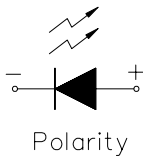
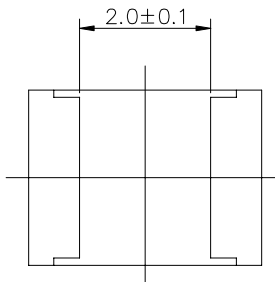
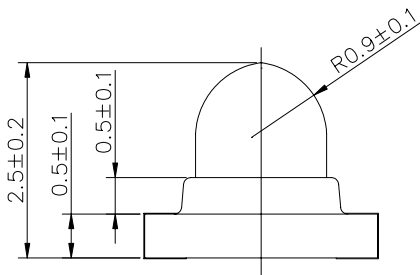
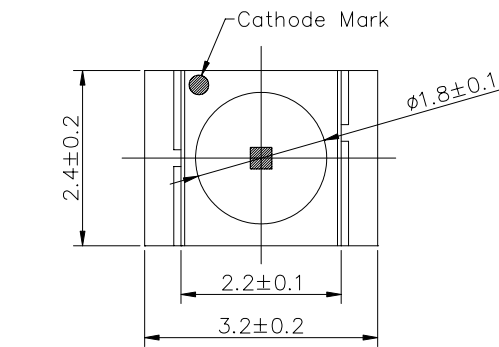


SURFACE MOUNT CHIP LED LAMPS

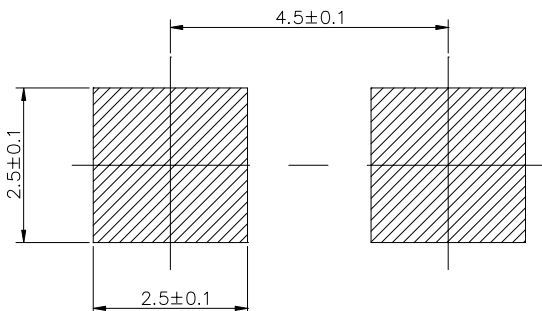
1.8mm Round Subminiature SMD Chip LED Lamps

Part Number: 42-21A/BHC-ZTW/1T

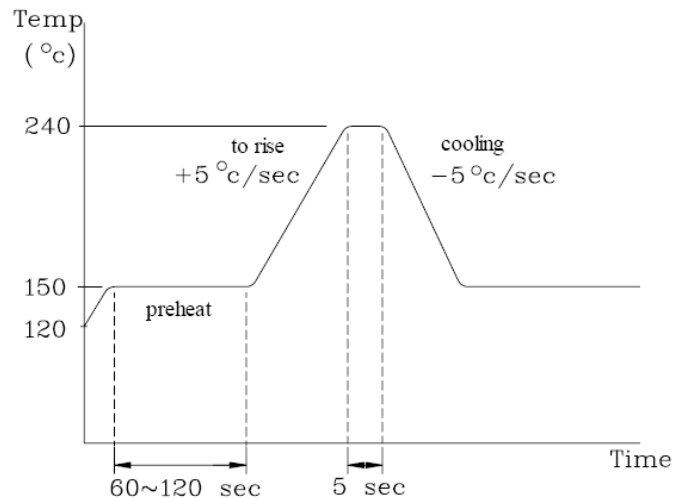
Package outlines & Re-flow Profile



For reflow soldering



Reflow Temp/Time



Soldering iron

Basic spec is ≤ 5 sec when 260°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°C .

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

NOTES:

- All dimensions are in millimeters (inches);
- Tolerances are ± 0.1 mm (0.004inch) unless otherwise noted.

SURFACE MOUNT CHIP LED LAMPS

Part Number: 42-21A/BHC-ZTW/1T

ELECTRO-OPTICAL CHARACTERISTICS**(T_A=25°C)**

Parameter	Test Condition	Symbol	Value	Unit
Viewing angle at 50% I _v	I _F =10mA	2 θ 1/2	30	Deg
Forward voltage	(Typ.) I _F =20mA	V _F	3.3	V
	(Max.)		3.7	
Luminous intensity	(Min.) I _F =20mA	I _v	285	mcd
	(Max.)		1800	
Wavelength	I _F =20mA	λ p λ d	468 465~475	nm
Spectral Line Half-Width	I _F =20mA	△λ	35	nm
Peak pulsing current (1/10 duty f=1kHz)		I _{FP}	100	mA

Absolute maximum ratings**(T_A=25°C)**

Parameter	Symbol	Value	Unit
Forward current	I _F	25	mA
Reverse voltage	V _R	5	V
Reverse current	I _R	50	μA
Power Dissipation	P _D	110	mW
Operating temperature range	Top	-40 ~+85	°C
Storage temperature range	Tstg	-40 ~+90	°C

SURFACE MOUNT CHIP LED LAMPS

Part Number: 42-21A/BHC-ZTW/1T

Test items and results of reliability

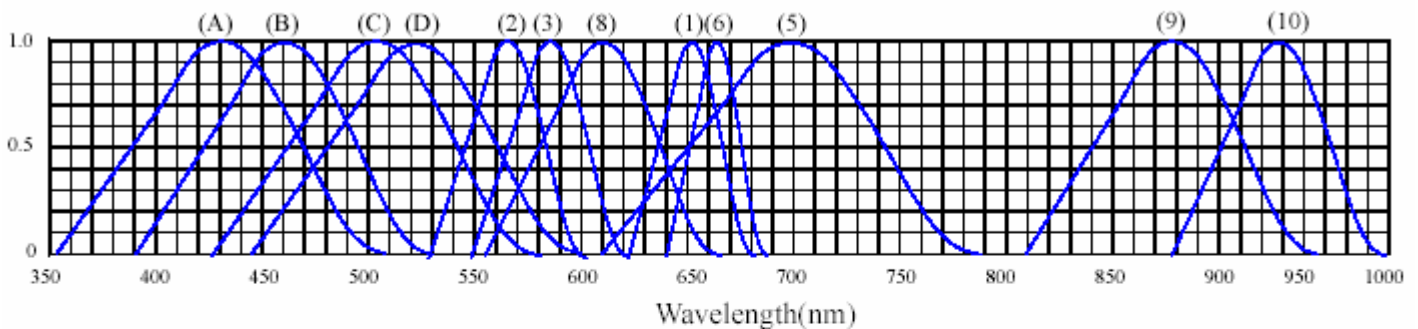
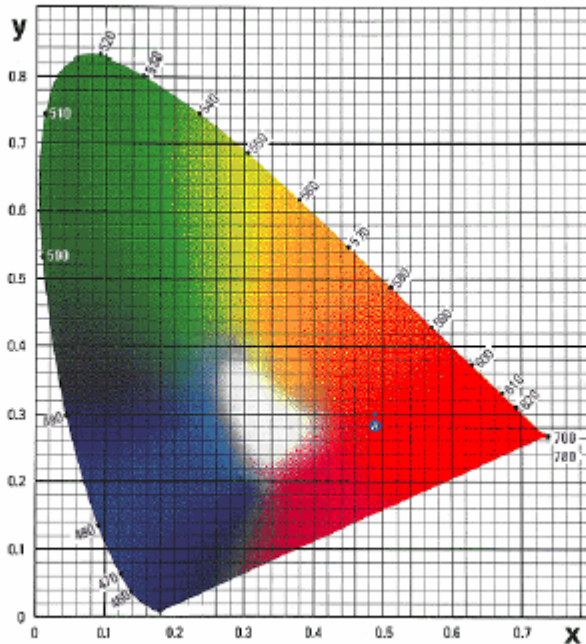
Type	Test Item	REF. Standard	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	JIS C 7021 (1977)A-4	$-20^{\circ}\text{C} \Rightarrow 25^{\circ}\text{C} \Rightarrow 80^{\circ}\text{C} \Rightarrow 25^{\circ}\text{C}$ 30mins, 5mins, 30mins, 5mins	100 cycle	0/100
	Thermal Shock	MIL-STD-107D	$-20^{\circ}\text{C} \Rightarrow 80^{\circ}\text{C}$ 15mins, 15mins	100 cycle	0/100
	High Humidity Heat Cycle	JIS C 7021 (1977)A-5	$30^{\circ}\text{C} \Rightarrow 65^{\circ}\text{C}$ 90%RH 24hrs/1cycle	10 cycle	0/100
	High Temperature Storage	JIS C 7021 (1977)B-10	$T_a=80^{\circ}\text{C}$	1000 hrs	0/100
	Humidity Heat Storage	JIS C 7021 (1977)B-11	$T_a=60^{\circ}\text{C}$ RH=90%	1000 hrs	0/100
	Low Temperature Storage	JIS C 7021 (1977)B-12	$T_a=-30^{\circ}\text{C}$	1000 hrs	0/100
Operation Sequence	Life Test	JIS C 7035 (1985)	$T_a=25^{\circ}\text{C}$ $I_f=20\text{mA}$	1000 hrs	0/100
	High Humidity Heat Life Test	*	60°C RH=90% $I_f=20\text{mA}$	500 hrs	0/100
	Low Temperature Life Test	*	$T_a=-20^{\circ}\text{C}$ $I_f=20\text{mA}$	1000 hrs	0/100

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

Part Number: 42-21A/BHC-ZTW/1T

Typical Electro-Optical Characteristics

◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



RELATIVE INTENSITY VS. WAVELENGTH(λ_p)

- | | |
|---|----------------------------------|
| (1) GaAsP/GaAs 655nm/Red | (9)- GaAlAs 880nm |
| (2) GaP 568nm/ Yellow Green | (10)-GaAs/GaAs&GaAlAs/GaAs 940nm |
| (3) GaAsP/GaP 585nm/Yellow | (A)- GaN 430nm/Blue |
| (4) GaAsP/GaP 635nm/Orange & Hi-Eff Red | (B)- InGaN 470nm/Blue |
| (5) GaP 700nm/Bright Red | (C)- InGaN 502nm/Ultra Green |
| (6) GaAlAs/GaAs 660nm/Super Red | (D)- InGaN 523nm/Ultra Green |
| (8) GaAsP/GaP 610nm/Super Red | |

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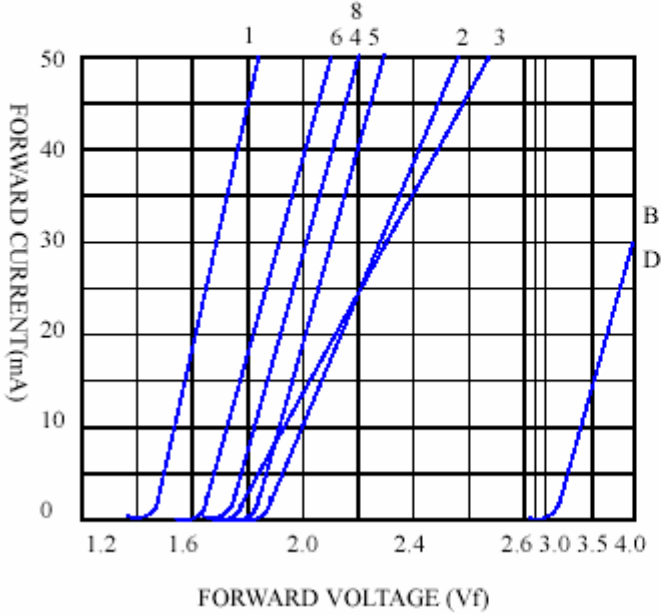
SURFACE MOUNT CHIP LED LAMPS

Part Number: 42-21A/BHC-ZTW/1T

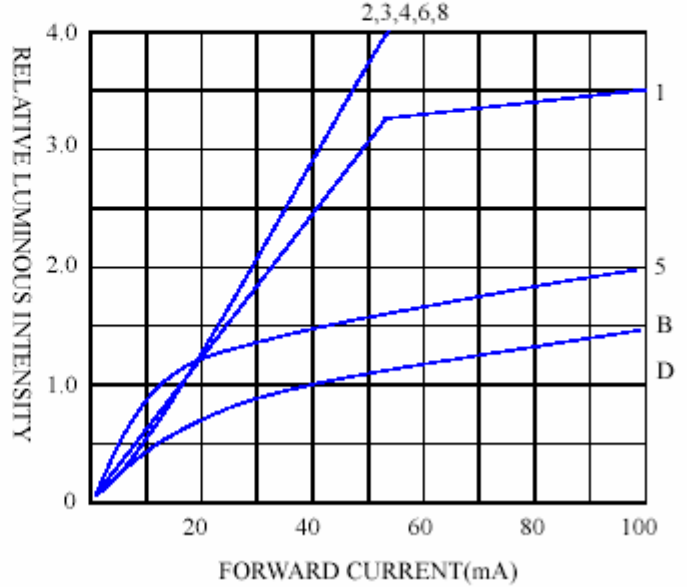
Typical Electro-Optical Characteristics

◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

