

# 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.

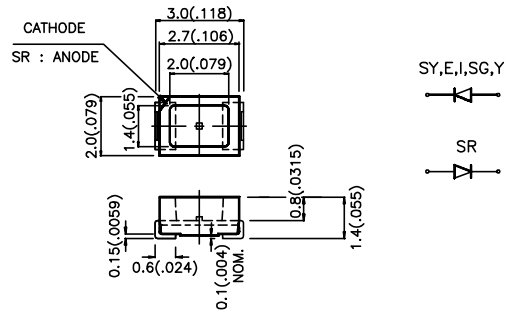
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

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) @ 20 mA		Viewing Angle
			Min.	Max.	2q1/2
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.

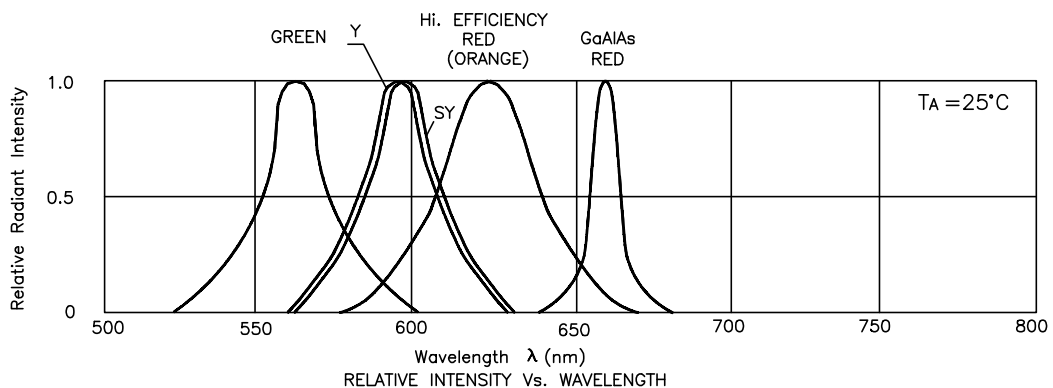
### Electrical / Optical Characteristics at T<sub>A</sub>=25°C

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

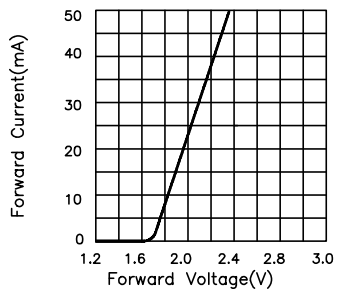
### Absolute Maximum Ratings at T<sub>A</sub>=25°C

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					

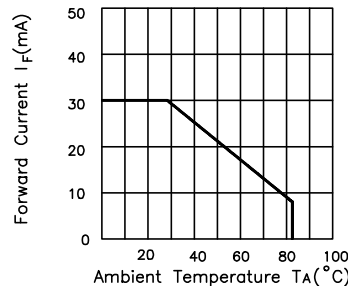
Note:  
1. 1/10 Duty Cycle, 0.1ms Pulse Width.



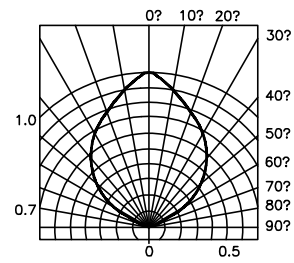
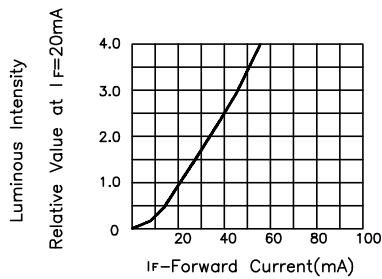
## High Efficiency Red KA-3020IT , KA-3020EC



FORWARD CURRENT Vs. FORWARD VOLTAGE

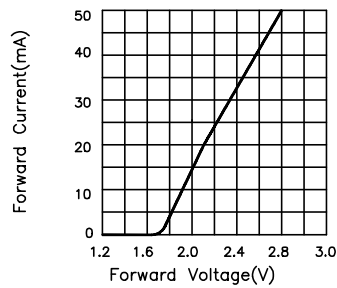


FORWARD CURRENT DERATING CURVE

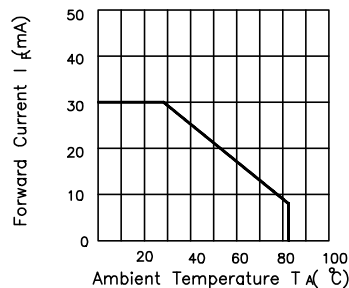


SPATIAL DISTRIBUTION

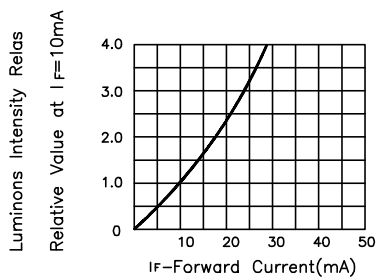
## Yellow KA-3020YT , KA-3020YC



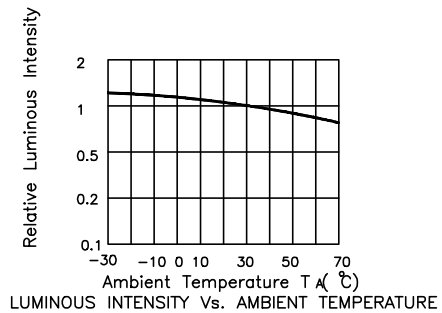
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

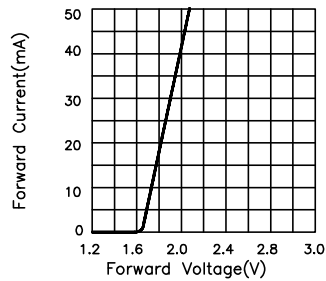


LUMINOUS INTENSITY Vs. FORWARD CURRENT

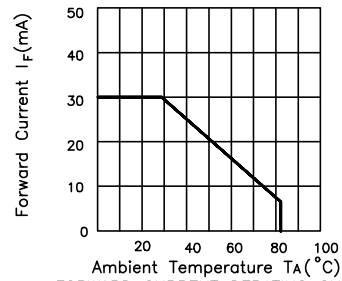


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

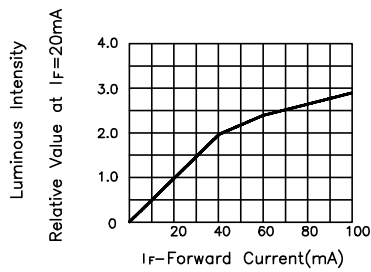
## Super Bright Red KA-3020SRC



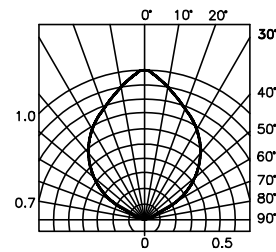
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

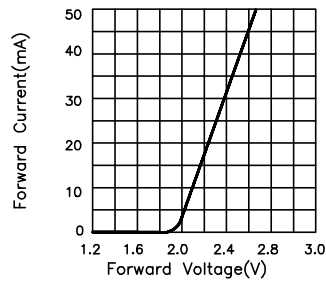


LUMINOUS INTENSITY Vs. FORWARD CURRENT

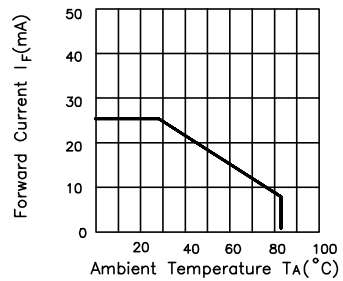


SPATIAL DISTRIBUTION

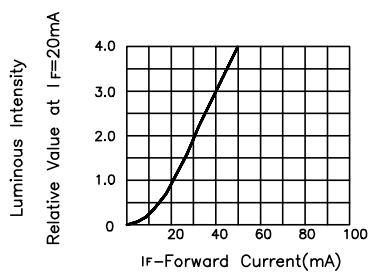
## Super Bright Green KA-3020SGT , KA-3020SGC



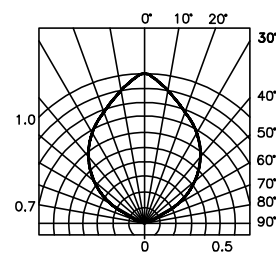
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

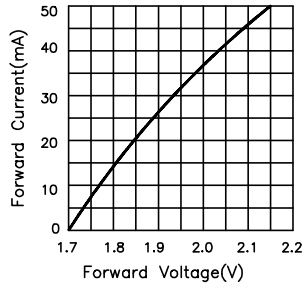


LUMINOUS INTENSITY Vs. FORWARD CURRENT

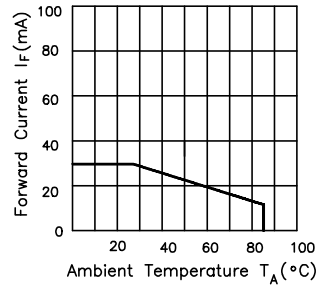


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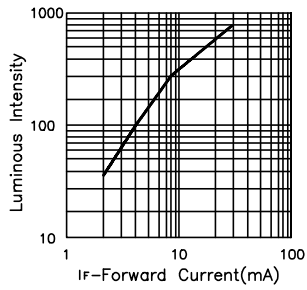
## Super Bright Yellow KA-3020SYT , KA-3020SYC



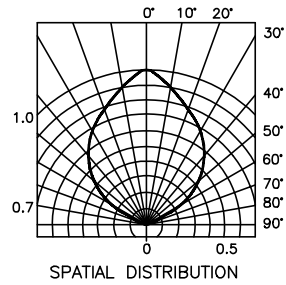
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

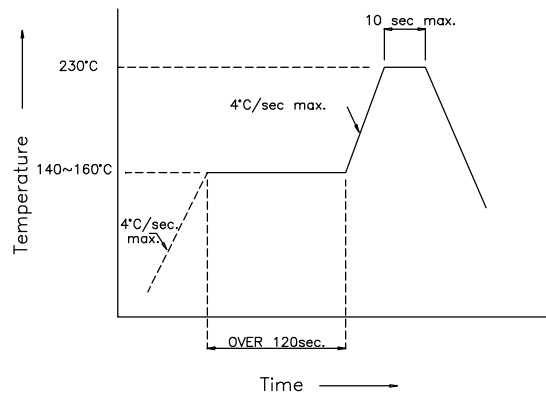


LUMINOUS INTENSITY Vs. FORWARD CURRENT



SPATIAL DISTRIBUTION

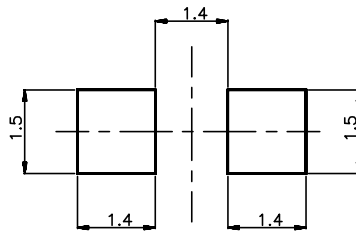
## KA-3020 Series SMT Reflow Soldering Instructions



### KA-3020 Series Recommended Soldering Pattern

(Units : mm)

FOR REFLOW SOLDERING



### KA-3020 Series Tape Specifications

(Units : mm)

