



## TECHNOLOGY DATA SHEET & SPECIFICATIONS

MODEL: 0603R1C-KHA-C

### 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 0603 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



### Usage Notes:

- Surge will damage the LED
- When using LED, it must use a protective resistor in series with DC current about 20mA

### Applications

- Automotive: 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

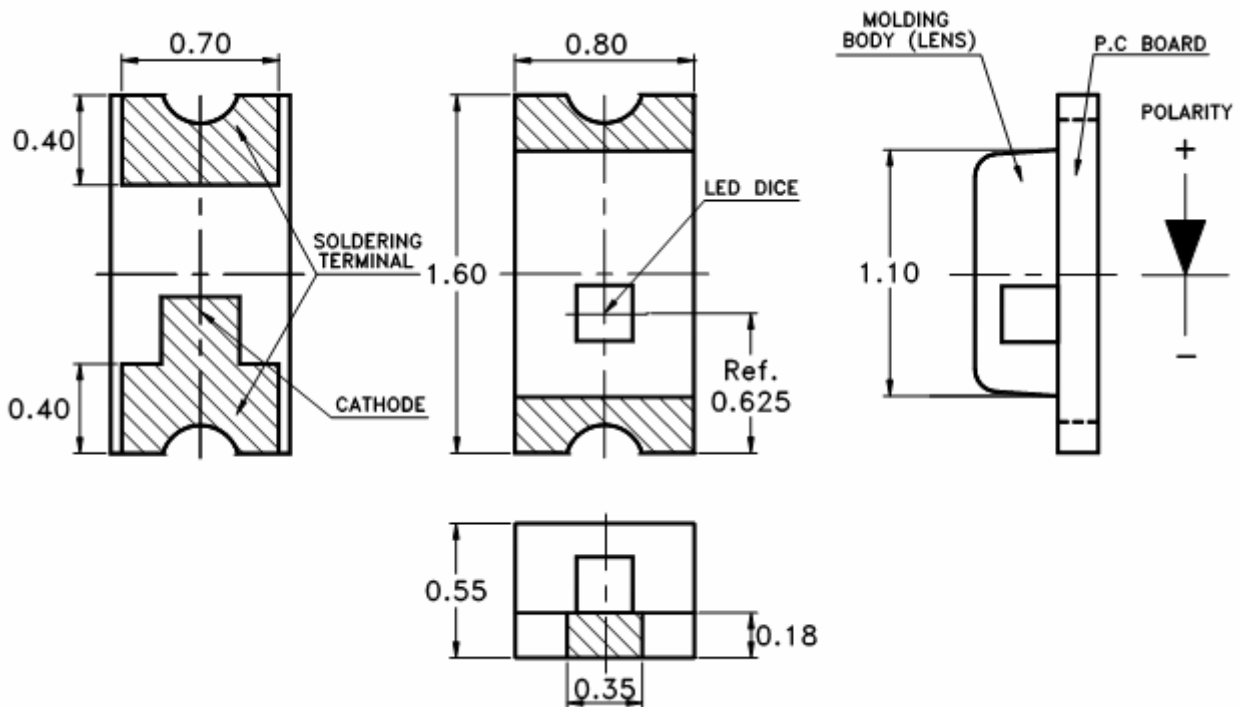
LED Part No.	Chip		Lens Color
	Material	Emitted Color	
0603R1C-KHA-C	AlGaInP	Red	Water clear



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### Package Dimensions



### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.10$  mm (.004") unless otherwise noted.



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### Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I <sub>v</sub>	100	---	150	mcd	IF=20mA(Note1)
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	Deg	(Note 2)
Peak Emission Wavelength	λ <sub>p</sub>	620	---	635	nm	IF=20mA
Spectral Line Half-Width	Δλ	15	20	25	nm	IF=20mA
Forward Voltage	V <sub>F</sub>	1.9	---	2.4	V	IF=20mA
Reverse Current	I <sub>R</sub>	---	---	10	μA	VR=5V

#### Note:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. θ<sub>1/2</sub> is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

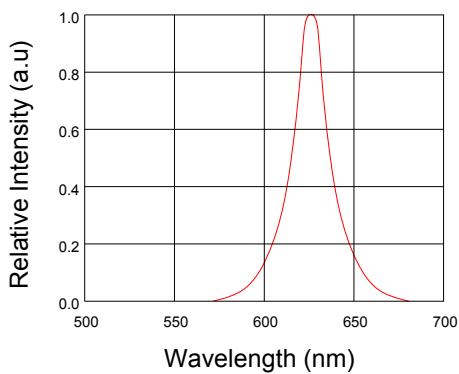


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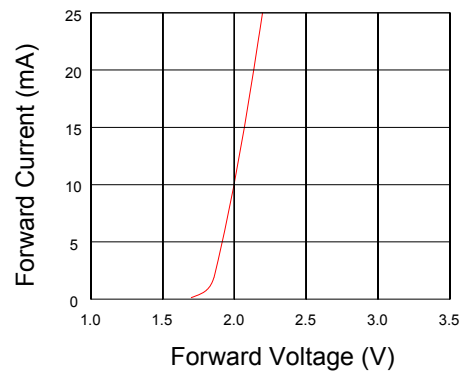
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### Typical Electro-Optical Characteristics Curves

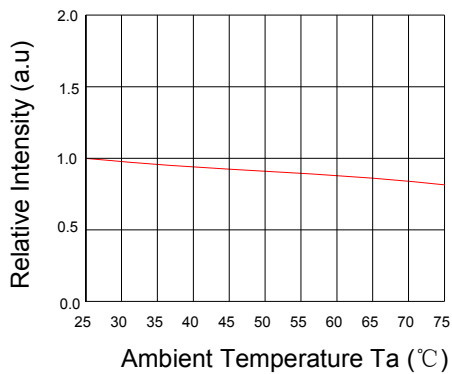
Relative Intensity VS. Wavelength



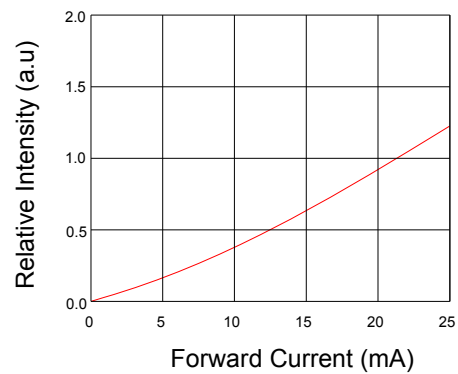
Forward Current VS. Forward Voltage



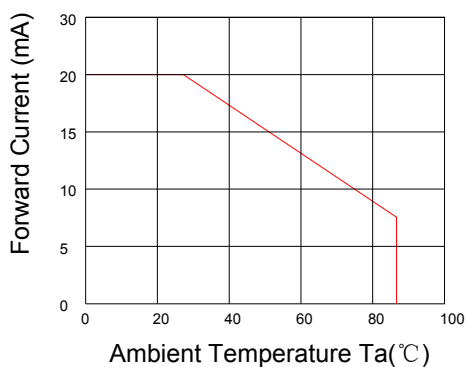
Relative Intensity VS. Ambient Temp



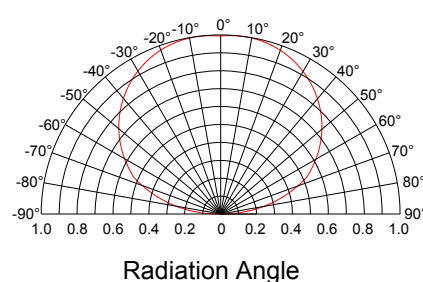
Forward Current VS. Relative Intensity



Forward Current VS. Ambient Temp.



Radiation Characteristics





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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

Do not open moisture proof bag before the products are ready to use

Before opening the package, the LEDs should be kept at 30°C or less and 90 % RH or less

The LEDs should be used within a year

After opening the package, the LEDs should be kept at 30°C or less 70 % RH or less

The LEDs should be used within 168 hours(7 days)after opening the package

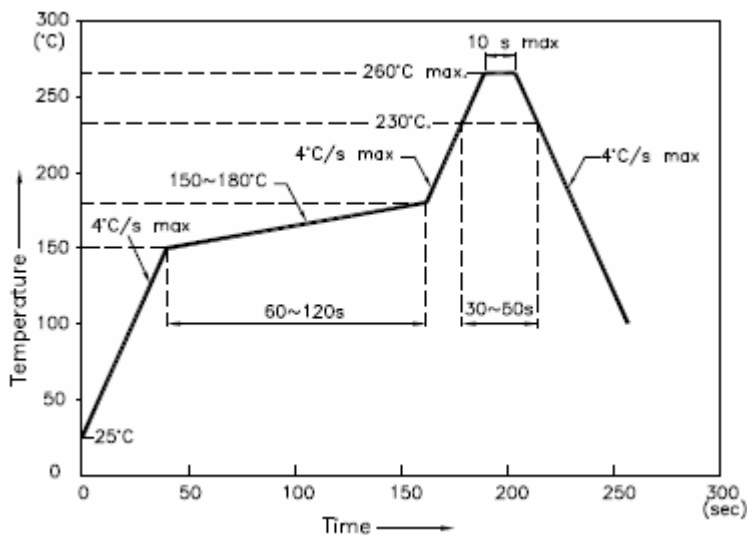
If the moisture absorbent material(silica gel)has faded away or the LEDs have exceeded the

Storage time, baking treatment should be performed using the following conditions

Baking treatment:60±5°C for 24 hours

3. Soldering Condition

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

After soldering, do not warp the circuit board



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#### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280°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

