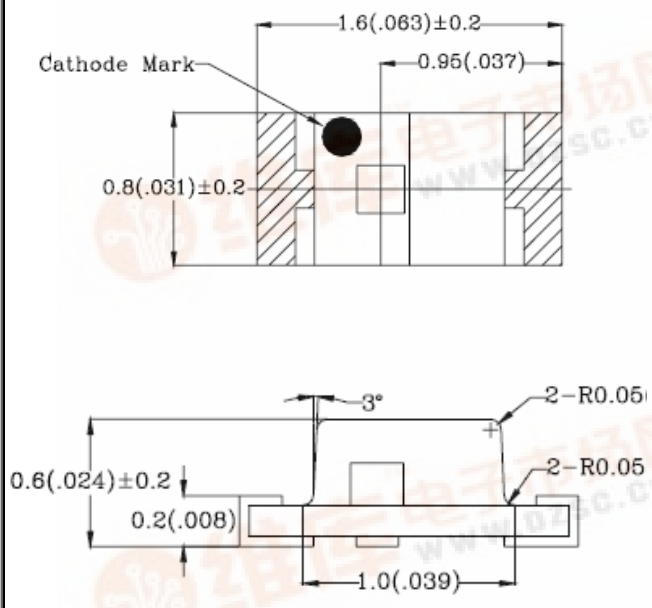
# A-BRIGHT A-BRIGHT INDUSTRIAL CO., LTD.

## SURFACE MOUNT CHIP LED LAMPS

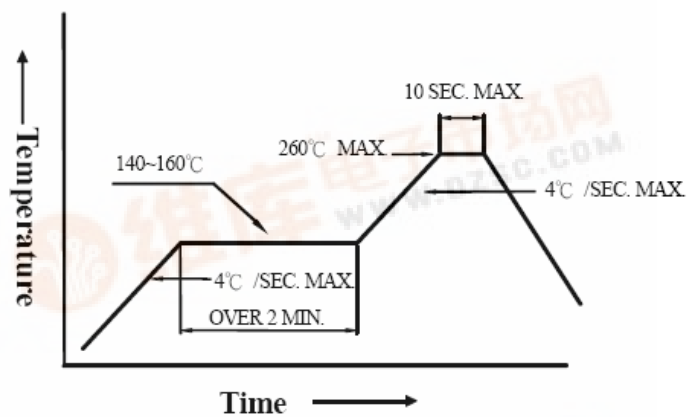
0603 Package Super Blue SMD Chip LED Lamps (0.6mm Height)

Part Number: AL-HB436A

### Package outlines & Re-flow Profile

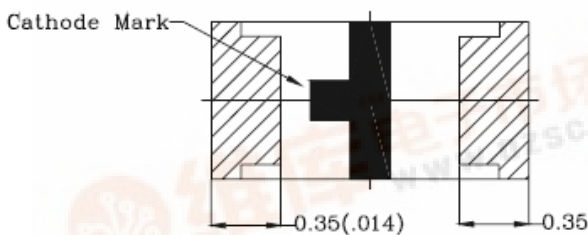


#### Reflow Temp/Time

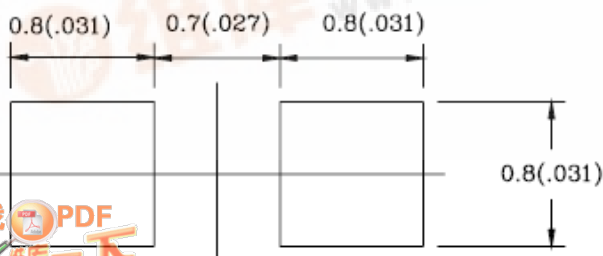


#### Soldering iron

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  $230^\circ\text{C}$ .



For Reflow Soldering



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

#### NOTES:

- All dimensions are in millimeters (inches);
- Tolerances are  $\pm 0.1\text{mm}$  ( $0.004\text{inch}$ ) unless otherwise noted.





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### ELECTRO-OPTICAL CHARACTERISTICS

( $T_A=25^{\circ}\text{C}$ )

Parameter	Test Condition	Symbol	Value	Unit
Viewing angle at 50% $I_v$	$I_F=10\text{mA}$	$2\theta_{1/2}$	120	Deg
Forward voltage (Typ.)	$I_F=20\text{mA}$	$V_F$	3.50	V
(Max.)			4.00	
Luminous intensity (Min.)	$I_F=20\text{mA}$	$I_v$	28.0	mcd
(Typ.)			40.0	
Wavelength	$I_F=20\text{mA}$	$\lambda_p$	470	nm
		$\lambda_d$	465±5	
Spectral Line Half-Width	$I_F=20\text{mA}$	$\Delta\lambda$	30	nm
Peak pulsing current (1/10 duty f=1kHz)		$I_{FP}$	100	mA

### Absolute maximum ratings

( $T_A=25^{\circ}\text{C}$ )

Parameter	Symbol	Value	Unit
Forward current	$I_F$	30	mA
Reverse voltage	$V_R$	5	V
Reverse current	$I_R$	100	$\mu\text{A}$
Power Dissipation	$P_D$	100	mW
Operating temperature range	Top	-25 ~+80	$^{\circ}\text{C}$
Storage temperature range	Tstg	-30 ~+85	$^{\circ}\text{C}$
Lead soldering temperature	260 $^{\circ}\text{C}$ For 5 Seconds		



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**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 $I_f=20\text{mA}$ $T_a$ =Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	$T_a=+65^\circ\text{C}\pm 5^\circ\text{C}$ RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High $T_a=+85^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low $T_a=-35^\circ\text{C}\pm 5^\circ\text{C}$ 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	$-35^\circ\text{C} \sim +25^\circ\text{C} \sim +85^\circ\text{C} \sim +25^\circ\text{C}$ 60min 20min 60min 20min Test Time=5cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	$-35^\circ\text{C}\pm 5^\circ\text{C} \sim +85^\circ\text{C}\pm 5^\circ\text{C}$ 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 : 260°C(Max.), within 10seconds. (Max.)	0/20

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

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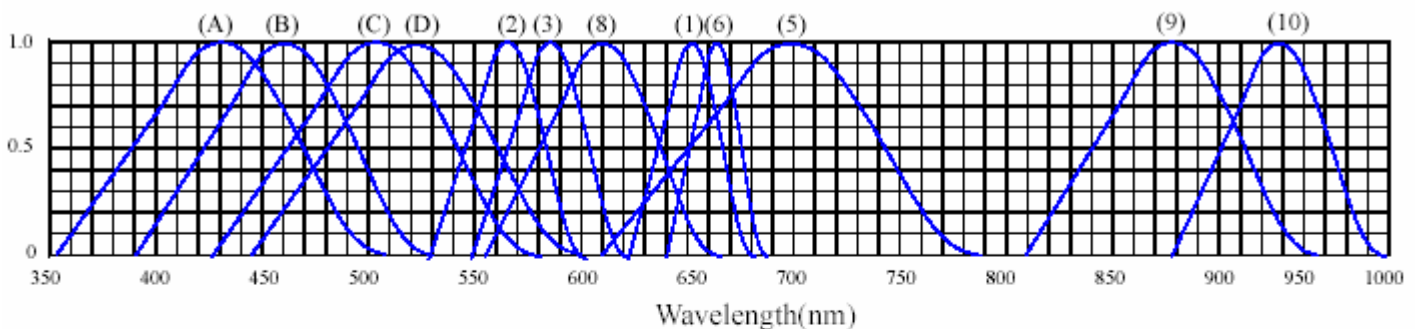
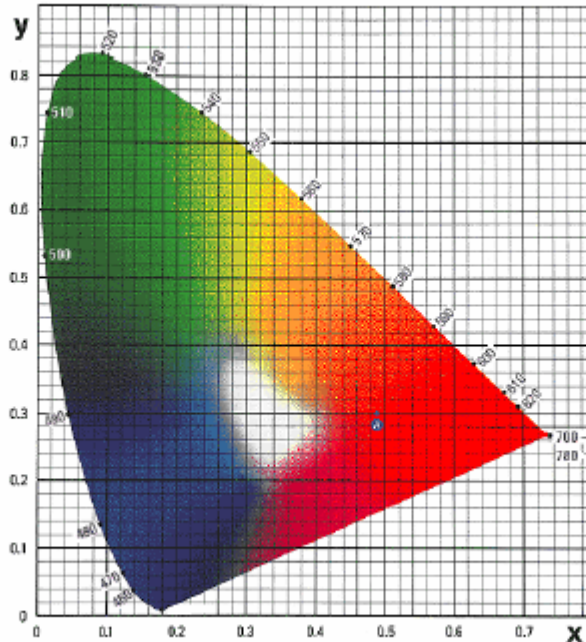
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**SURFACE MOUNT CHIP LED LAMPS**

Part Number: AL-HB436A

**Typical Optical-Electrical Characteristic Curves**

◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



RELATIVE INTENSITY VS. WAVELENGTH( $\lambda_p$ )

- (1) GaAsP/GaAs 655nm/Red
- (2) GaP 568nm/ Yellow Green
- (3) GaAsP/GaP 585nm/Yellow
- (4) GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) GaP 700nm/Bright Red
- (6) GaAlAs/GaAs 660nm/Super Red
- (8) GaAsP/GaP 610nm/Super Red

- (9)- GaAlAs 880nm
- (10)-GaAs/GaAs&GaAlAs/GaAs 940nm
- (A)- GaN 430nm/Blue
- (B)- InGaN 470nm/Blue
- (C)- InGaN 502nm/Ultra Green
- (D)- InGaN 523nm/Ultra Green



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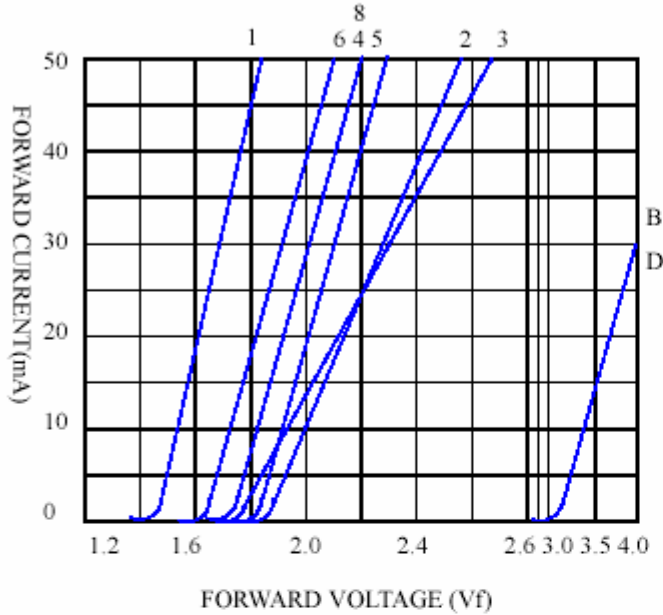
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Part Number: AL-HB436A

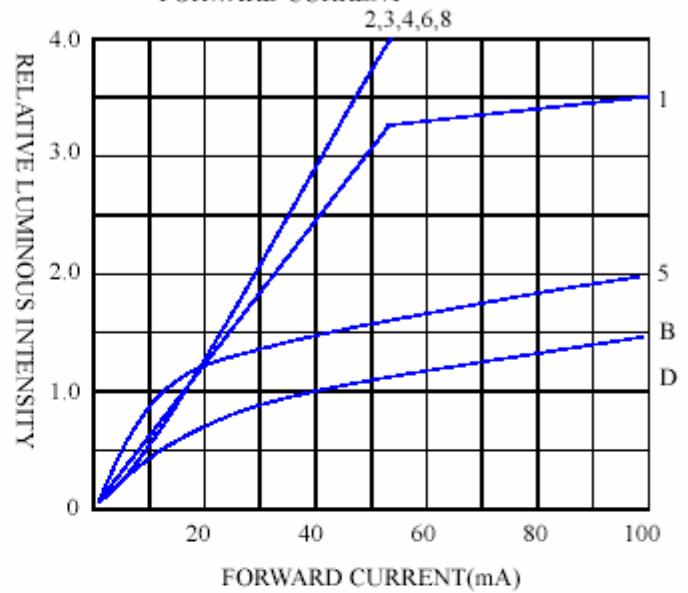
## Typical Optical-Electrical Characteristic Curves

### ◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

