

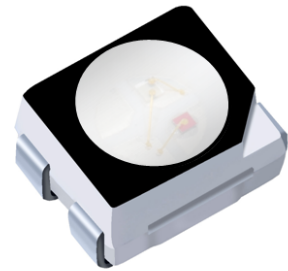
## Technical Data Sheet

### Full Color Top View LEDs

#### 67-03/RSGHBHC-B06/1T

#### Features

- P-LCC-4 package.
- White package and black surface.
- Colorless clear window.
- Ideal for backlight and light pipe application.
- Inter reflector.
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- Pb-free.
- The product itself will remain with RoHS compliant version



#### Descriptions

- The 67-03 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 LED 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

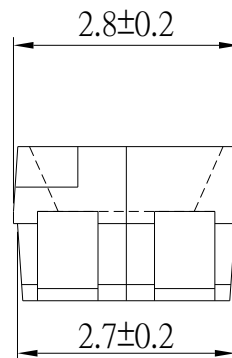
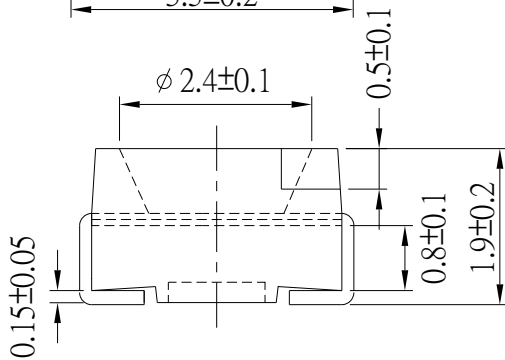
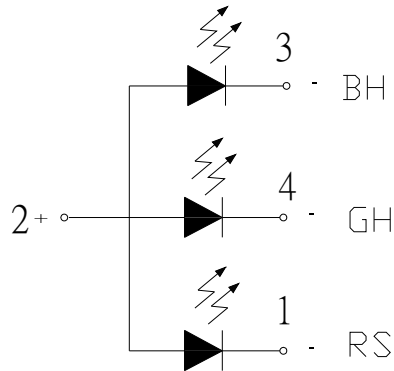
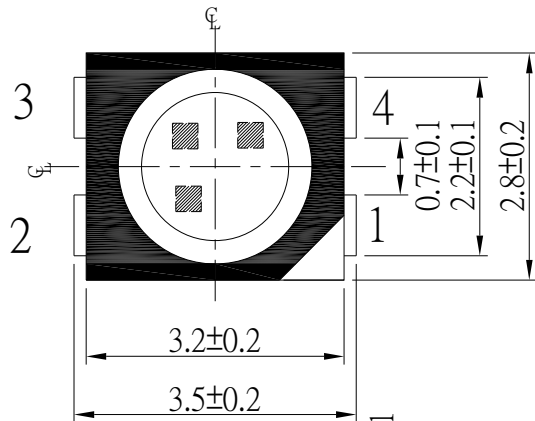
Chip		Emitted Color	Resin Color
Type	Material		
RS	AlGaInP	Brilliant Red	Water Clear
GH	InGaN	Brilliant Green	
BH	InGaN	Blue	

**Technical Data Sheet**

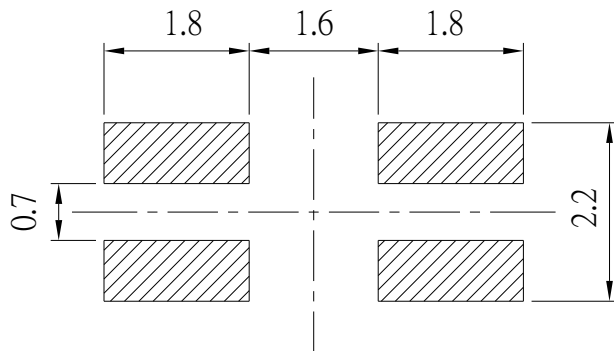
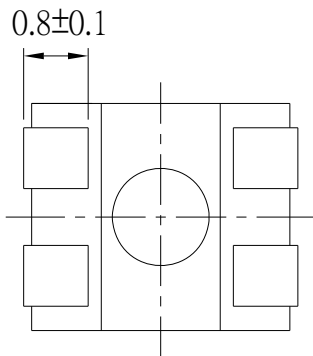
**Full Color Top View LEDs**

**67-03/RSGHBHC-B06/1T**

**Package Outline Dimensions**



For reflow soldering(propose)



- Notes:** 1.All dimensions are in millimeters  
2.Tolerances unless dimension = ±0.1mm

# Technical Data Sheet

## Full Color Top View LEDs

### 67-03/RSGHBHC-B06/1T

#### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit	
Reverse Voltage	$V_R$	5	V	
Forward Current	$I_F$	RS	50	mA
		GH	30	
		BH	30	
Peak Forward Current (Duty 1/10 @ 1KHz)	$I_{FP}$	RS	100	mA
		GH	100	
		BH	100	
Power Dissipation	$P_d$	RS	120	mw
		GH	110	
		BH	110	
Total Power Dissipation	$P_{tot}$	340	mw	
Electrostatic Discharge(HBM)	ESD	RS	2000	V
		GH	1000	
		BH	1000	
Operating Temperature	$T_{opr}$	-40 ~ +85	°C	
Storage Temperature	$T_{stg}$	-40~ +90	°C	
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.		

**Technical Data Sheet**
**Full Color Top View LEDs**
**67-03/RSGHBHC-B06/1T**
**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
Luminous Intensity	I <sub>v</sub>	RS	450	-----	715	mcd	I <sub>F</sub> =20mA
		GH	900	-----	1420		
		BH	225	-----	450		
Viewing Angle	2θ <sub>1/2</sub>	-----	120	-----	deg	I <sub>F</sub> =20mA	
Peak Wavelength	λ <sub>p</sub>	RS	-----	632	-----	nm	I <sub>F</sub> =20mA
		GH	-----	518	-----		
		BH	-----	468	-----		
Dominant Wavelength	λ <sub>d</sub>	RS	617	-----	627	nm	I <sub>F</sub> =20mA
		GH	520	-----	530		
		BH	465	-----	470		
Spectrum Radiation Bandwidth	Δλ	RS	-----	20	-----	nm	I <sub>F</sub> =20mA
		GH	-----	35	-----		
		BH	-----	35	-----		
Forward Voltage	V <sub>F</sub>	RS	-----	2.0	2.4	V	I <sub>F</sub> =20mA
		GH	-----	3.5	4.0		
		BH	-----	3.5	4.0		

**Notes:**

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1 nm

**Technical Data Sheet**
**Full Color Top View LEDs**
**67-03/RSGHBHC-B06/1T**
**Bin Range of Luminous Intensity**

Symbol		Bin Code	Min.	Max.	Unit	Condition
I <sub>v</sub>	RS	U1	450	565	mcd	I <sub>F</sub> =20mA
		U2	565	715		
	GH	V2	900	1120		
		W1	1120	1420		
	BH	S2	225	285		
		T1	285	360		
		T2	360	450		

**Bin Range of Dominant Wavelength**

Symbol		Bin Code	Min.	Max.	Unit	Condition
λ <sub>d</sub>	RS	1	617	622	nm	I <sub>F</sub> =20mA
		2	622	627		
	GH	X	520	525		
		Y	525	530		
	BH	X	465	470		

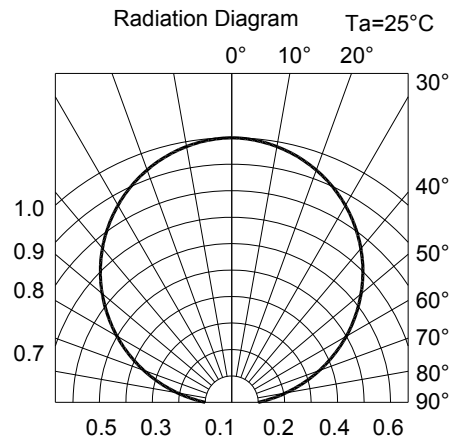
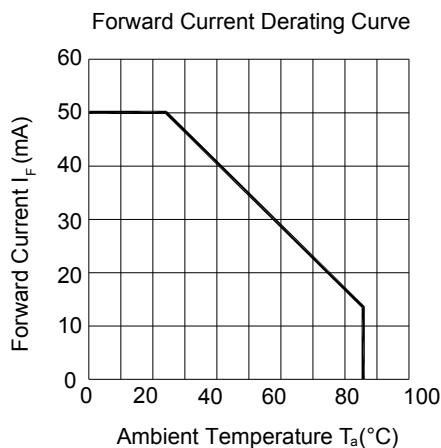
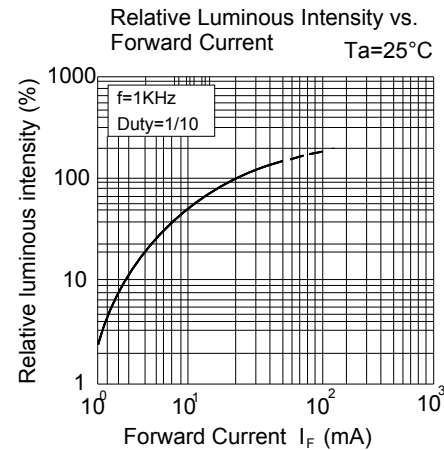
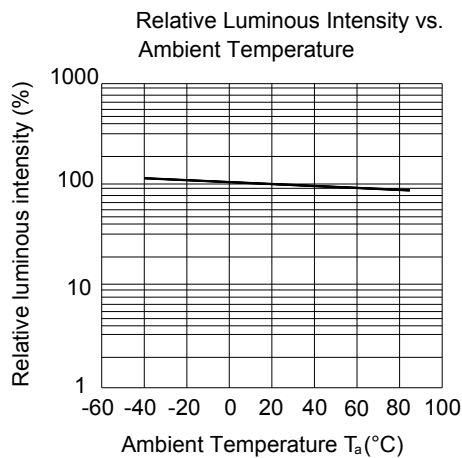
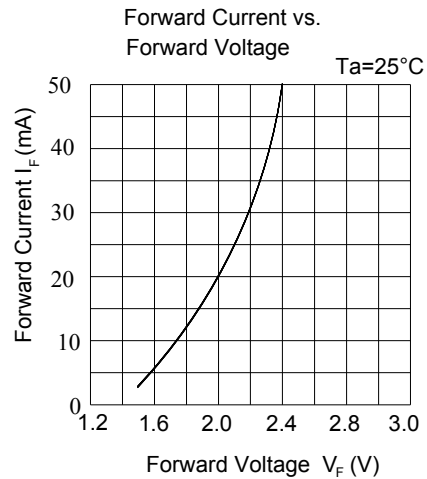
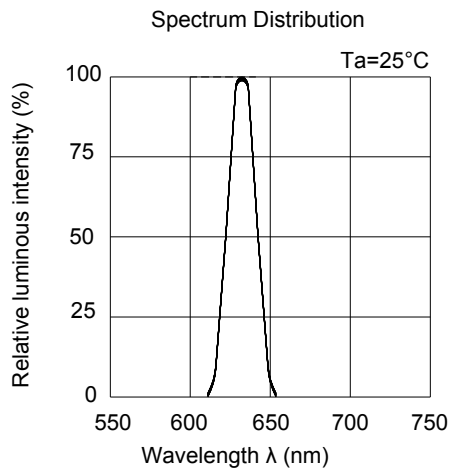
Notes:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1 nm

**Technical Data Sheet**  
**Full Color Top View LEDs**

**67-03/RSGHBHC-B06/1T**

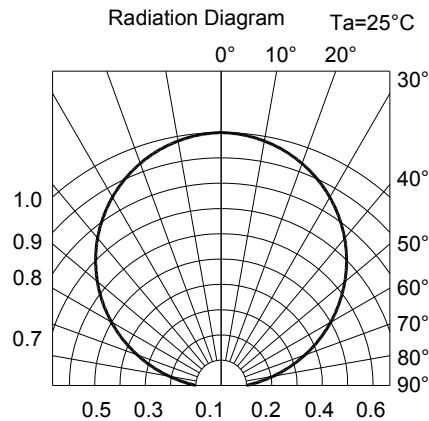
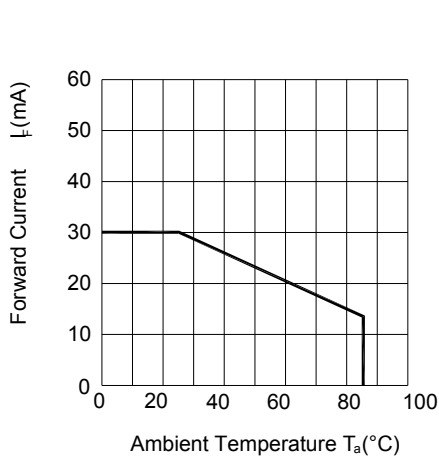
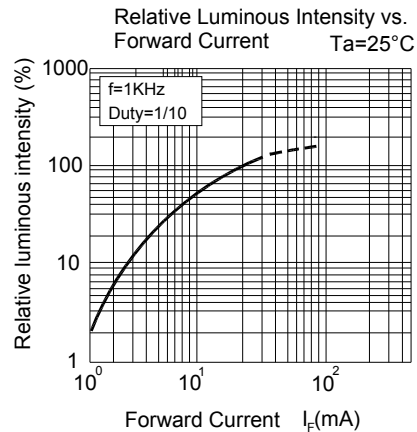
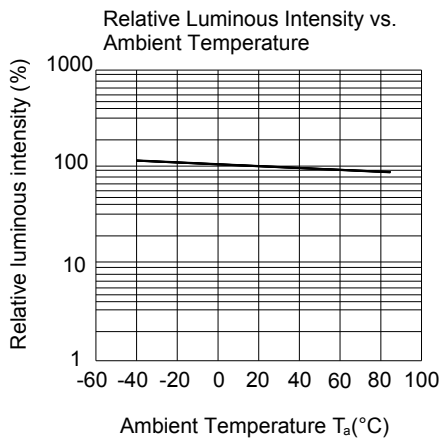
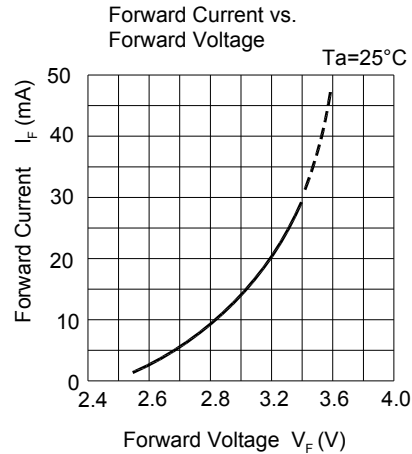
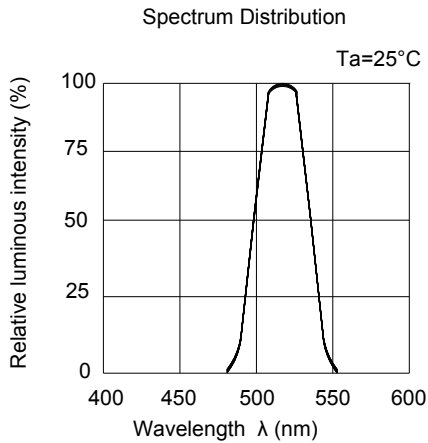
**Typical Electro-Optical Characteristics Curves (RS)**



**Technical Data Sheet**  
**Full Color Top View LEDs**

**67-03/RSGHBHC-B06/1T**

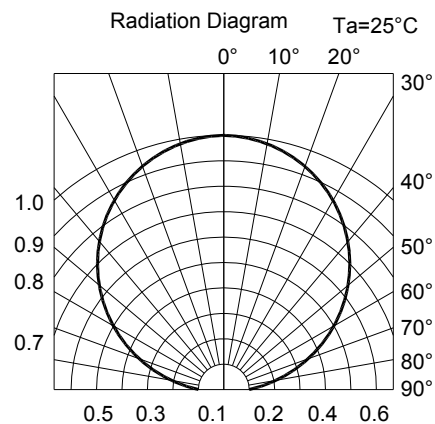
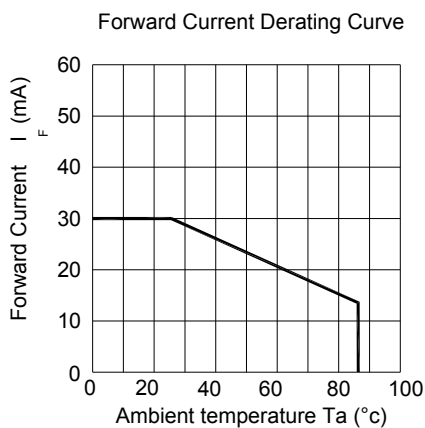
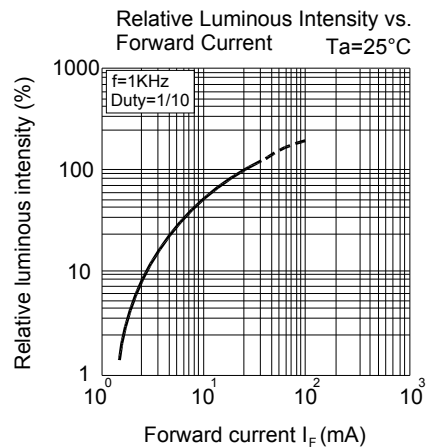
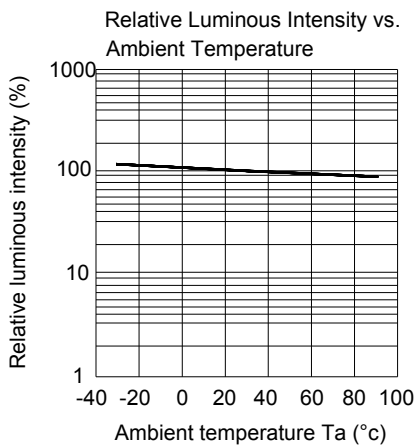
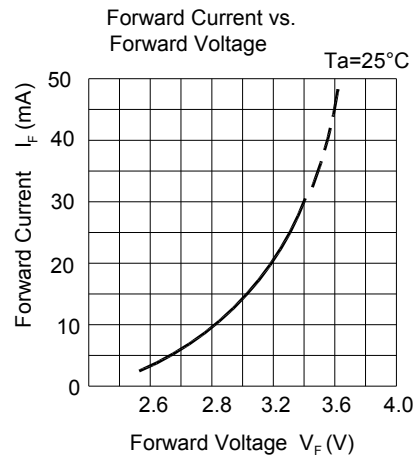
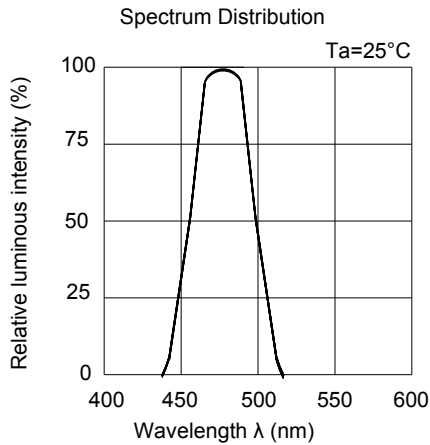
**Typical Electro-Optical Characteristics Curves (GH)**



**Technical Data Sheet**  
**Full Color Top View LEDs**

**67-03/RSGHBHC-B06/1T**

**Typical Electro-Optical Characteristics Curves (BH)**





**Technical Data Sheet**  
**Full Color Top View LEDs**

**67-03/RSGHBHC-B06/1T**

**Label Explanation**

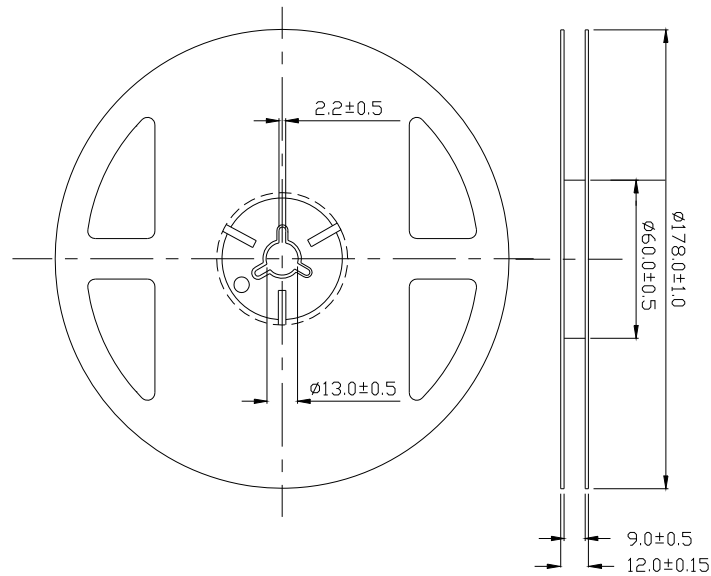
**CAT: Luminous Intensity Rank**

**HUE: Dom. Wavelength Rank**

**REF: Forward Voltage Rank**



**Reel Dimensions**



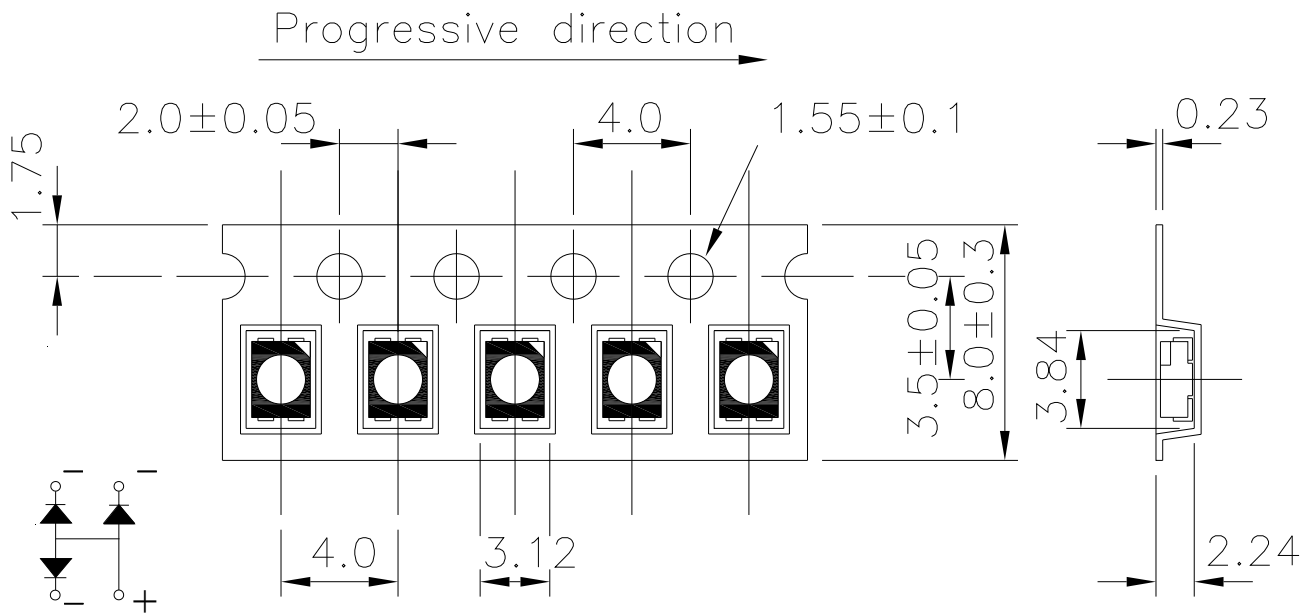
**Note:** Tolerances unless dimension  $\pm 0.1$ mm; Unit = mm

**Technical Data Sheet**

**Full Color Top View LEDs**

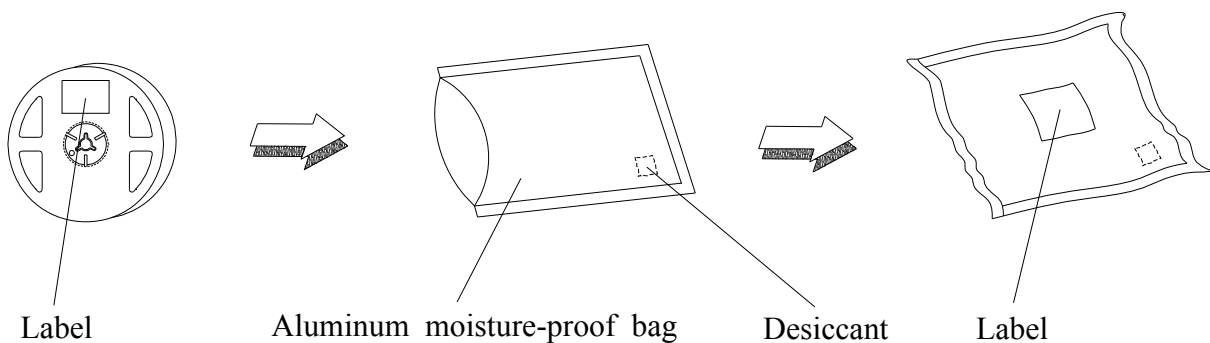
**67-03/RSGHBHC-B06/1T**

**Carrier Tape Dimensions: Loaded quantity 1000 PCS per reel.**



**Note:** Tolerances unless dimension  $\pm 0.1\text{mm}$ ; Unit = mm

**Moisture Resistant Packaging**



**Technical Data Sheet**
**Full Color Top View LEDs**
**67-03/RSGHBHC-B06/1T**
**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°C 15min ┆ 5 min L : -40°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°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	I <sub>F</sub> = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	22 PCS.	0/1

## Technical Data Sheet

### Full Color Top View LEDs

**67-03/RSGHBHC-B06/1T**

#### 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.

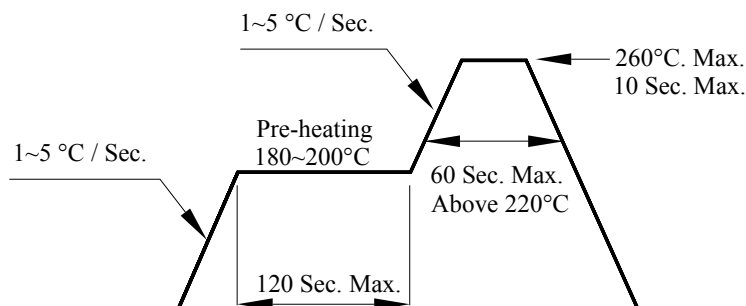
2.3 After opening the package: The LED's floor life is 72 hours under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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.

## Technical Data Sheet

### Full Color Top View LEDs

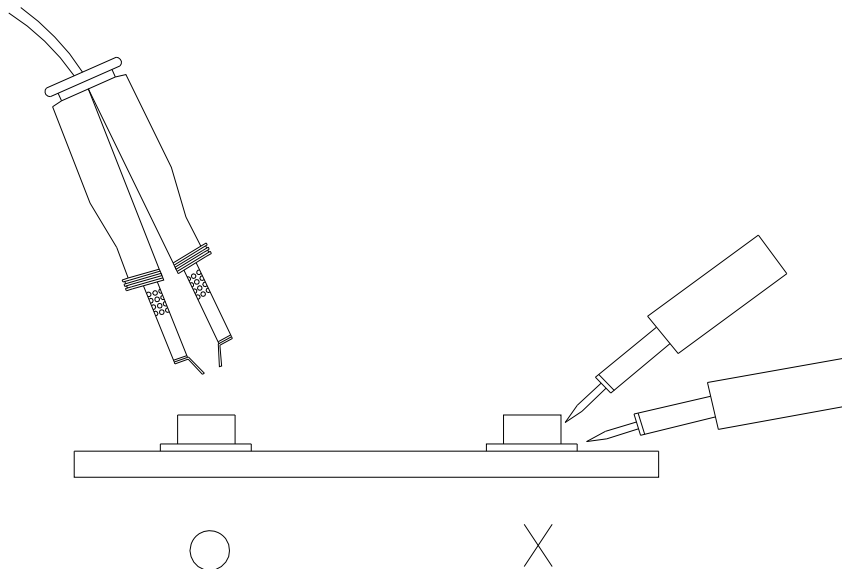
#### 67-03/RSGHBHC-B06/1T

#### 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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