

620-920

**Kingbright®**

**3x2.2mm SINGLE COLOR SURFACE MOUNT LED LAMPS**

KA-3022-4.5SF

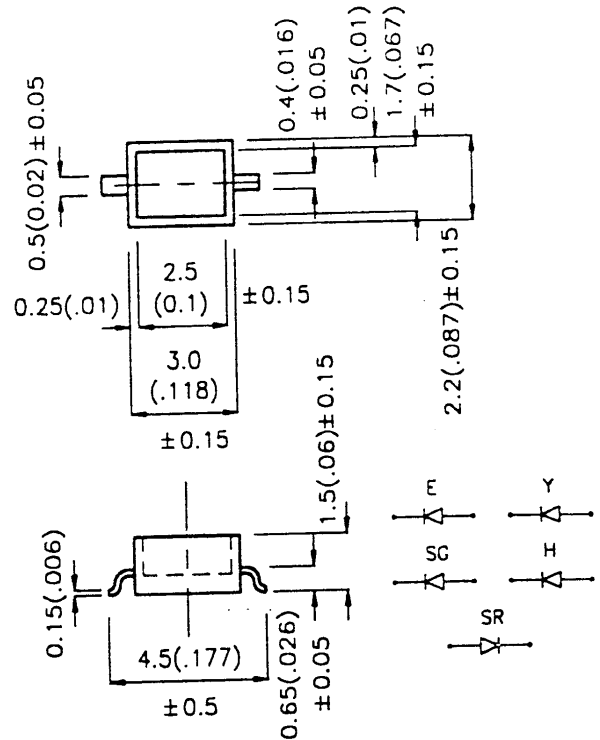
**Features**

- RECTANGULAR PACKAGE, 3MM BY 2.2 MM BY 1.5MM THICKNESS.
- WHITE REFLECTOR TO MAXIMIZE REFLECTION OF LIGHT.
- ULTRA-COMPACT TYPE ASSURES SPACE-SAVING.
- HIGH EFFICIENCY & LOW POWER CONSUMPTION.

**Description**

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

**Package Dimensions**



- Notes:  
 1. All dimensions are in millimeters (inches).  
 2. Tolerance is ±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 2θ1/2
			Min.	Max.	
KA-3022HT-4.5SF	BRIGHT RED (GaP)	RED TRANSPARENT	1.25	3.2	90°
KA-3022HC-4.5SF		WATER CLEAR			
KA-3022IT-4.5SF	HIGH EFFICIENCY RED (GaAsP/GaP)	RED TRANSPARENT	12.5	20.0	
KA-3022EC-4.5SF		WATER CLEAR			
KA-3022YT-4.5SF	YELLOW (GaAsP/GaP)	YELLOW TRANSPARENT	5.0	20.0	
KA-3022YC-4.5SF		WATER CLEAR			
KA-3022SRT-A-4.5SF	SUPER BRIGHT RED (GaAlAs)	RED TRANSPARENT	60	90	
KA-3022SRT-B-4.5SF		RED TRANSPARENT	90	200	
KA-3022SRC-A-4.5SF		WATER CLEAR	60	100	
KA-3022SRC-B-4.5SF		WATER CLEAR	100	200	
KA-3022SGT-4.5SF	SUPER BRIGHT GREEN (GaP)	GREEN TRANSPARENT	8.0	20	
KA-3022SGC-4.5SF		WATER CLEAR	12.5	40	

Notes:  
 1. θ1/2 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

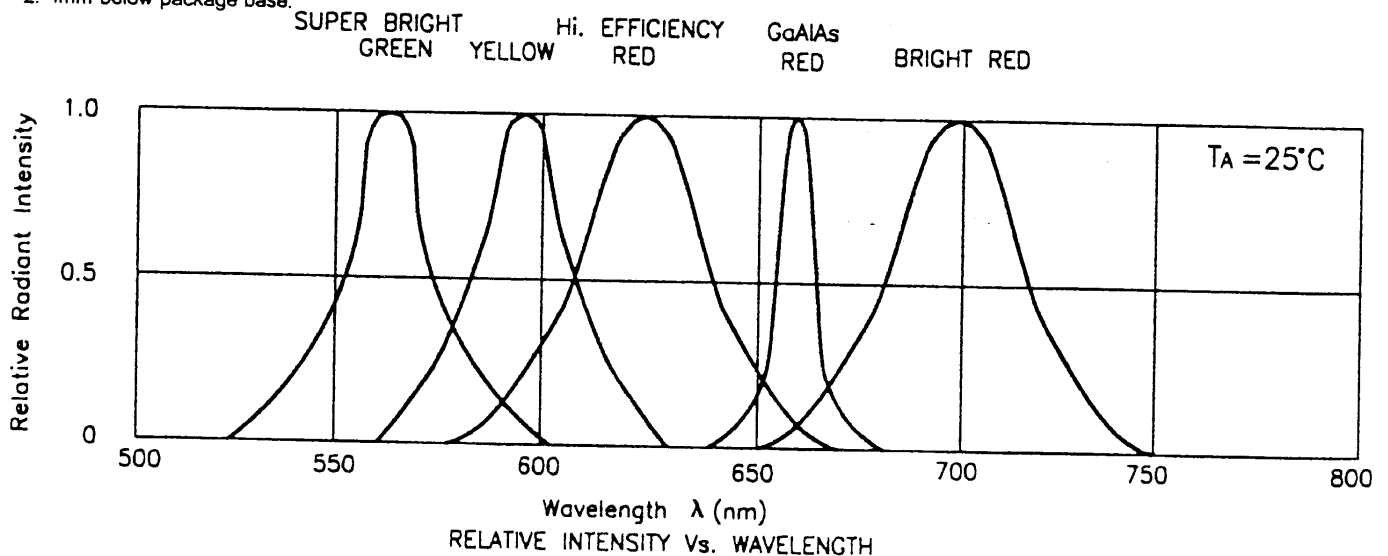
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Bright Red High Efficiency Red Super Bright Green Yellow Super Bright Red	700 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Super Bright Green Yellow Super Bright Red	45 45 30 35 20		nm	IF=20mA
C	Capacitance	Bright Red High Efficiency Red Super Bright Green Yellow Super Bright Red	40 12 45 10 95		pF	VF=0V;f=1MHz
V <sub>F</sub>	Forward Voltage	Bright Red High Efficiency Red Super Bright Green Yellow Super Bright Red	2.0 2.0 2.2 2.1 1.85	2.5 2.5 2.5 2.5 2.5	V	IF=20mA
I <sub>R</sub>	Reverse Current	All	10		uA	VR = 5V

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

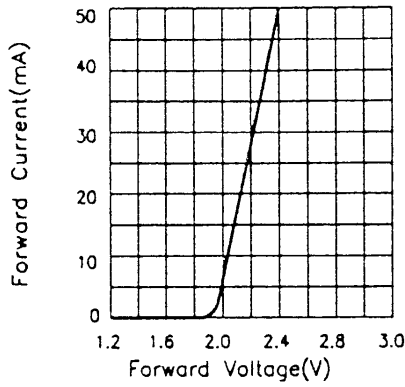
Parameter	Bright Red	High Efficiency Red	Yellow	Super Bright Red	Super Bright Green	Units
Power dissipation	120	105	105	100	105	mW
DC Forward Current	25	30	30	30	25	mA
Peak Forward Current [1]	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	V
Operating/Storage Temperature	-40°C To +85°C					
Lead Soldering Temperature [2]	210°C For 3 Seconds					

Notes:

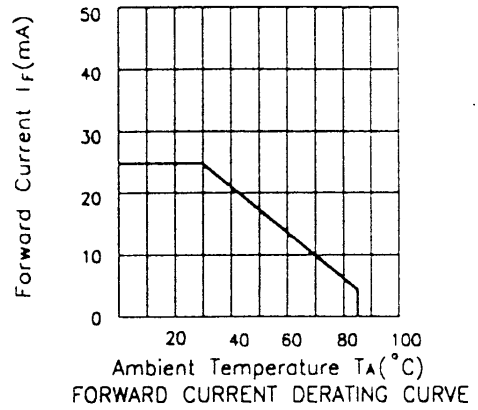
- $\tau \leq 10\mu s$ .
- 4mm below package base.



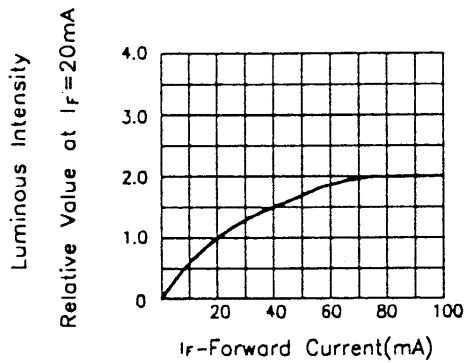
## Bright Red KA-3022HT-4.5SF , KA-3022HC-4.5SF



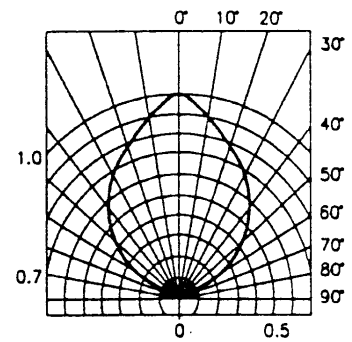
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

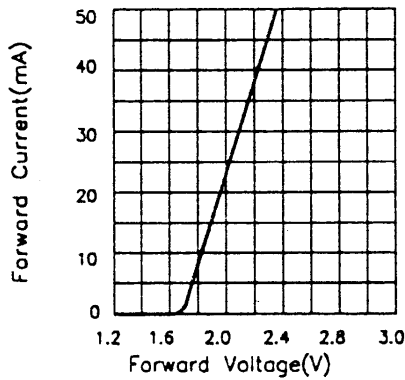


LUMINOUS INTENSITY Vs. FORWARD CURRENT

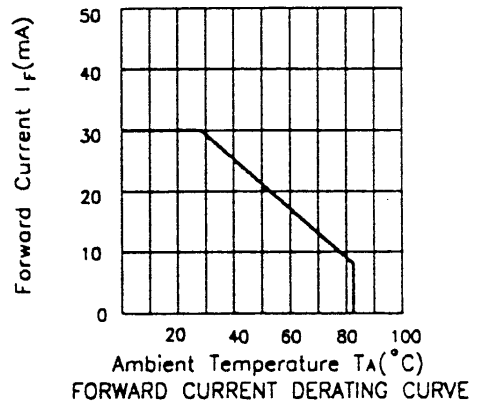


SPATIAL DISTRIBUTION

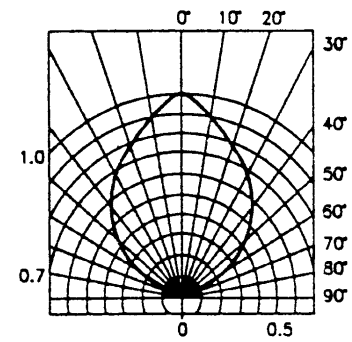
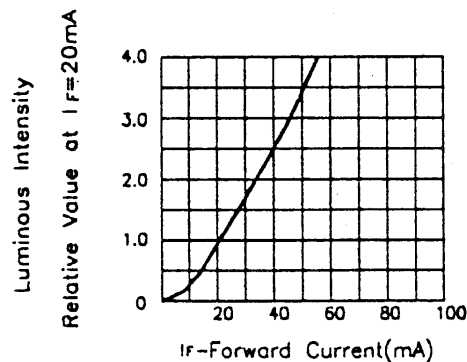
## High Efficiency Red KA-3022IT-4.5SF , KA-3022EC-4.5SF



FORWARD CURRENT Vs. FORWARD VOLTAGE

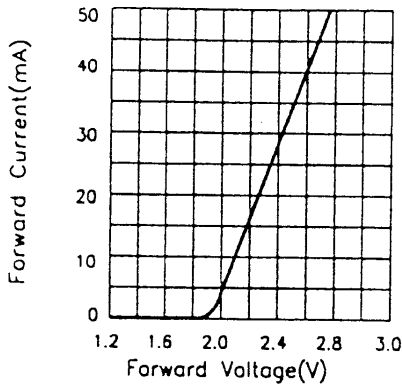


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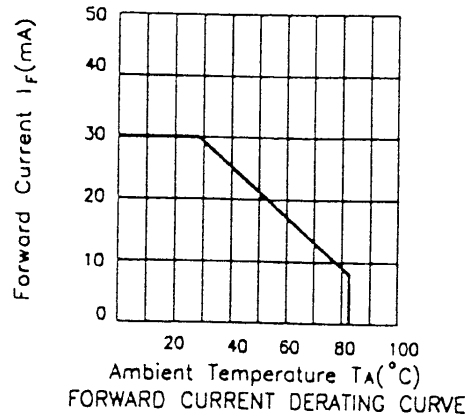


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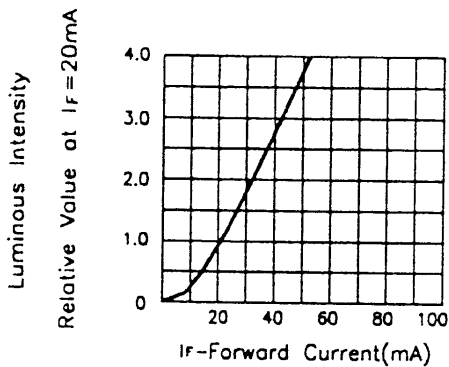
## Yellow KA-3022YT-4.5SF , KA-3022YC-4.5SF



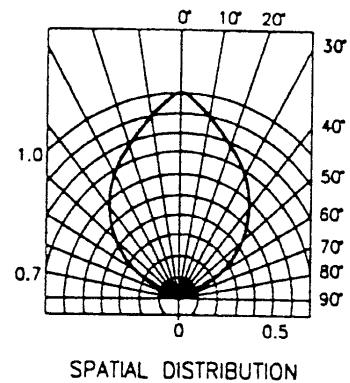
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

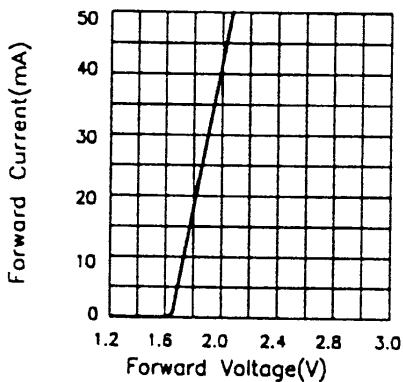


LUMINOUS INTENSITY Vs. FORWARD CURRENT

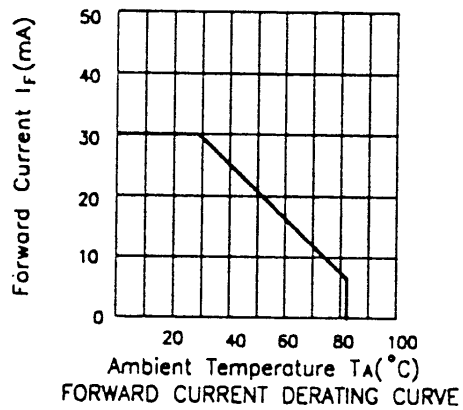


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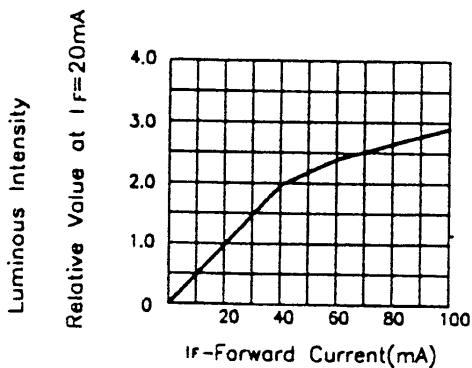
## Super Bright Red KA-3022SRT-A/B-4.5SF , KA-3022SRC-A/B-4.5SF



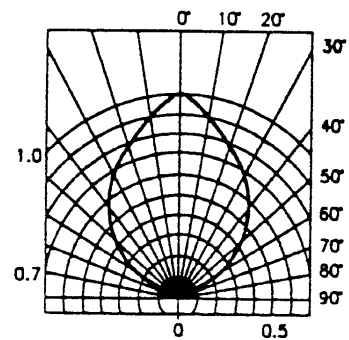
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

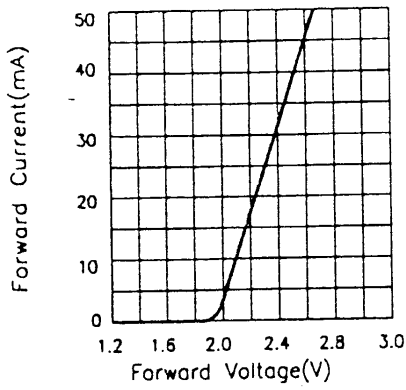


LUMINOUS INTENSITY Vs. FORWARD CURRENT

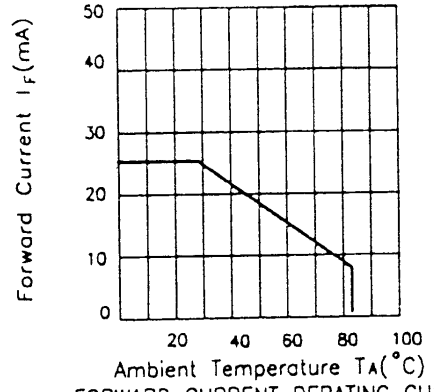


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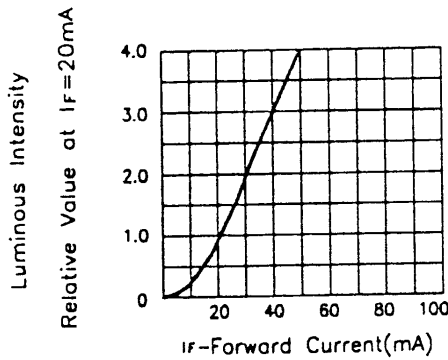
# Super Bright Green KA-3022SGT-4.5SF , KA-3022SGC-4.5SF



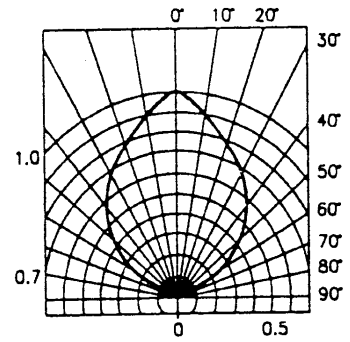
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



SPATIAL DISTRIBUTION