

MODEL: 3528SURSUGC

Features

- P-LCC-4 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Pb free
- The product itself will remain within RoHS compliant version..

Descriptions

• The 3528 series is available in soft orange, green, blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

Applications

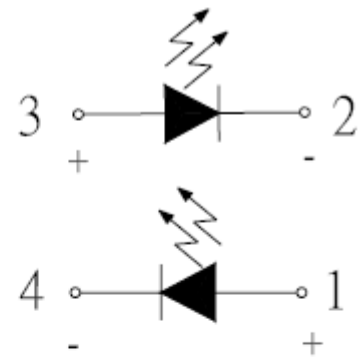
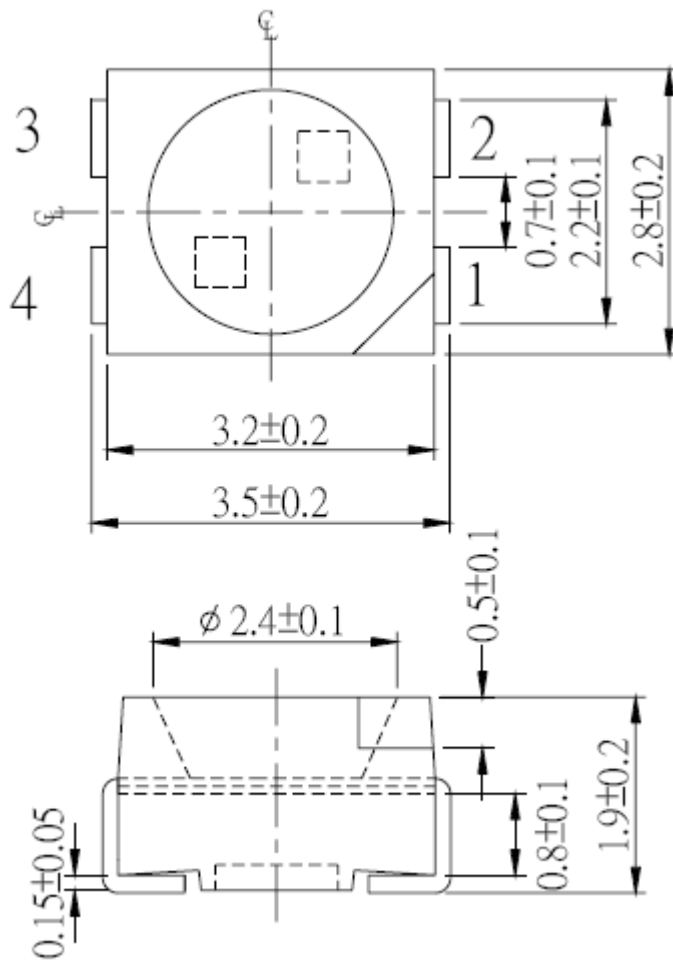
- Telecommunication: Indicator and backlighting in telephone and fax.
- Flat backlight for LCD's, switches and symbols.
- Light pipe application.
- General use.



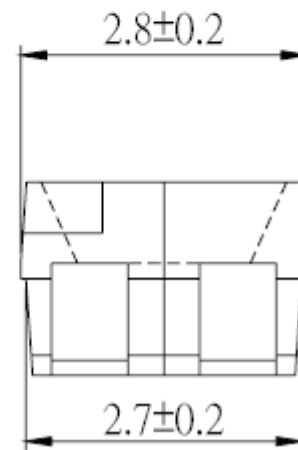
Device Selection Guide

LED Part No.	Chip		Lens Color
	Material	Emitted Color	
3528SURSUGC	AlGaInP	Red	Water clear
	InGaN	Green	

Package Dimensions



Polarity



Notes:

- Other dimensions are in millimeters, tolerance is 0.25mm except being specified.
- Protruded resin under flange is 1.5mm Max LED.
- Bare copper alloy is exposed at tie-bar portion after cutting.

Absolute Maximum Rating (T_a=25°C)

Parameter	Symbol	Absolute Maximum Rating	Unit
Peak Forward Current (Duty 1/10 @1KHz)	I _F	100	mA
Forward Current	I _{FM}	25	mA
Reverse Voltage	V _R	5	V
Power Dissipation	P _D	350	mW
Operating Temperature	T _{opr}	-30~+85	°C
Storage Temperature	T _{stg}	-40~+100	°C
Soldering Temperature	T _{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

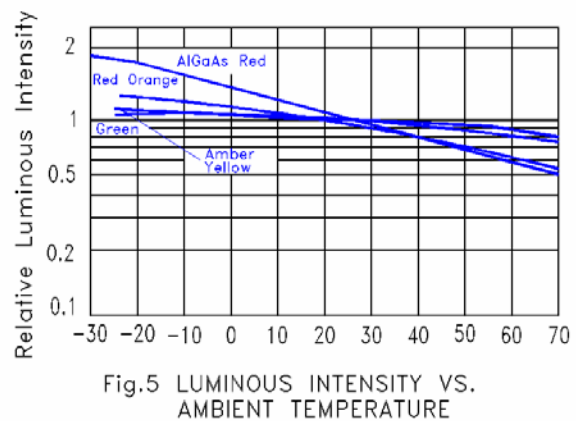
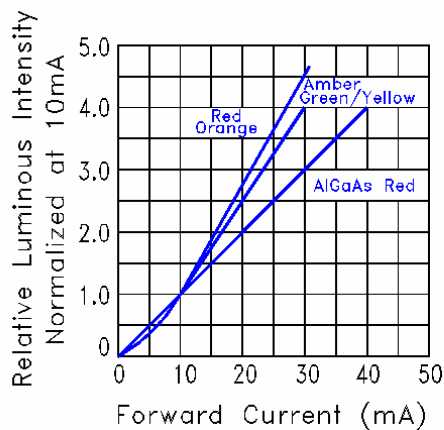
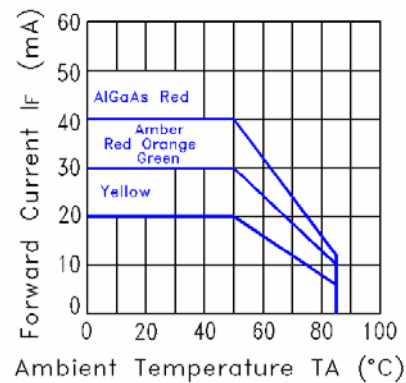
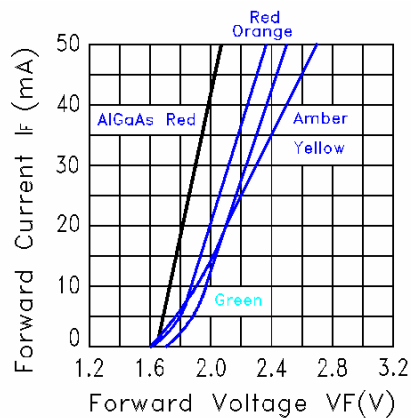
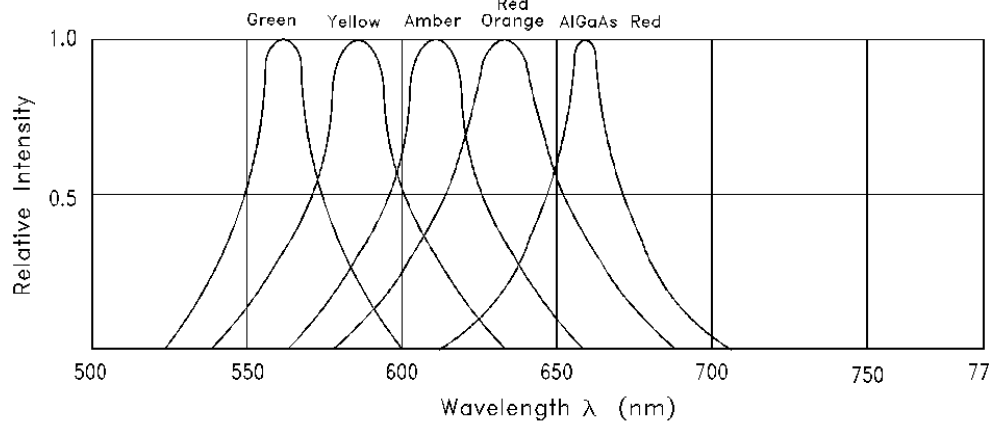
Electro-Optical Characteristics (T_a=25°C)

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I _v	Red Green	100 190	160 280	---	mcd	IF=20mA (Note1)
Viewing Angle	2θ _{1/2}	Red Green	---	120	---	Deg	(Note 2)
Peak Emission Wavelength	λ _p	Red Green	620 518	625 525	---	nm	IF=20mA
Spectral Line Half-Width	Δλ	Red Green	---	25 30	---	nm	IF=20mA
Forward Voltage	V _F	Red Green	1.8 3.0	2.0 3.2	---	V	IF=20mA
Reverse Current	I _R	Red Green	---	10 50	---	μA	VR=5V

Note:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

Typical Electro-Optical Characteristics Curves



Reliability Test Items And Conditions

No	Item	Test Condition	Sample Number	Criteria for Judging	Ac/Re
1	Solderability	$T=235 \pm 5^{\circ}\text{C}$ $T=5\text{sec.}$	15	Good wetting	0/1
2	Soldering heat	$T=260 \pm 5^{\circ}\text{C}$ $T=10\text{sec.}$	15	$IV \geq \text{LSL}^*$ $VF \leq \text{USL}^*$ $IR \leq \text{USL}$	0/1
3	Rapid change of temperature followed by: damp heat, cyclic	L: -40°C 10min (2~3) min H: $+100^{\circ}\text{C}$ 10min 5cycle $T = (25 \sim 55)^{\circ}\text{C}$ RH: (90~95) % 2cycle 48h recovery time 2h	11	$IV \geq \text{LSL}$ $VF \leq \text{USL}$ $IR \leq \text{USL}$	0/1
4	Damp heat, cyclic	$T = (25 \sim 55)^{\circ}\text{C}$ RH = (90~95) % 6 cycle 144h recovery time 2h	11	$IV \geq 0.7\text{LSL}$ $VF \leq 1.1\text{USL}$ $IR \leq 2\text{USL}$	0/1
5	Electrical endurance	$I_F = 30\text{mA}$ $T = 1000\text{h}$	22	$IV \geq 0.7\text{LSL}$ $VF \leq 1.1\text{USL}$ $IR \leq 2\text{USL}$	0/1
6	Storage at high temperature	$T_{\text{stg}} = 100 \pm 2^{\circ}\text{C}$ $t = 1000\text{h}$	15	$IV \geq \text{LSL}$ $VF \leq \text{USL}$ $IR \leq \text{USL}$	0/1
7	Terminal strength	Tensile: $W = 5\text{N}$ $t = 30\text{s}$ Bending: $W = 2.5\text{N}$ 2times	15	No damage	0/1

*U.S.L.: Upper Standard Level

* L.S.L.: Lower Standard Level

APPLICATION NOTES:

1) Soldering:

① Manual soldering by soldering iron:

The use of a soldering iron of less than 25W is recommended and the temperature of the iron must be kept at no higher than 300°C.

② Reflow soldering:

a. The temperature profile as shown in Fig.3 is recommended for soldering SMD LED by the reflow furnace.

b. Care must be taken that the products be handled after their temperature has dropped down to the normal room temperature after soldering.

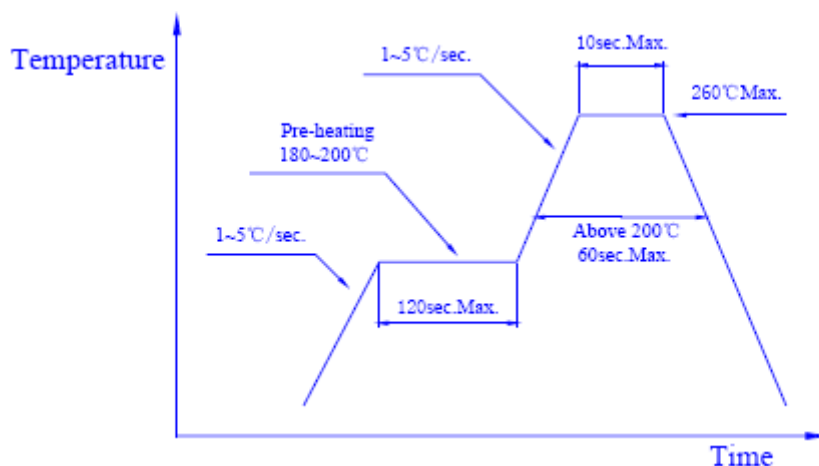


Fig.3

2) Post solder cleaning:

When cleaning after soldering is needed, the following conditions must be adhered to.



BEELED -

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- ① Cleaning solvents: Freon TF or equivalent or alcohol.
 - ② Temperature: 50°C Max. for 30 seconds or 30°C Max. for 3 minutes
 - ③ Ultrasonic: 300W Max.
- 3) OTHERS:
- a. Care must be taken not to cause stress to the epoxy resin portion of SMD LED while it is exposed to the high temperature.
 - b. Care must be taken not to rub the epoxy resin portion of SMD LED with a hard or sharp edged article such as the sand blast and the metal hook as the epoxy resin is rather soft and liable to be damaged.