

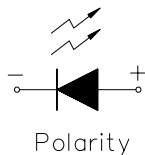
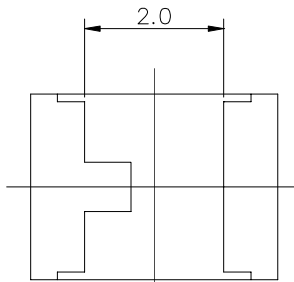
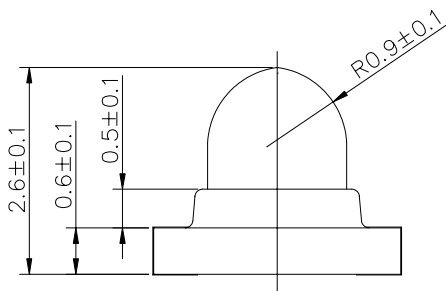
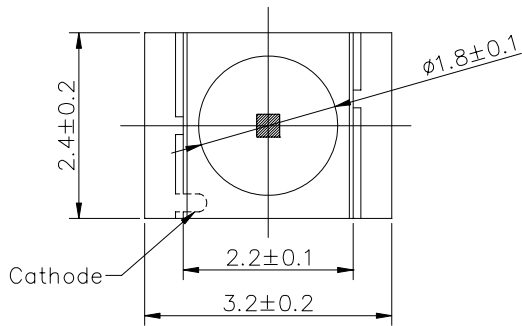
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SURFACE MOUNT CHIP LED LAMPS

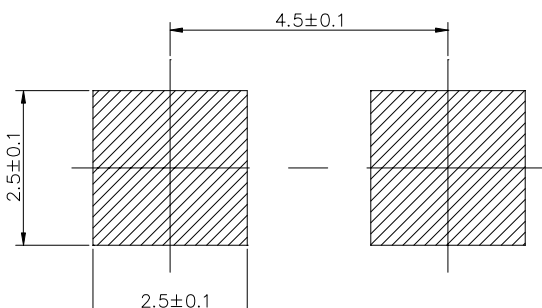
1.8mm Round Subminiature SMD Chip LED Lamps

Part Number: 42-21SURC/S530-A4

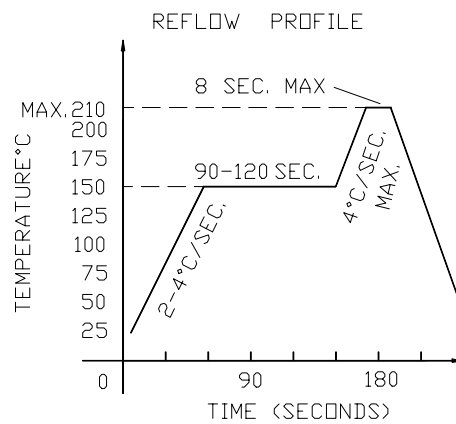
Package outlines & Re-flow Profile



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	AlGaInP
Emitted color	Brilliant Red

NOTES:

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

SURFACE MOUNT CHIP LED LAMPS

Part Number: 42-21SURC/S530-A4

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	2.0	V
(Max.)			2.4	
Luminous intensity (Min.)	I _F =20mA	I _v	316	mcd
(Typ.)			470	
Wavelength	I _F =20mA	λ p	632	nm
		λ d	624	
Spectral Line Half-Width	I _F =20mA	△λ	20	nm
Peak pulsing current (1/10 duty f=1kHz)		I _{FP}	60	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	25	μA
Power Dissipation	P _D	60	mW
Operating temperature range	Top	-40 ~+85	°C
Storage temperature range	Tstg	-40 ~+90	°C

SURFACE MOUNT CHIP LED LAMPS

Part Number: 42-21SURC/S530-A4

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°C ⇒ 25°C ⇒ 80°C ⇒ 25°C 30mins, 5mins, 30mins, 5mins	100 cycle	0/100
	Thermal Shock	MIL-STD-107D	-20°C ⇒ 80°C 15mins, 15mins	100 cycle	0/100
	High Humidity Heat Cycle	JIS C 7021 (1977)A-5	30°C ⇒ 65°C 90%RH 24hrs/1cycle	10 cycle	0/100
	High Temperature Storage	JIS C 7021 (1977)B-10	T _a =80°C	1000 hrs	0/100
	Humidity Heat Storage	JIS C 7021 (1977)B-11	T _a =60°C RH=90%	1000 hrs	0/100
	Low Temperature Storage	JIS C 7021 (1977)B-12	T _a = - 30°C	1000 hrs	0/100
Operation Sequence	Life Test	JIS C 7035 (1985)	T _a =25°C I _F =20mA	1000 hrs	0/100
	High Humidity Heat Life Test	*	60°C RH=90% I _F =20mA	500 hrs	0/100
	Low Temperature Life Test	*	T _a =-20°C I _F =20mA	1000 hrs	0/100

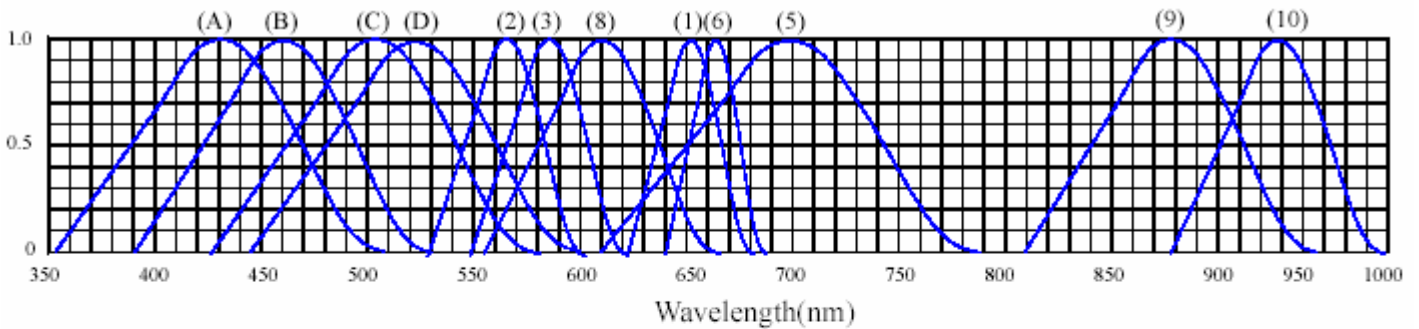
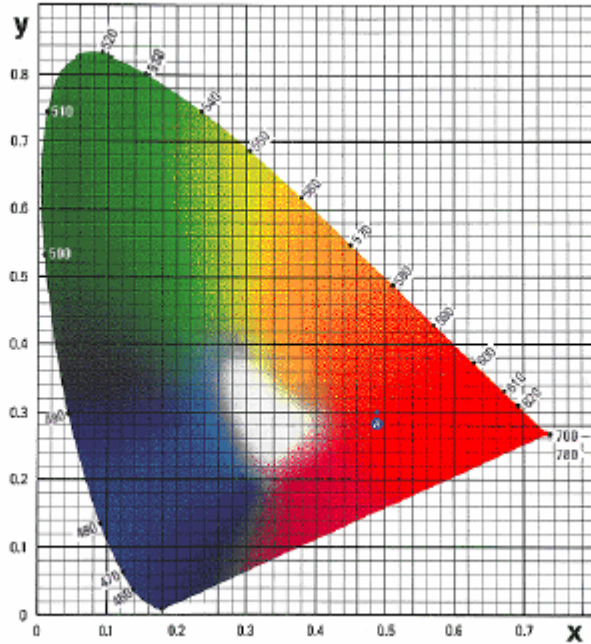
* Refer to reliability test standard specification for in this line.

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SURFACE MOUNT CHIP LED LAMPS

Part Number: 42-21SURC/S530-A4

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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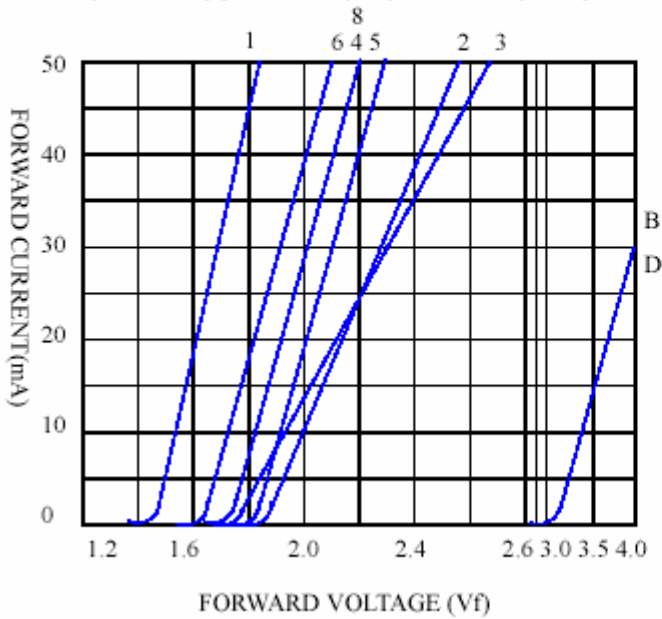
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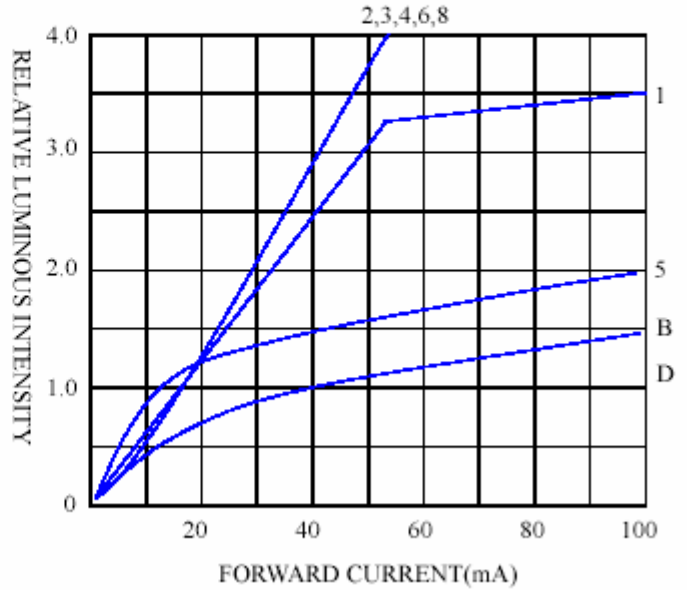
Typical Electro-Optical Characteristics

◆ **CHARACTERISTICS DIAGRAMS**

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

