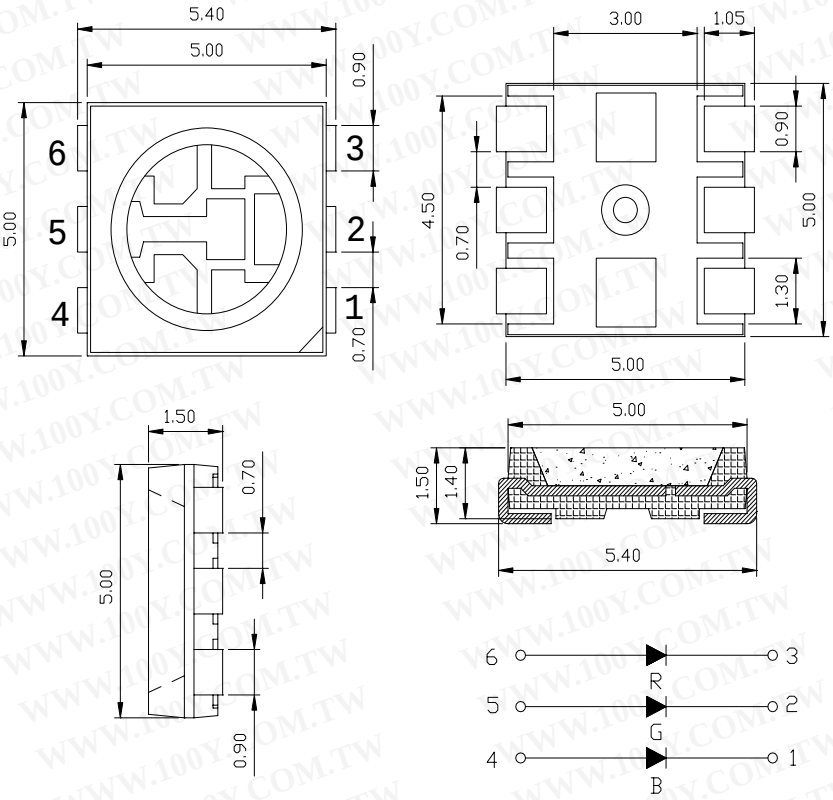
PART NO：ALRGB5050C-UB391-SG01-UE18

■ Features:

1. Low power consumption
2. High efficiency
3. Reliable and rugged
4. Chip Material: InGaN
5. Lens Color: Water Clear
6. Source Color: Red . Green . Blue

■ Outline Dimensions:



Note：

1. All dimensions are in millimeters (inches)
2. Tolerance is ±0.25mm (.010”) unless otherwise noted
3. Protruded resin under flange is 1.0mm (.04”) max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notices.

■ Absolute Maximum Ratings at Ta=25℃:

Parameter	Symbol	Red	Green	Blue	Unit
Power Dissipation	P_D	80	100	100	mW
Continuous Forward Current	I_F	30	30	30	mA
Reverse Voltage	V_R	5			V
Operating Temperature Range	Topr	-40℃ to+80℃			
Storage Temperature Range	Tstg	-25℃ to+100℃			
Lead Soldering Temperature 【3mm From Body】	Tsol	260℃ For 5 Seconds			

■ Electrical/Optical Characteristics at Ta=25℃:

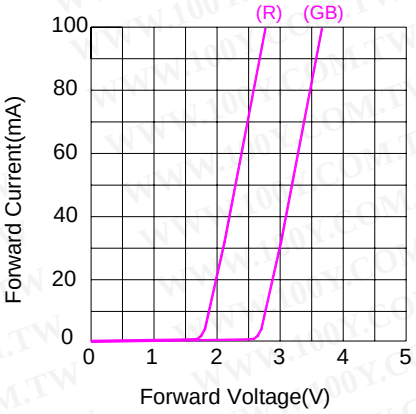
Parameter	Symbo		Min	Typ	Max	Unit	Conditio
Forward Voltage	VF	R	1.8	2.0	2.4	V	IF=20mA
		G	2.9	3.1	3.5		
		B	2.9	3.1	3.5		
Luminous Intensity	IV	R	250	-	450	mcd	IF=20mA
		G	700	-	900		
		B	250	-	450		
Dominant Wavelength	λd	R	620	625	630	nm	IF=20mA
		G	520	525	530		
		B	465	470	475		
Spectral Line Half-Width	△λ		---	---	---	nm	IF=20mA
Reverse Current	IR		---	---	5	μA	VR=5V
Viewing Angle	2θ1/2		---	120	---	deg	IF=20mA

Note.

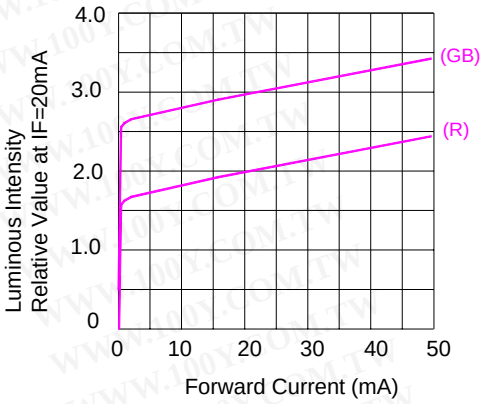
1. 2θ1/2 is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. View angle tolerance is ± 10

■ Typical Electro-Optical Characteristics Curves

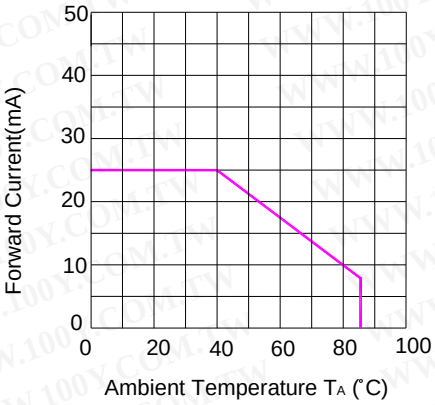
Relative Luminous Intensity vs Forward Current, *T Ambient*=25o C



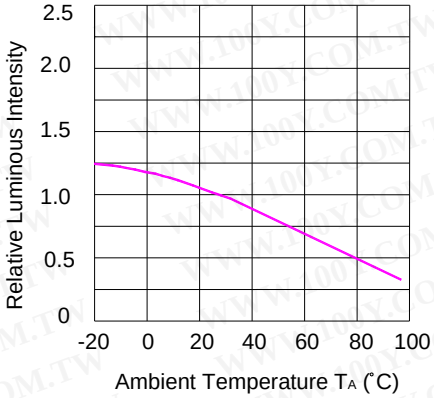
Relative Luminous Intensity vs Forward Current, *T Ambient*=25o C



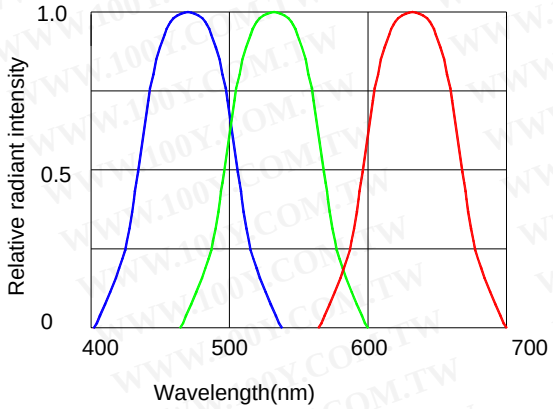
Forward Current Derating Curve, Derating based on TjMAX=85～C

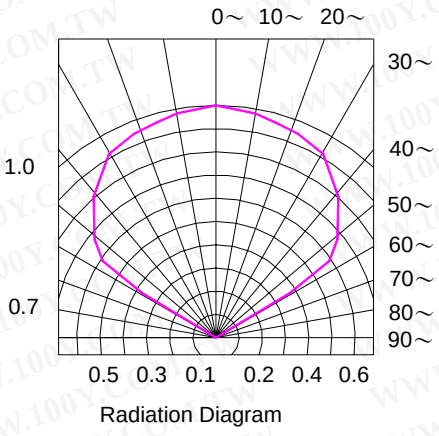


Luminous Intensity VS Ambient Temperature



Relative Spectral Distribution, IF=20mA, T Ambient=25o C





■ Reliability test items and conditions :

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Judgment
1	Solder Heat	TEMP：260±5℃	5 SEC	76 PCS	OK
2	Temperature Cycle	H：+85℃ 30min ∫5min L：-55℃ 30min	50 CYCLES	76 PCS	OK
3	Thermal Shock	H：+100℃ 5min ∫10set L：-10℃ 5min	50 CYCLES	76 PCS	OK
4	High Temperature Storage	TEMP：100℃	1000 HRS	76 PCS	OK
5	Low Temperature Storage	TEMP：-55℃	1000 HRS	76 PCS	OK
6	DC Operating Life	TEMP：25℃	1000 HRS	76 PCS	OK
7	High Temperature / High Humidity	85℃ / 85%RH	1000 HRS	76 PCS	OK

■ Criteria for Judging the Damage：

Measuring Item	Symbol	Measuring Conditions	Judgement criteria for failure
Forward Voltage	VF	IF=20mA	OVER V* 120% OR 80%
Reverse Current	IR	VR=5V	OVER H*2
Luminous Intensity	IV	IF=20mA	L*0.5
Dominant wavelength	λD	nm	OVER±1.5nm(W)

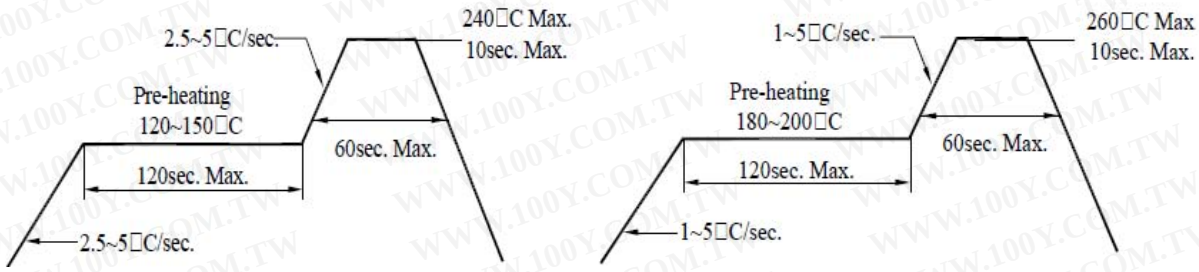
Note:

1. V and H means the upper limit of specified characteristics. L and W means initial value
2. Measurement shall be taken between 2 hours and after the test pieces have been returned to normal Ambient conditions after completion of each test.

Soldering condition

Reflow Soldering			Hand Soldering	
	Lead Solder	Lead – free Solder		
Pre-heat	120~150℃	180~200℃	Temperature	350℃ Max.
Pre-heat time	120sec. Max.	120sec. Max.	Soldering time	3sec. Max. (one time only)
Peak temperature	240℃ Max.	260℃ Max.		
Soldering time	10sec. Max.	10sec. Max.		
Condition	refer to Temperature-Profile 1	refer to Temperature-Profile 2		

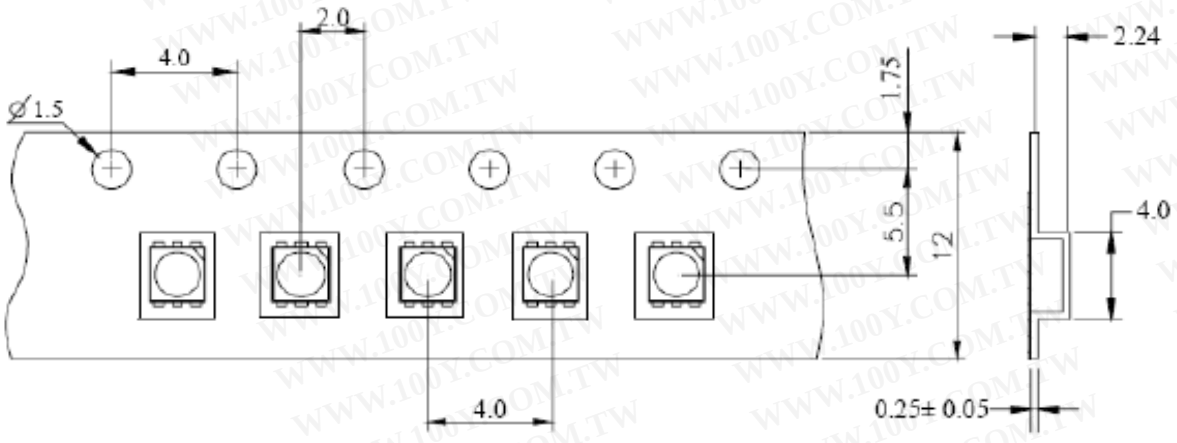
Temperature profile in re-flow machine for lead type and lead free type



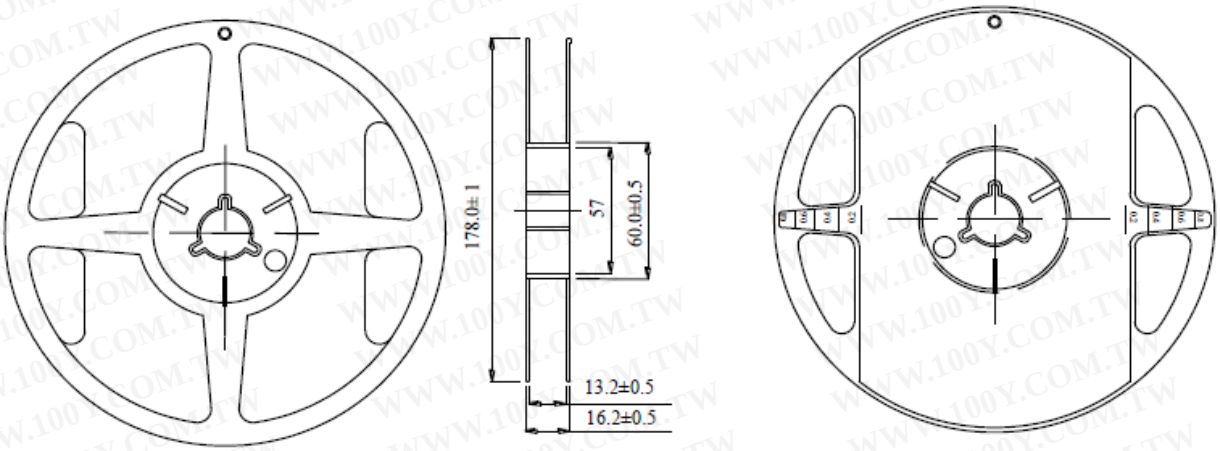
Storage condition

In order to avoid the absorption of moisture, it is recommended to store in the dry box (or desiccators) with a desiccant. Otherwise, to store them in the following environment is recommended. Temperature: 5℃~30℃ Humidity: 60%HR max.

Dimension of carrier tape



Dimension of reel



Notes:

1. All dimensions are in mm, tolerance is±2.0mm unless otherwise noted.
2. Specifications are subject to change without notice.

Packing

1. Number of SMD 5050 product in reel and bag(anti-static bag)
1.1. 1000 piece of SMD 5050 Products on one reel. The reel will be put in the anti-static bag then sealed.
1.2. 1000 piece of SMD 5050 products on one bag.