

Technical Data Sheet Chip LED with Right Angle Lens

12-21SYGC/S530-E2/TR8

Features

- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.
- Pb-free.
- The product itself will remain within RoHS complaint version

Descriptions

- The 12-21 SMD LED is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications etc.

Applications

- Backlighting in dashboard and switch.
- Telecommunication: Indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

Device Selection Guide

Part No.	Chip	E '44 1 G 1	Resin Color	
	Material	Emitted Color		
12-21SYGC/S530-E2/TR8	AlGaInP	Brilliant Yellow Green	Water Clear	

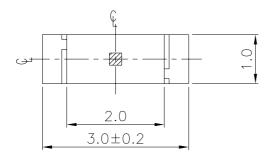


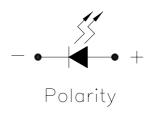
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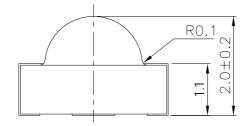
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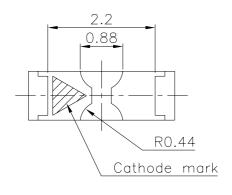
Package Outline Dimensions

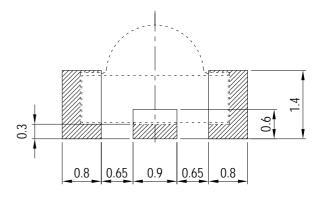






For reflow soldering (propose)





Note: The tolerances unless mentioned is ± 0.1 mm, Unit = mm

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Absolute Maximum Ratings (Ta=25 $^{\circ}$ C)

Parameter	Symbol	Rating	Unit	
Reverse Voltage	V_R	5	V	
Forward Current	I_{F}	25	mA	
Peak Forward Current (Duty 1/10 @1KHz)	${ m I_{FP}}$	60	mA	
Power Dissipation	Pd	60	mW	
Electrostatic Discharge (HBM)	ESD	2000	V	
Operating Temperature	Topr	-40 ~ +85	$^{\circ}\!\mathbb{C}$	
Storage Temperature	Tstg	-40 ~ +90	$^{\circ}\!\mathbb{C}$	
Soldering Temperature	Tsol	Reflow Soldering : 260 $^{\circ}$ C for 10 sec. Hand Soldering : 350 $^{\circ}$ C for 3 sec.		

Electro-Optical Characteristics (Ta=25°C)

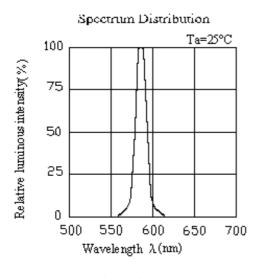
Electro-Optical Characteristics (1a-25 0)							
Parameter	Symbol	Min.	Тур.	Max.	Unit	Condition	
Luminous Intensity	I_{V}	19.0	26.0		mcd		
Viewing Angle	2 \theta 1/2		120		deg		
Peak Wavelength	λр		575		nm	I _F =20mA	
Dominant Wavelength	λd		573		nm		
Spectrum Radiation Bandwidth	Δλ		20		nm		
Forward Voltage	V_{F}		2.00	2.40	V		
Reverse Current	I_R			10	μ A	V _R =5V	

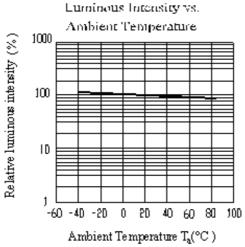
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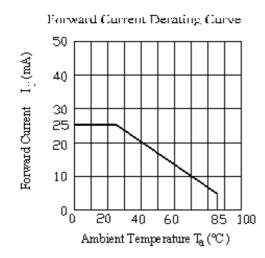
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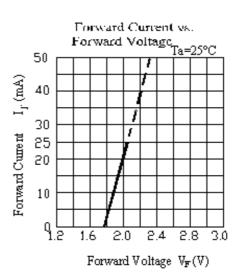
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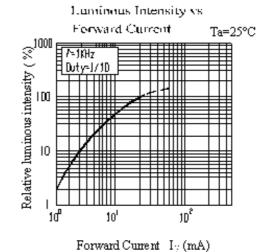
Typical Electro-Optical Characteristics Curves

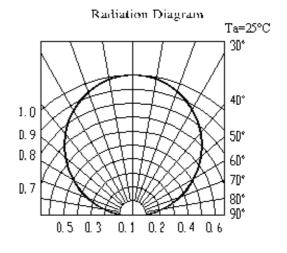












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Label explanation

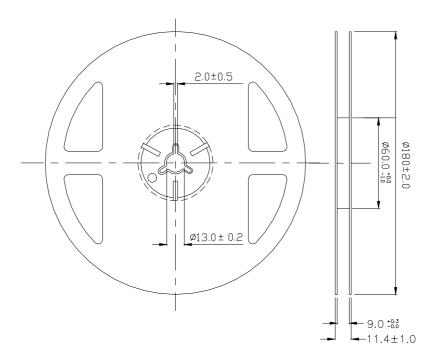
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



Note: The tolerances unless mentioned is ± 0.1 mm, Unit = mm

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Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel

Progressive direction

1.5

2.0

4.0

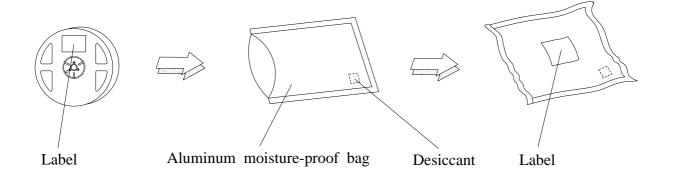
Signature

Polarity

1.27

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Moisture Resistant Packaging



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Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level: 90%

LTPD: 10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C±5°C Min. 5sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	$H: +100^{\circ}\mathbb{C}$ 15min $\int 5 \text{ min}$ $L: -40^{\circ}\mathbb{C}$ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H:+100°C 5min ∫ 10 sec L:-10°C 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°€	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	$I_F = 20 \text{ mA}$	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	22 PCS.	0/1

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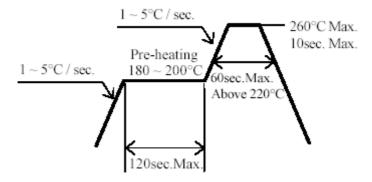
Precautions For Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

- 2. Storage
 - 2.1 Do not open moisture proof bag before the products are ready to use.
 - 2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.
 - 2.3 After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.
 - 2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

 Baking treatment: 60±5°C for 24 hours.
- 3. Soldering Condition
- 3.1 Pb-free solder temperature profile



- 3.2 Reflow soldering should not be done more than two times.
- 3.3 When soldering, do not put stress on the LEDs during heating.
- 3.4 After soldering, do not warp the circuit board.

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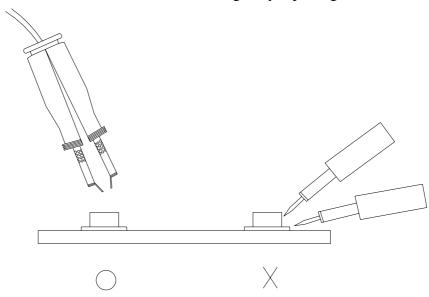
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4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350° C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5.Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



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