

# Kingbright®

## 3x2mm SINGLE COLOR SURFACE MOUNT LED LAMPS

KA-3020

### Features

- 3.0MM X 2.0MM, 1.4MM HIGH, ONLY MINIMUM SPACE REQUIRED.
- SUITABLE FOR COMPACT OPTOELECTRONIC APPLICATIONS.
- LOW POWER CONSUMPTION.
- EMBOSSED TAPING.

### Description

The Super Bright Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

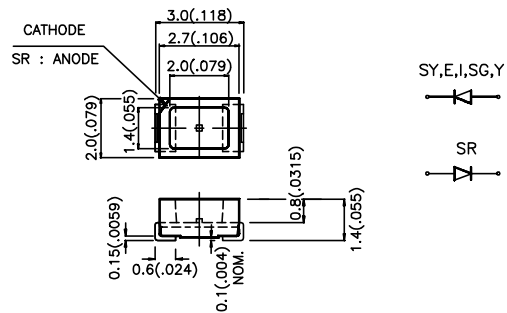
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

The Super Bright Yellow source color devices are made with DH InGaAlP on GaAs substrate Light Emitting Diode.

### Package Dimensions



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subjected to change without notice.

### Selection Guide

| Part No.   | Dice                            | Lens Type          | Iv (mcd)<br>@ 20 mA |      | Viewing<br>Angle |
|------------|---------------------------------|--------------------|---------------------|------|------------------|
|            |                                 |                    | Min.                | Max. |                  |
| KA-3020IT  | HIGH EFFICIENCY RED (GaAsP/GaP) | RED TRANSPARENT    | 8                   | 60   | 90°              |
| KA-3020EC  | HIGH EFFICIENCY RED (GaAsP/GaP) | WATER CLEAR        | 8                   | 60   | 90°              |
| KA-3020YT  | YELLOW (GaAsP/GaP)              | YELLOW TRANSPARENT | 8                   | 40   | 90°              |
| KA-3020YC  | YELLOW (GaAsP/GaP)              | WATER CLEAR        | 8                   | 40   | 90°              |
| KA-3020SRC | SUPER BRIGHT RED (GaAlAs)       | WATER CLEAR        | 70                  | 300  | 90°              |
| KA-3020SGT | SUPER BRIGHT GREEN (GaP)        | GREEN TRANSPARENT  | 8                   | 40   | 90°              |
| KA-3020SGC | SUPER BRIGHT GREEN (GaP)        | WATER CLEAR        | 8                   | 40   | 90°              |
| KA-3020SYT | SUPER BRIGHT YELLOW (InGaAlP)   | YELLOW TRANSPARENT | 100                 | 200  | 90°              |
| KA-3020SYC | SUPER BRIGHT YELLOW (InGaAlP)   | WATER CLEAR        | 100                 | 200  | 90°              |

#### Note:

1.  $\theta 1/2$  is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

### Electrical / Optical Characteristics at T<sub>A</sub>=25°C

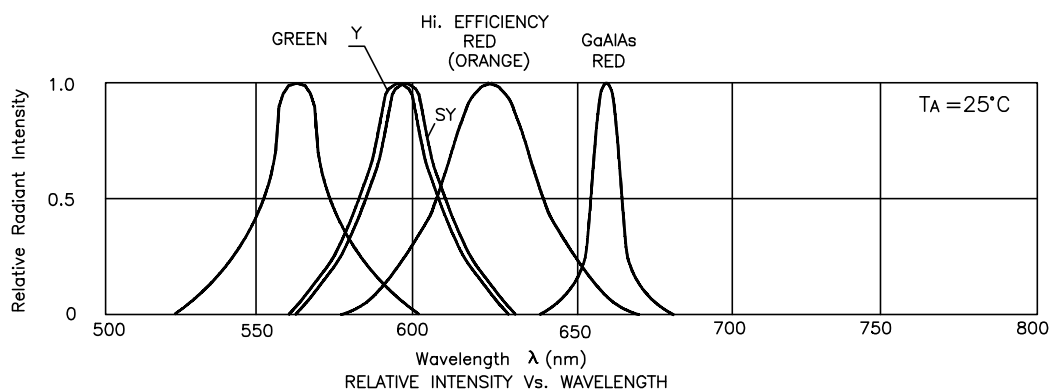
| Symbol                | Parameter               | Device                                                                                         | Typ.                             | Max.                            | Units | Test Conditions |
|-----------------------|-------------------------|------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------|-------|-----------------|
| $\lambda_{peak}$      | Peak Wavelength         | High Efficiency Red<br>Yellow<br>Super Bright Red<br>Super Bright Green<br>Super Bright Yellow | 625<br>590<br>660<br>565<br>595  |                                 | nm    | IF=20mA         |
| $\Delta\lambda_{1/2}$ | Spectral Line Halfwidth | High Efficiency Red<br>Yellow<br>Super Bright Red<br>Super Bright Green<br>Super Bright Yellow | 45<br>35<br>20<br>30<br>20       |                                 | nm    | IF=20mA         |
| C                     | Capacitance             | High Efficiency Red<br>Yellow<br>Super Bright Red<br>Super Bright Green<br>Super Bright Yellow | 12<br>10<br>95<br>45<br>33       |                                 | pF    | VF=0V;f=1MHz    |
| V <sub>F</sub>        | Forward Voltage         | High Efficiency Red<br>Yellow<br>Super Bright Red<br>Super Bright Green<br>Super Bright Yellow | 2.0<br>2.1<br>1.85<br>2.2<br>2.0 | 2.5<br>2.5<br>2.5<br>2.5<br>2.4 | V     | IF=20mA         |
| I <sub>R</sub>        | Reverse Current         | All                                                                                            | 10                               |                                 | uA    | VR = 5V         |

### Absolute Maximum Ratings at T<sub>A</sub>=25°C

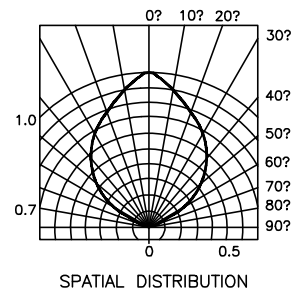
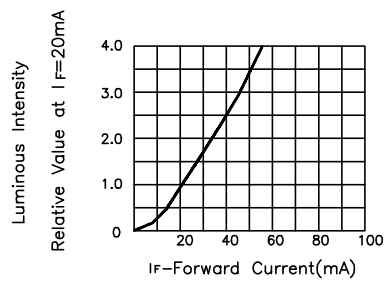
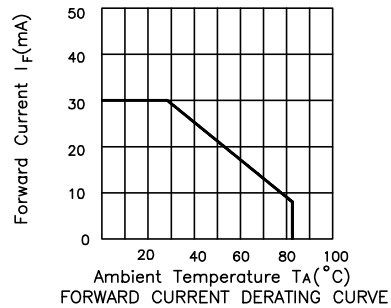
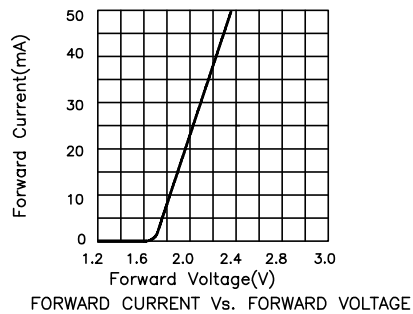
| Parameter                     | High Efficiency Red | Yellow | Super Bright Red | Super Bright Green | Super Bright Yellow | Units |
|-------------------------------|---------------------|--------|------------------|--------------------|---------------------|-------|
| Power dissipation             | 105                 | 105    | 100              | 105                | 125                 | mW    |
| DC Forward Current            | 30                  | 30     | 30               | 25                 | 30                  | mA    |
| Peak Forward Current [1]      | 150                 | 150    | 150              | 150                | 150                 | mA    |
| Reverse Voltage               | 5                   | 5      | 5                | 5                  | 5                   | V     |
| Operating/Storage Temperature | -40 °C To +85 °C    |        |                  |                    |                     |       |

Note:

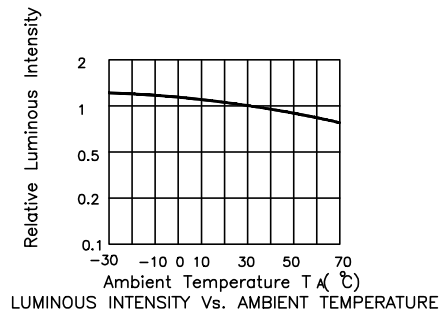
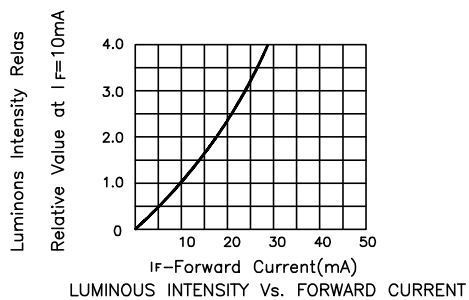
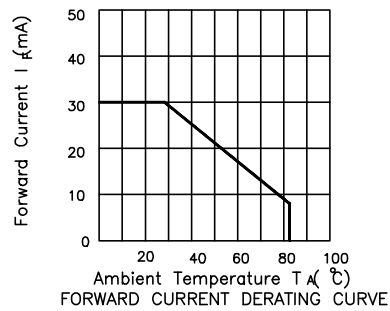
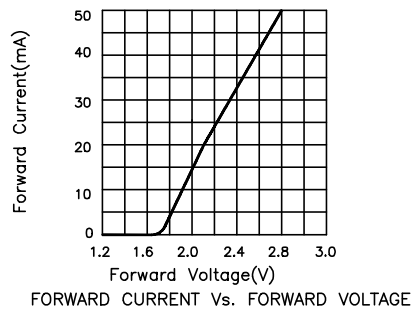
1. 1/10 Duty Cycle, 0.1ms Pulse Width.



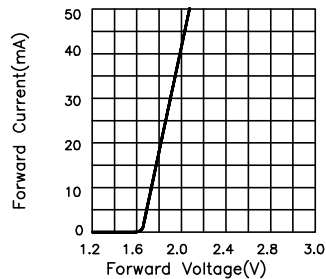
## High Efficiency Red KA-3020IT , KA-3020EC



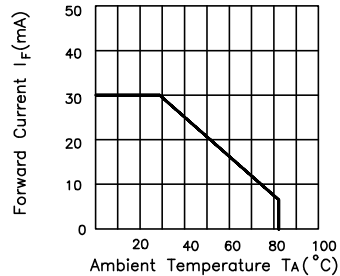
## Yellow KA-3020YT , KA-3020YC



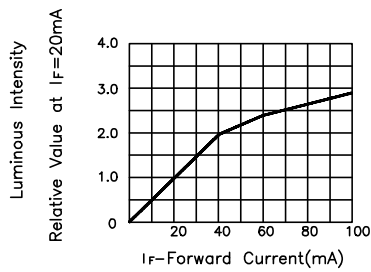
## Super Bright Red KA-3020SRC



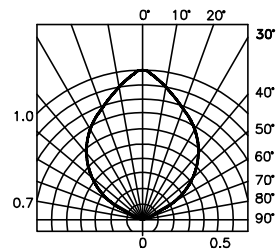
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

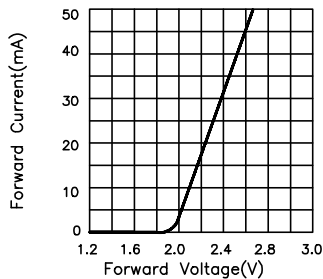


LUMINOUS INTENSITY Vs. FORWARD CURRENT

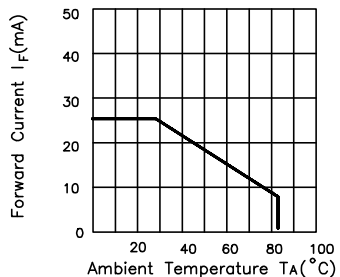


SPATIAL DISTRIBUTION

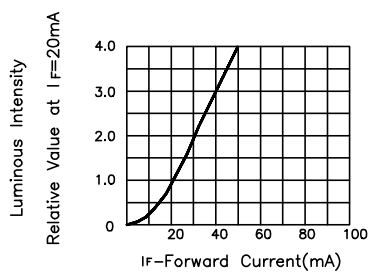
## Super Bright Green KA-3020SGT , KA-3020SGC



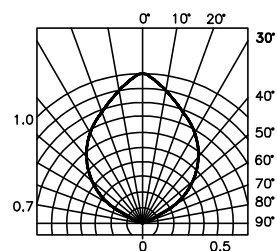
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

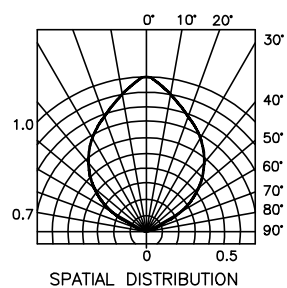
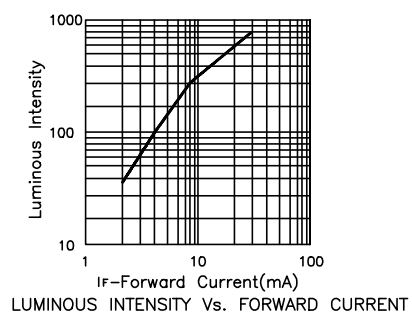
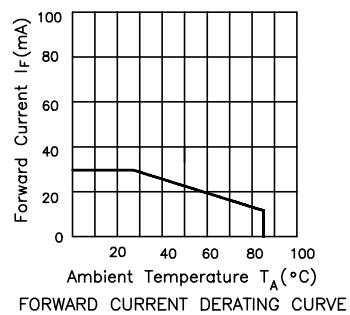
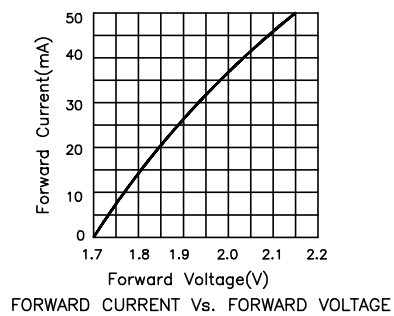


LUMINOUS INTENSITY Vs. FORWARD CURRENT

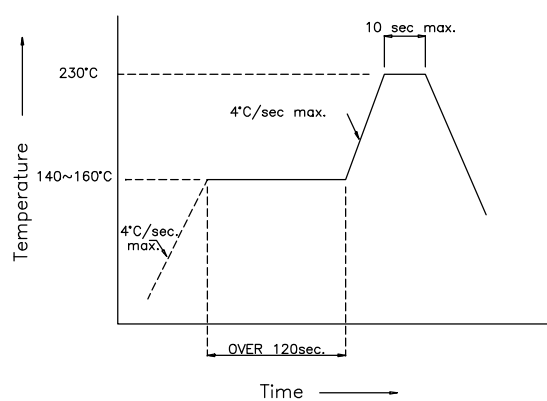


SPATIAL DISTRIBUTION

## Super Bright Yellow KA-3020SYT , KA-3020SYC



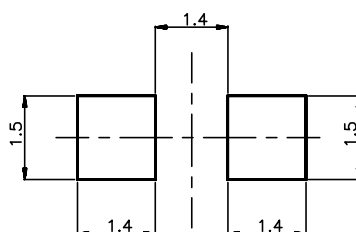
## KA-3020 Series SMT Reflow Soldering Instructions



## KA-3020 Series Recommended Soldering Pattern

(Units : mm)

FOR REFLOW SOLDERING



## KA-3020 Series Tape Specifications

(Units : mm)

