

***Customer:**

SPECIFICATION

ITEM	Top View LED
MODEL	SSC-YGURHT811-BS

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1. Features

- Pb-free Reflow Soldering application
- RoHS Compliant
- Upper Surface Black colored SMT package and colorless clear window
- Suitable for all SMT assembly methods ; Suitable for all soldering methods
- Encapsulating Resin : Silicone Resin

2. Application

- Led Dot Matrix
- Indoor and outdoor displays
- LCD Backlights etc.
- R, Y/G – displays
- Automotive
- Indicator

3. Absolute Maximum Ratings ^{*1}

($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Value		Unit
		Yellowish Green	Red	
Power Dissipation	P_d	90	90	mW
Forward Current	I_F	30	30	mA
Forward Peak Surge Current	I_{FM}^{*2}	90	90	mA
Reverse Voltage	V_R	5		V
Operating Temperature	T_{opr}	-30 ~ +85		$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40 ~ +100		$^{\circ}\text{C}$

*1 Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.

*2 I_{FM} was measured at $T_W \leq 1\text{msec}$ of pulse width and $D \leq 1/10$ of duty ratio.

4. Electro-Optical Characteristics

($T_a=25^\circ\text{C}$)

Parameter		Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	Yellowish Green	V_F	$I_F=20\text{mA}$	1.9	2.1	2.5	V
	Red			1.5	1.9	2.3	
Reverse Current	Yellowish Green	I_R	$V_R=5\text{V}$	-	-	1	μA
	Red			-	-	1	
Luminance Intensity ^{*1}	Yellowish Green	I_V	$I_F=20\text{mA}$	30	50	70	mcd
	Red			20	30	40	
Dominant Wavelength	Yellowish Green	λ_d	$I_F=20\text{mA}$	565	570	575	nm
	Red			635	640	645	
Spectral Bandwidth	Yellowish Green	$\Delta\lambda$	$I_F=20\text{mA}$	-	20	-	nm
	Red			-	30	-	
Viewing Angle ^{*2}	R, G	$2\theta_{1/2}$	$I_F=40\text{mA}$ Total	-	120	-	deg.

*1 The luminous intensity I_V was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.

Luminous Intensity Measurement allowance is $\pm 10\%$

*2 $2\theta_{1/2}$ is the off-axis where the luminous intensity is 1/2 of the peak intensity.

[Note] All measurements were made under the standardized environment of SSC.

5. Rank of YGURHT811-BS

1) Rank Name

X_1	X_2	X_3	X_4
Iv - Red	Iv - YG	λ_d Red	λ_d YG

2) Test Condition

Parameter	Symbol	Value		Unit
		R	YG	
Forward Current	If	20	20	mA
Reverse Voltage	Vr	10	10	V

3) Luminous Intensity [Iv]

Rank Name	R		Rank Name	YG		Unit
	MIN	MAX		MIN	MAX	
N	20	25	N	30	40	mcd
O	25	30	O	40	50	
P	30	35	P	50	60	
Q	35	43	Q	60	70	

4) Dominant Wavelength [λ_d]

Rank Name	G		Rank Name	YG		Unit
	MIN	MAX		MIN	MAX	
A	635	645	A	565	567	nm
			B	567	569	
			C	569	571	
			D	571	573	
			E	573	575	
			X	565	575	

5) Forward Voltage [Vf]

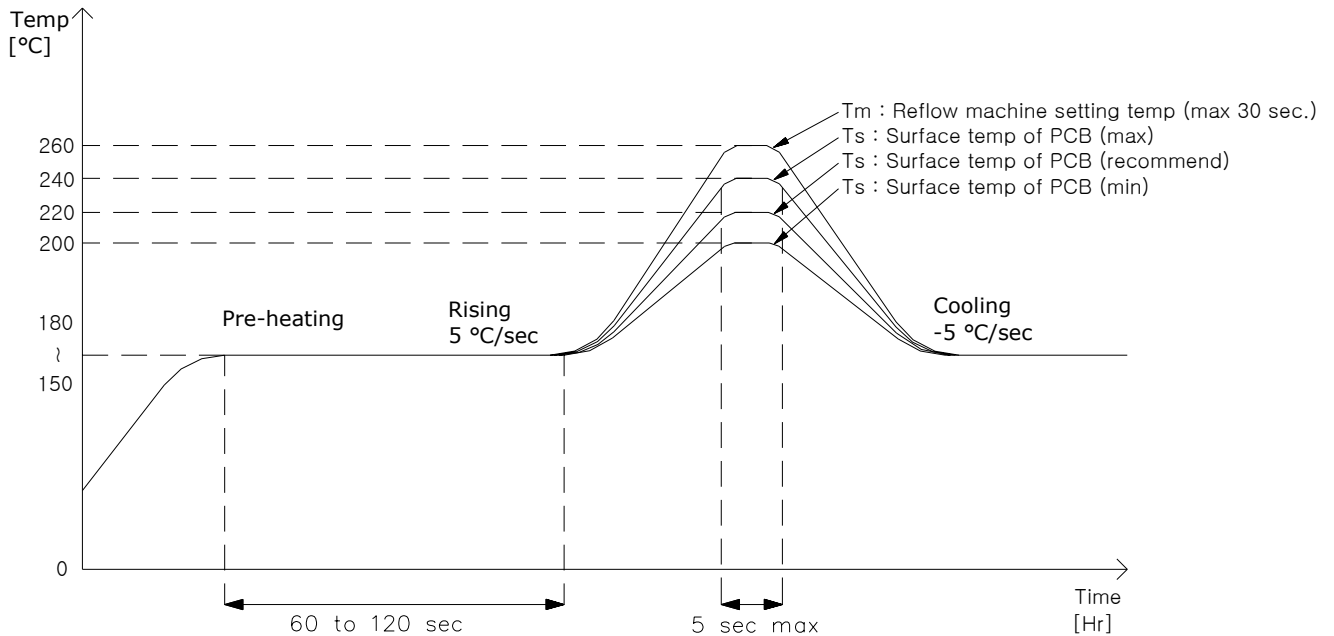
R		YG		Unit
MIN	MAX	MIN	MAX	
1.5	2.3	1.9	2.5	V

6) Reverse Current [Ir]

R		YG		Unit
MIN	MAX	MIN	MAX	
-	1	-	1	uA

6. Soldering Profile

(1) Reflow Soldering Conditions / Profile (Lead Free Solder)



(2) Hand Soldering conditions

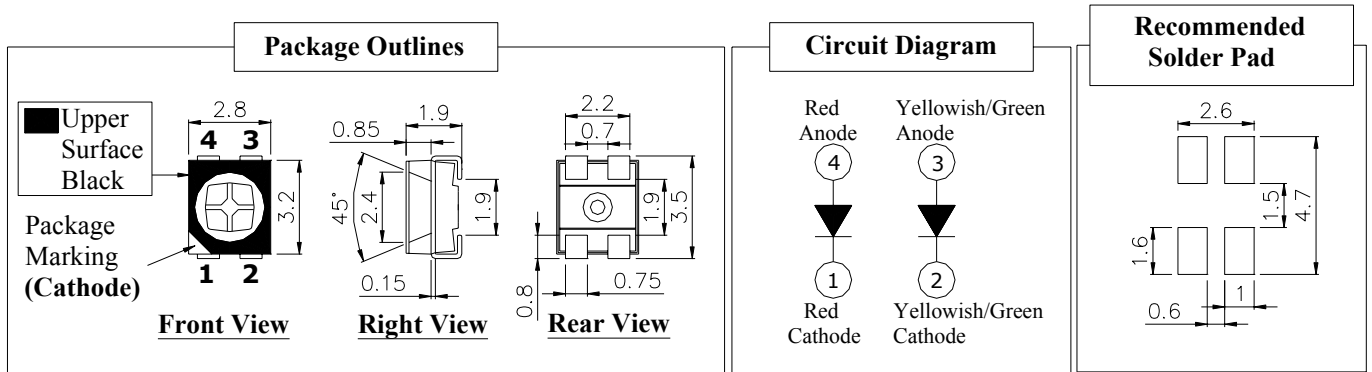
Do not exceed 4 seconds at maximum 315°C under soldering iron.

(3) The encapsulated material of the LEDs is silicone.

Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the chip moulder, the picking up nozzle that does not affect the silicone resin should be used.

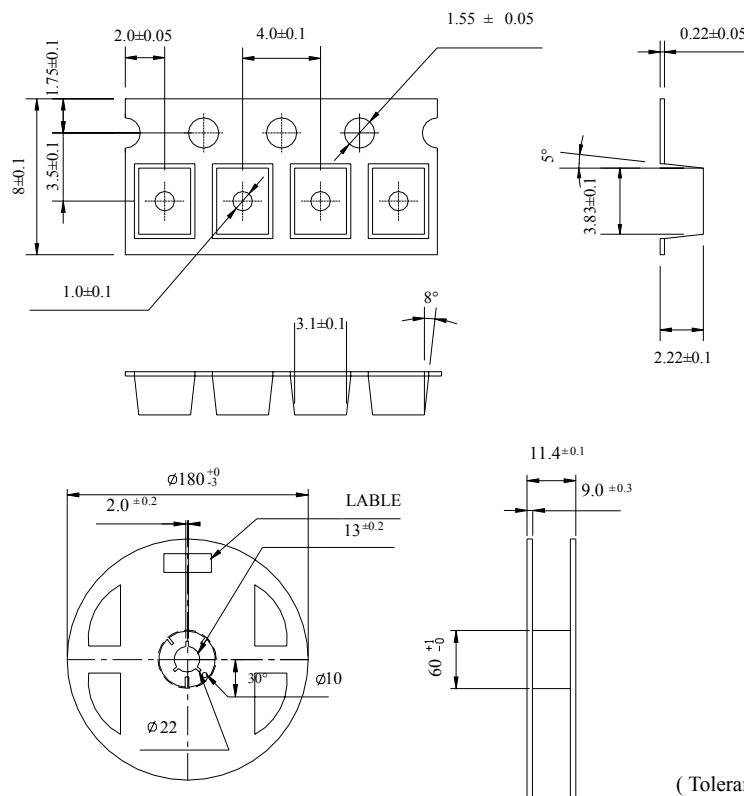
Note : In case that the soldered products are reused in soldering process, we don't guarantee the products.

7. Outline Dimension



(Tolerance: ± 0.2 , Unit: mm)

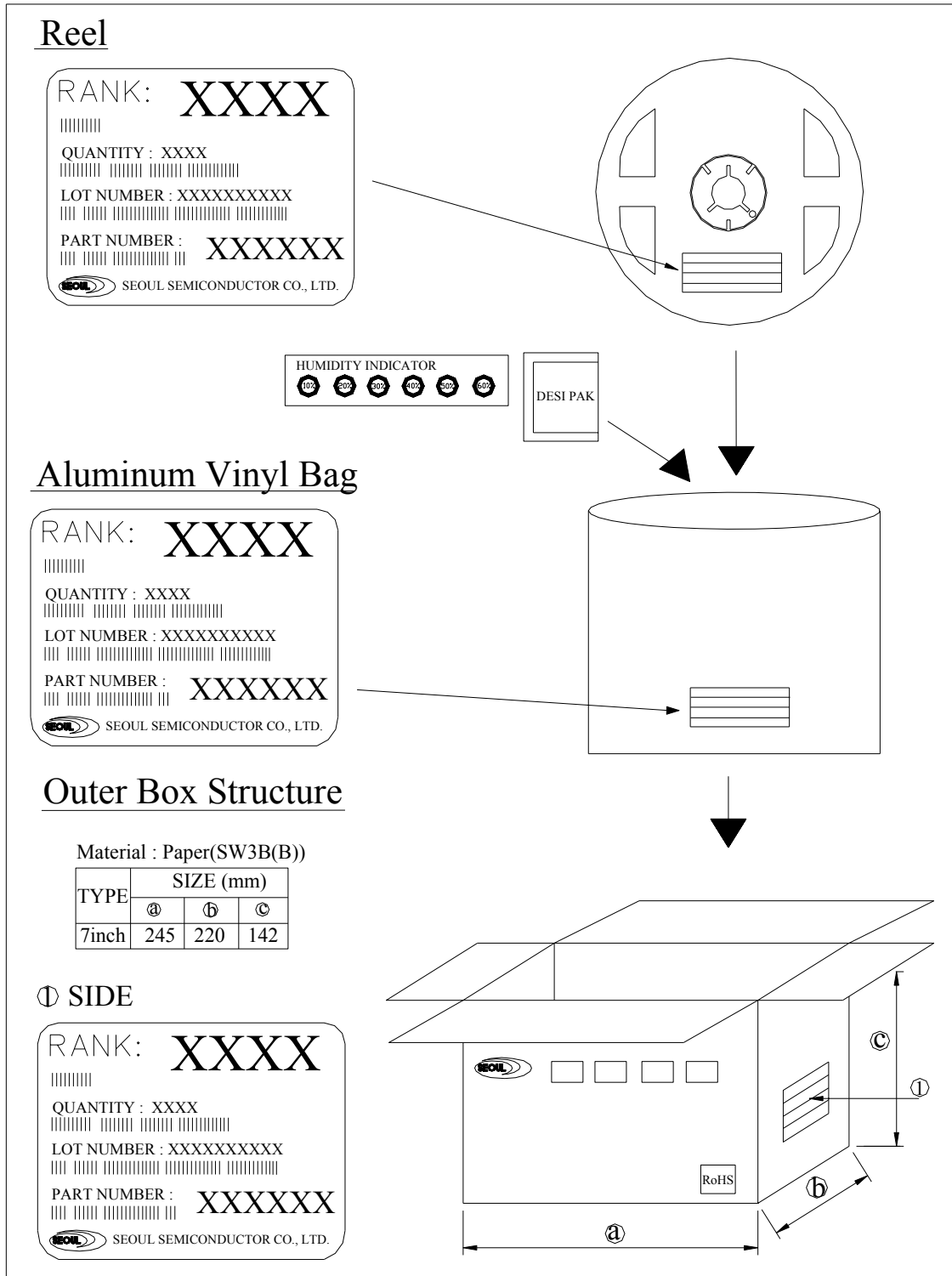
8. Packing



(Tolerance: ± 0.2 , Unit: mm)

- (1) Quantity : 2000 pcs/Reel
- (2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2\text{mm}$
- (3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10° to the carrier tape
- (4) Package : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package

9. Reel Packing Structure



10. Precaution for use

(1) Storage

In order to avoid the absorption of moisture, it is recommended to store in a dry box (or a desiccator) with a desiccant. Otherwise, to store them in the following environment is recommended.

Temperature : 5°C ~30°C Humidity : maximum 65%HR

(2) Attention after open.

LED is correspond to SMD, when LED be soldered dip, interfacial separation may affect the light transmission efficiency, causing the light intensity to drop. Attention in followed;

- a. After opened and mounted the soldering shall be quickly.
- b. Keeping of a fraction

Temperature : 5 ~ 40°C Humidity : less than 30%

(3) In the case of more than 1 week passed after opening or change color of indicator on desiccant, components shall be dried 10-12hr. at 60±5°C.

(4) In the case of that the components is humided, the components shall be dried;

24Hr at 80±5°C or 12Hr at 100±5°C.

(5) Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temperature after soldering.

(6) Quick cooling shall be avoided.

(7) Components shall not be mounted on warped direction of L/F.

(8) Anti radioactive ray design is not considered for the products.

(9) This device should not be used in any type of fluid such as water, oil, organic solvent etc. When washing is required, IPA should be used.

(10) When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

(11) LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3 months or more after being shipped from SSC, a sealed container with a nitrogen atmosphere should be used for storage.

(12) The LEDs must be soldered within seven days after opening the moisture-proof packing.

(13) Repack unused products with anti-moisture packing, fold to close any opening and then store in a dry place.

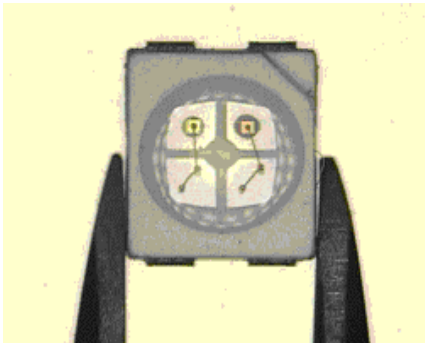
(14) The appearance and specifications of the product may be modified for improvement without notice.

11. Handling of Silicone Resin LEDs

(1) During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound.



(2) In general, LEDs should only be handled from the side. By the way, this also applies to LEDs without a silicone sealant, since the surface can also become scratched.



(3) When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevented.

This is assured by choosing a pick and place nozzle which is larger than the LED's reflector area.

(4) Silicone differs from materials conventionally used for the manufacturing of LEDs. These conditions must be considered during the handling of such devices. Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust.

As mentioned previously, the increased sensitivity to dust requires special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of components.

(5) SSC suggests using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin.

Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.