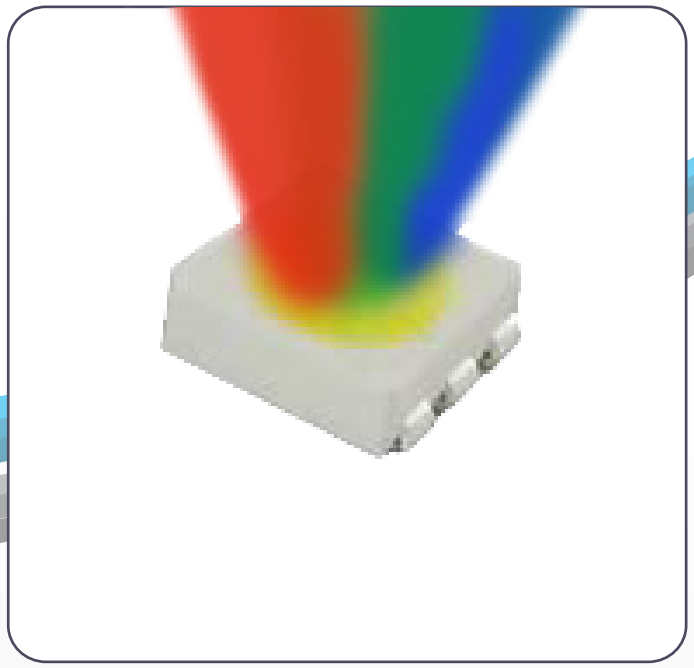
SYNERGY 21



S21 LED SMD

PLCC2 5050 RGB

1.Features

- White package with black surface
- Optical indicator
- Colorless clear window
- Ideal for backlight and light pipe application
- Interior reflector
- Wide viewing angle
- Suitable for vapor-phase reflow, infrared reflow and wave solder processes
- Computable with automatic placement equipment
- Pb-free
- The product itself will remain within RoHS compliant version

2.Applications

- Amusement equipment
- Information boards
- Flashlight for digital camera of cellular phone

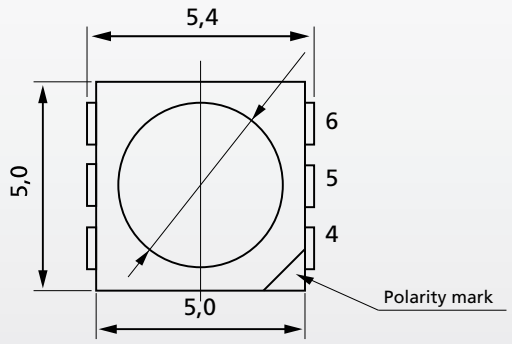
SYNERGY 21

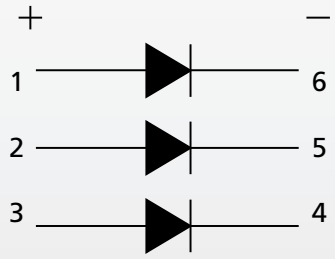
S21 LED SMD

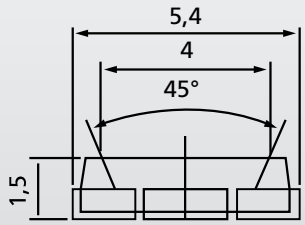
PLCC2 5050 RGB

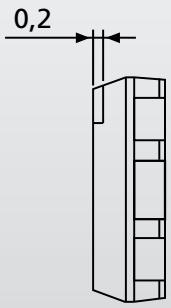
Chip		Emiteed
Type	Material	
R	A1GaInP	Brilliant Red
G	InGaN	Brilliant Green
B	InGaN	Blue

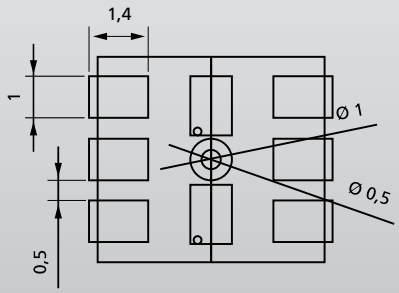
2. Package Dimension











Note:
All dimensions in mm tolerance is ±0,1mm unless otherwise noted

3. Absolute Maximum Ratings

Parameter	Symbol	Rating		Unit
Power Dissipation	Pd	R	120	mW
		G	110	
		B	110	
Forward Current	I_F	R	50	mA
		G	30	
		B	30	
Peak Forward Current	I_{FP}	R	100	mA
		G	100	
		B	100	
Reverse Voltage	V_R	5		V
Soldering Temperature	Tsol	Reflow Soldering: 260°C for 10 sec Hand Soldering: 350°C for 3 sec		
Operating Temperature	Topr	-40°~90°		Celsius
Storage Temperature	Tstg	-40°~90°		Celsius
Electrostatic discharge	ESD	R	5000	V
		G	2000	
		B	2000	

S21 LED SMD

PLCC2 5050 RGB

4. Electrical-optical characteristics

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Forward Voltage	Vf	R	1,8		2,2	V	I_F=20mA
		G	2,9		3,5		
		B	2,9		3,5		
Luminous Intensity	I_V	R	400		500	mcd	
		G	1000		1200		
		B	300		400		
Peak Wavelength	p	R		632		nm	
		G		518			
		B		468			
Dominant Wavelength	d	R	625		630	nm	
		G	515		522		
		B	460		470		
Spectrum Radiation Band-width		R		20		nm	
		G		35			
		B		35			
Viewing Angle	$2\theta_{1/2}$			120		eg	
Reverse Current	I_R				5	µA	VR=5V

SYNERGY 21

S21 LED SMD

PLCC2 5050 RGB

BIN range Luminous intensity

Symbol		Bin Code	Min	Max.	Unit	Condition
IV	R	10	270	350	mcd	IF =20mA
		11	350	460		
		13	600	780		
	G	13	600	780		
		14	780	1000		
		15	1000	1300		
	B	09	210	270		
		10	270	350		
		11	350	460		

BIN range of Dominant Wavelength

Symbol		Bin Code	Min	Max.	Unit	Condition
λd	R	R1	619	625	nm	IF =20mA
		R2	625	631		
	G	G1	525	530		
		G2	530	535		
	B	B1	465	470		
		B2	470	475		

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm

SYNERGY 21

S21 LED SMD

PLCC2 5050 RGB

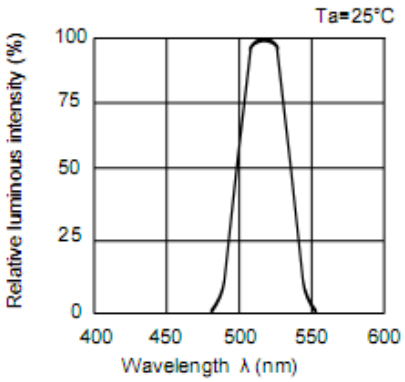
No.	Test Item	Test Conditions	Sample size	Ac/Re
1	Operation Life	I_F= 20 mA	22	0/1
2	High Temperature High Humidity	85°C/ 85%RH	22	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	22	0/1
4	High Temperature Storage	Temp. : 100°C	22	0/1
5	Low Temperature Storage	Temp. : -40°C	22	0/1
6	Temperature Cycle	H : +100°C 15min ∫ 5 min L : -40°C 15min	22	0/1
7	Reflow Soldering	Temp. : 260°C±5°C Min. 5sec.	22	0/1

SYNERGY 21

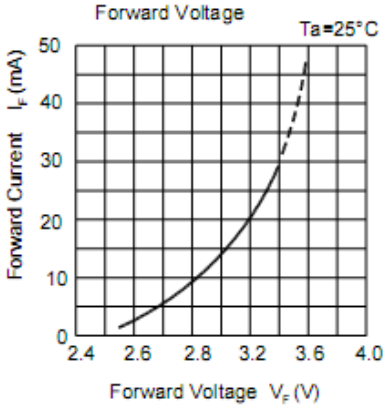
S21 LED SMD

PLCC2 5050 RGB

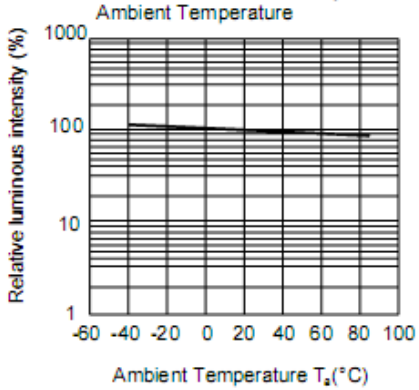
Spectrum Distribution



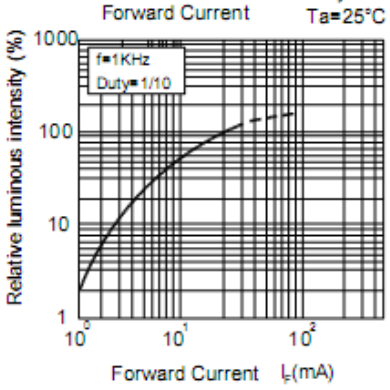
Forward Current vs. Forward Voltage

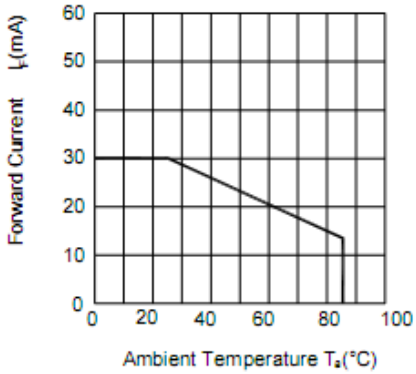


Relative Luminous Intensity vs. Ambient Temperature

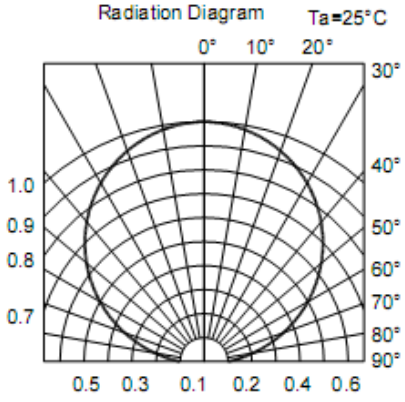


Relative Luminous Intensity vs. Forward Current





Radiation Diagram

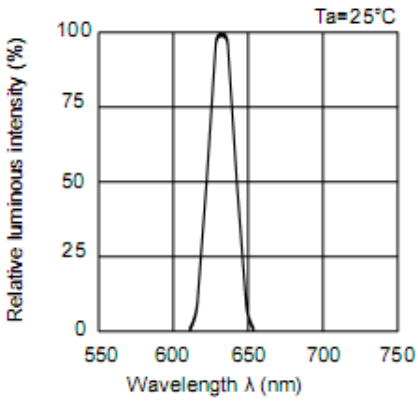


SYNERGY 21

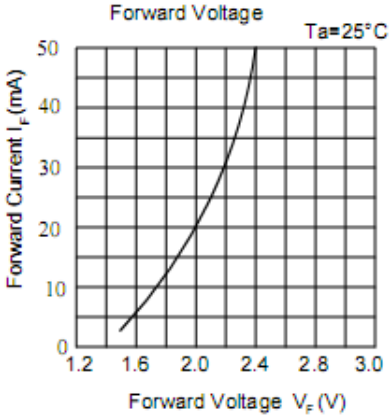
S21 LED SMD

PLCC2 5050 RGB

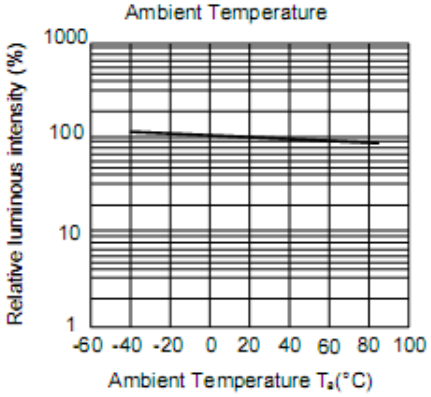
Spectrum Distribution



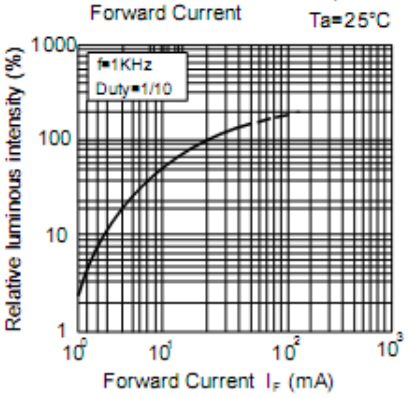
Forward Current vs. Forward Voltage



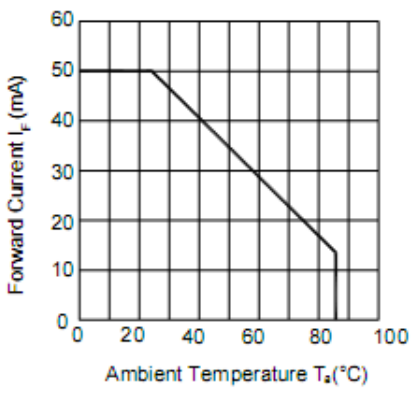
Relative Luminous Intensity vs. Ambient Temperature



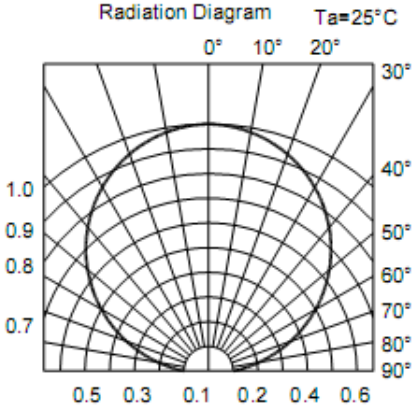
Relative Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram

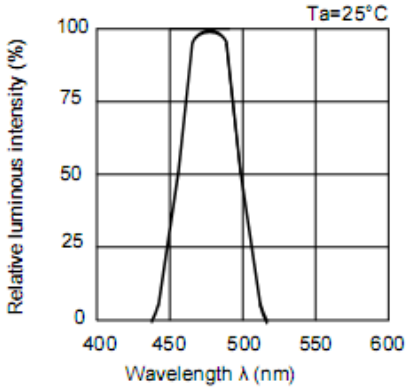


SYNERGY 21

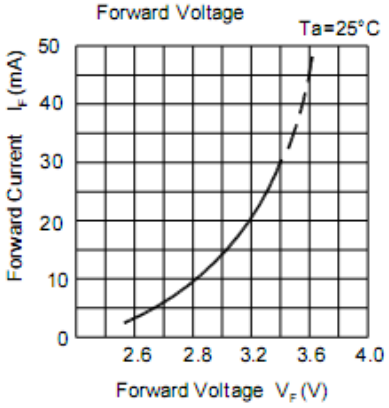
S21 LED SMD

PLCC2 5050 RGB

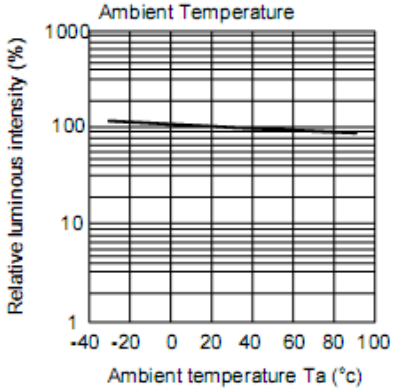
Spectrum Distribution



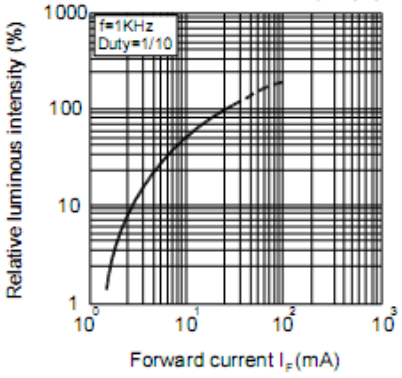
Forward Current vs. Forward Voltage



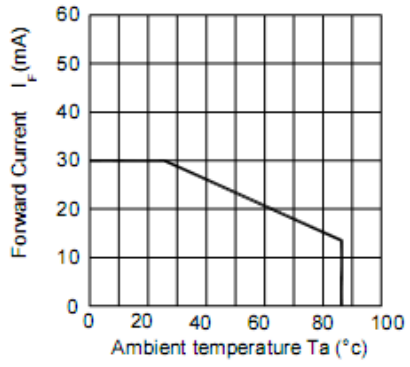
Relative Luminous Intensity vs. Ambient Temperature



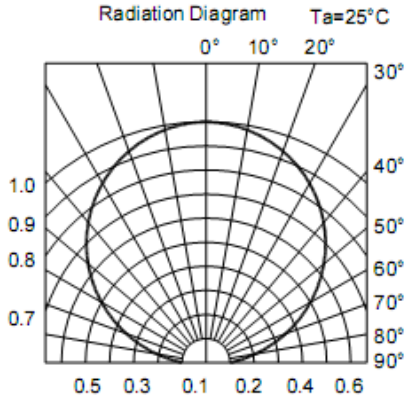
Relative Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram



SYNERGY 21

S21 LED SMD

PLCC2 5050 RGB

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 or less and 90%RH or less.

   2.3 After opening the package: The LED's floor life is 1 year under 30 or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

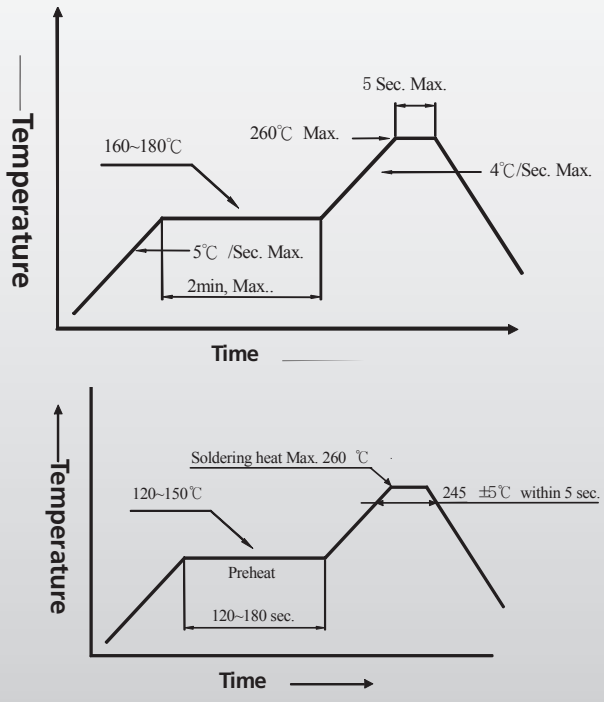
   2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   Baking treatment: 60±5 ℃for 24 hours.

3. Soldering Condition

   3.1 Pb-free solder temperature profile3.2 Reflow soldering should not be done more than two times.

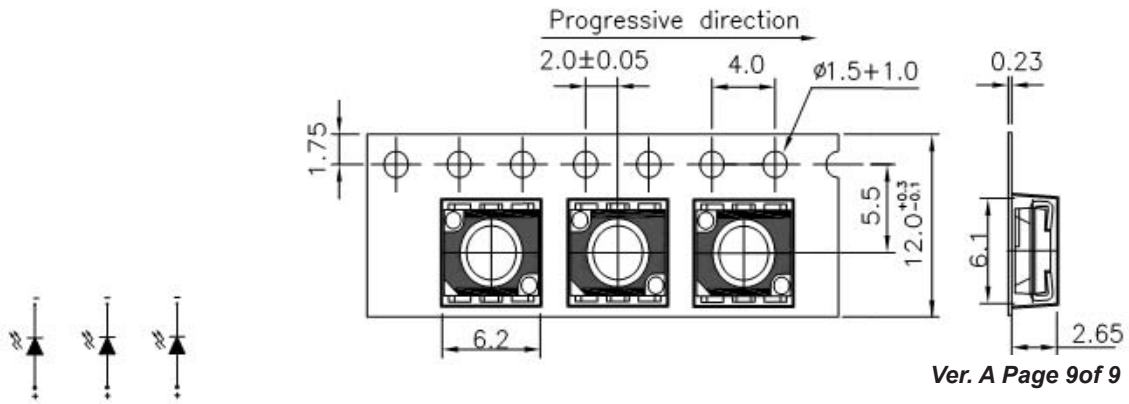
   3.3 When soldering, do not put stress on the LEDs during heating.

   3.4 After soldering, do not warp the circuit board.



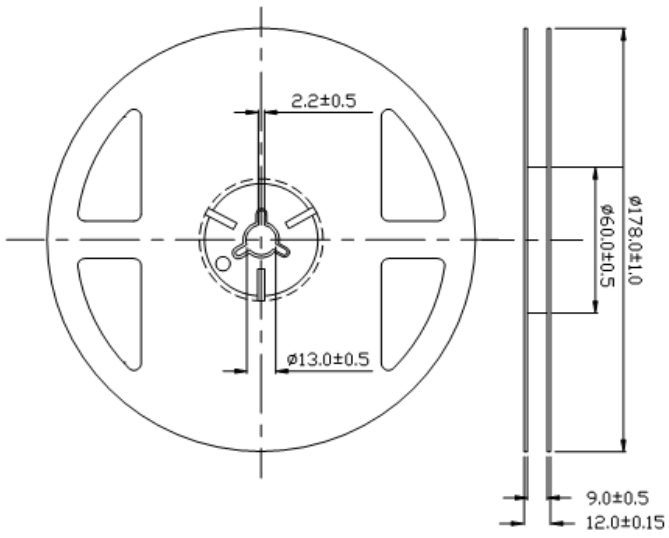
Note: a) Reflow soldering should not be done more than two times.
b) Don't put stress on the LEDs when soldering.
c) Don't warp the circuit board before it have been returned to normal ambient conditions after soldering.

Loaded quantity: 1000 pcs/reel



Note: Tolerance unless mentioned is ±0.1mm; Unit = mm

Package Method:(unit:mm)



Note: Tolerance unless mentioned is ±0.1mm; Unit = mm