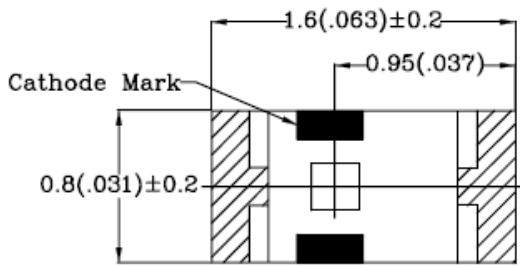


**SURFACE MOUNT CHIP LED LAMPS**

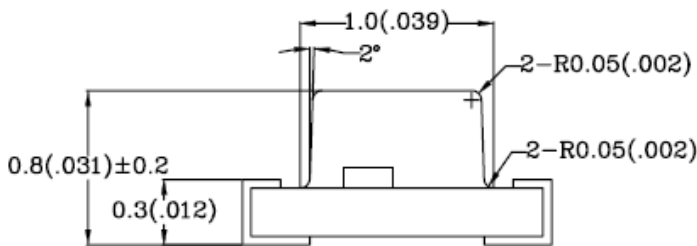
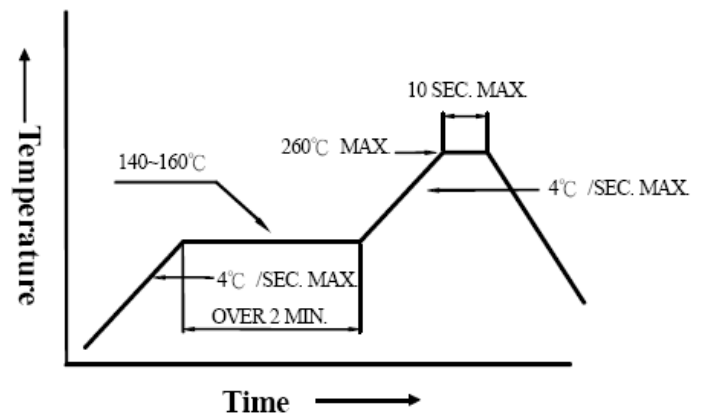
**0603 Package Super Blue SMD Chip LED Lamps (0.8mm Height)**

**Part Number: AL-HB436D**

**Package outlines & Re-flow Profile**

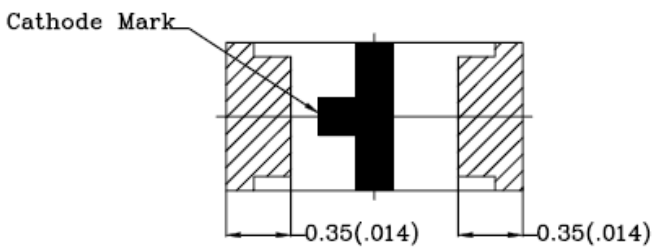


■ Reflow Temp/Time



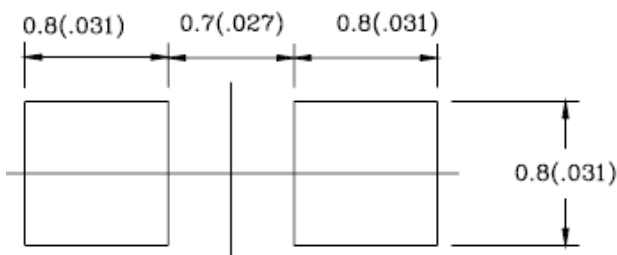
■ Soldering iron

Basic spec is  $\leq 5$ sec when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C} \rightarrow -1$ 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  $\pm 0.1$ mm (0.004inch) unless otherwise noted.

**SURFACE MOUNT CHIP LED LAMPS**

Part Number: AL-HB436D

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

Parameter	Test Condition	Symbol	Value	Unit
Viewing angle at 50% I <sub>v</sub>	I <sub>F</sub> =10mA	2 θ 1/2	120	Deg
Forward voltage (Typ.)	I <sub>F</sub> =20mA	V <sub>F</sub>	3.50	V
(Max.)			4.00	
Luminous intensity (Min.)	I <sub>F</sub> =20mA	I <sub>v</sub>	28.0	mcd
(Typ.)			45.0	
Wavelength	I <sub>F</sub> =20mA	λ <sub>p</sub>	470	nm
		λ <sub>d</sub>	465±5	
Spectral Line Half-Width	I <sub>F</sub> =20mA	△λ	30	nm
Peak pulsing current (1/10 duty f=1kHz)		I <sub>FP</sub>	100	mA

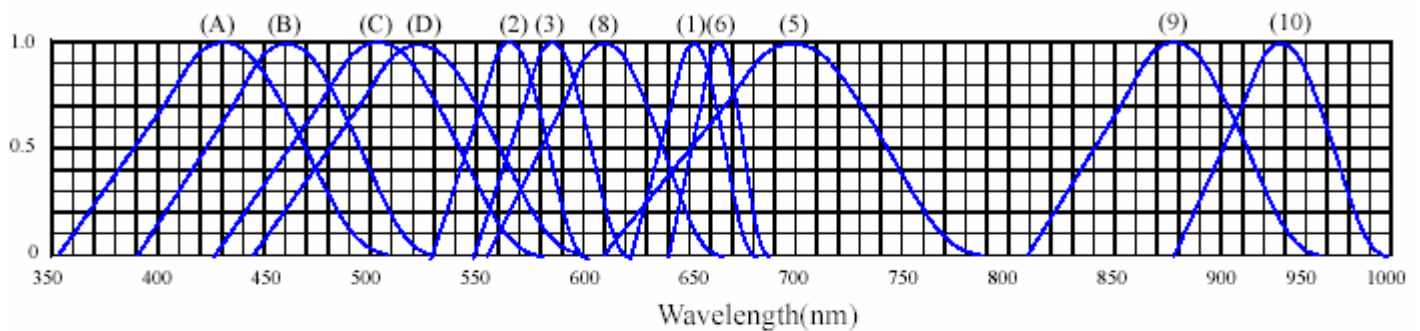
**Absolute maximum ratings****(T<sub>A</sub>=25°C)**

Parameter	Symbol	Value	Unit
Forward current	I <sub>F</sub>	30	mA
Reverse voltage	V <sub>R</sub>	5	V
Reverse current	I <sub>R</sub>	100	μA
Power Dissipation	P <sub>D</sub>	100	mW
Operating temperature range	Top	-25 ~+80	°C
Storage temperature range	Tstg	-30 ~+85	°C
Lead soldering temperature	260°C For 5 Seconds		

**SURFACE MOUNT CHIP LED LAMPS****Part Number: AL-HB436D****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.

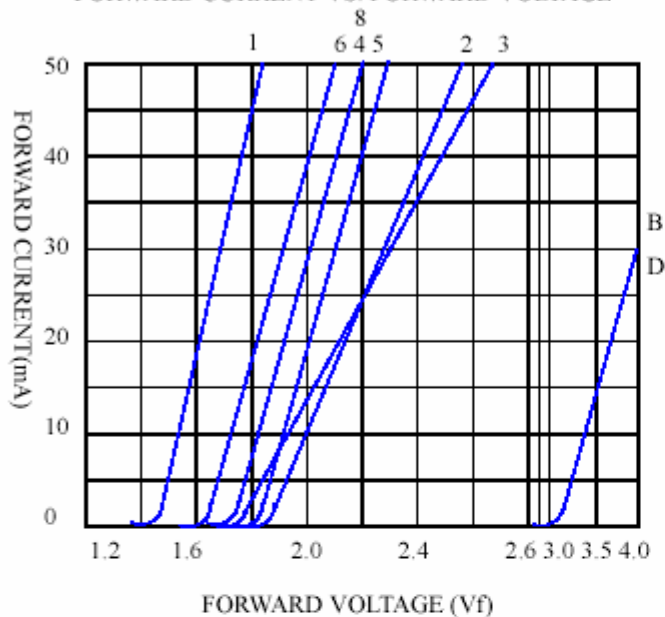
**SURFACE MOUNT CHIP LED LAMPS****Part Number: AL-HB436D****Typical Optical-Electrical Characteristic Curves**◆ **TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES**RELATIVE INTENSITY VS. WAVELENGTH( $\lambda_p$ )

- (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

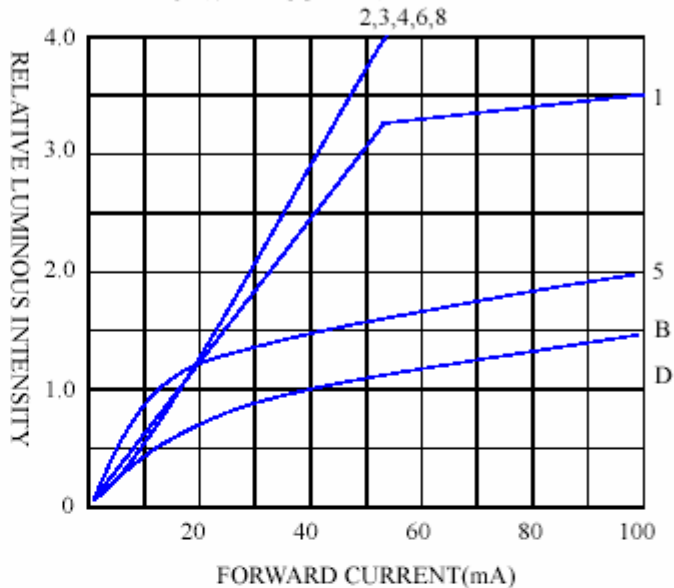
- (9)- GaAlAs 880nm
- (10)-GaAs/GaAs&GaAlAs/GaAs 940nm
- (A)- GaN 430nm/Blue
- (B)- InGaN 470nm/Blue
- (C)- InGaN 502nm/Ultra Green
- (D)- InGaN 523nm/Ultra Green

**SURFACE MOUNT CHIP LED LAMPS****Part Number: AL-HB436D****Typical Optical-Electrical Characteristic Curves**◆ **CHARACTERISTICS DIAGRAMS**

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

