

# Kingbright®

## 3x3mm SQUARE LED LAMPS

L-704H BRIGHT RED	L-704G GREEN
L-704I HIGH EFFICIENCY RED	L-704E ORANGE
L-704SR SUPER BRIGHT RED	L-704Y YELLOW

### Features

- LOW POWER CONSUMPTION.
- ULTRA BRIGHTNESS IS AVAILABLE.
- WIDE VIEWING ANGLE.
- RELIABLE AND RUGGED.
- EXCELLENT UNIFORMITY OF LIGHT OUTPUT.
- IDEAL FOR FLUSH MOUNTED PANEL INDICATORS.

### Description

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

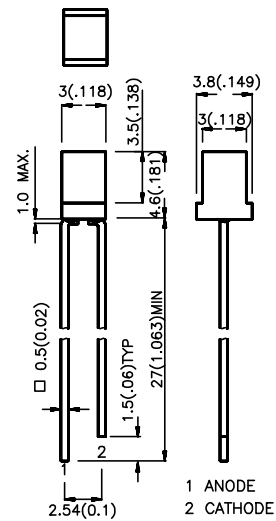
The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

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

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

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow 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) @ 10 mA		Viewing Angle
			Min.	Max.	
L-704HD	BRIGHT RED (GaP)	RED DIFFUSED	0.8	1.25	110°
L-704ID	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	3.2	8	110°
L-704ED	ORANGE (GaAsP/GaP)	ORANGE DIFFUSED	3.2	8	110°
L-704GD	GREEN (GaP)	GREEN DIFFUSED	2	5	110°
L-704YD	YELLOW (GaAsP/GaP)	YELLOW DIFFUSED	2	5	110°
L-704SRD	SUPER BRIGHT RED (GaAlAs)	RED DIFFUSED	*30	*70	110°

- Notes:
1.  $\theta_{1/2}$  is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
  2. \* Luminous intensity with asterisk is measured at 20mA.

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

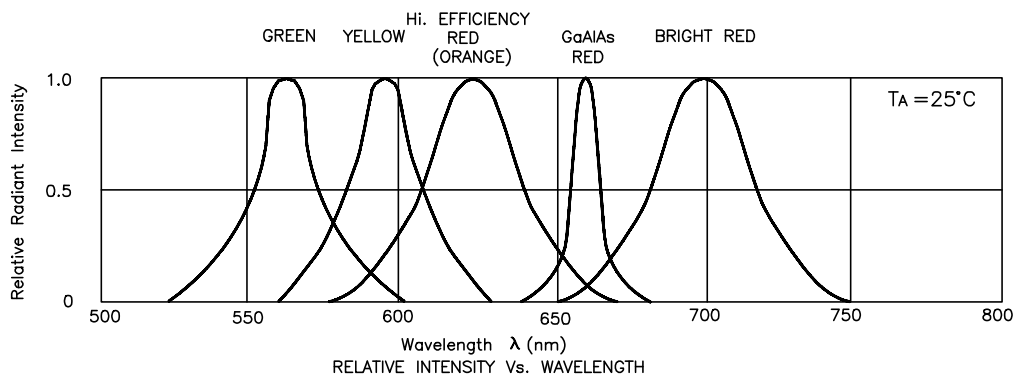
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Bright Red High Efficiency Red Orange Green Yellow Super Bright Red	700 625 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Orange Green Yellow Super Bright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

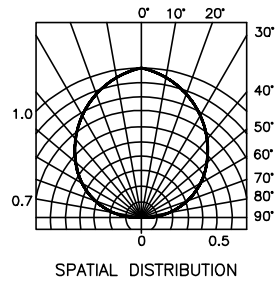
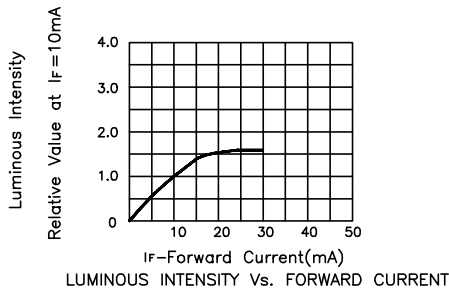
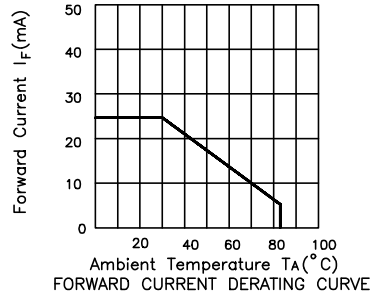
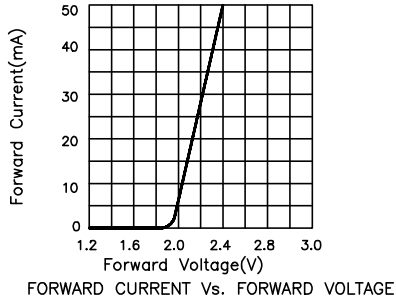
Parameter	Bright Red	High Efficiency Red	Orange	Green	Yellow	Super Bright Red	Units
Power dissipation	120	105	105	105	105	100	mW
DC Forward Current	25	30	30	25	30	30	mA
Peak Forward Current [1]	150	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	5	V
Operating/Storage Temperature	-40 °C To +85 °C						
Lead Soldering Temperature [2]	260 °C For 5 Seconds						

Notes:

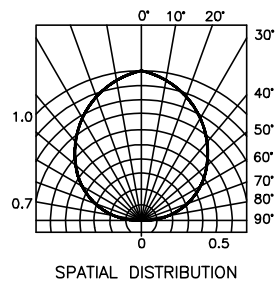
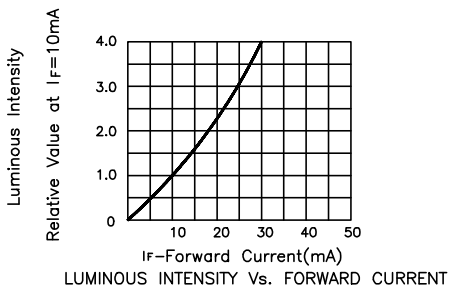
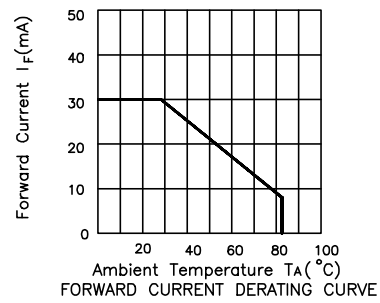
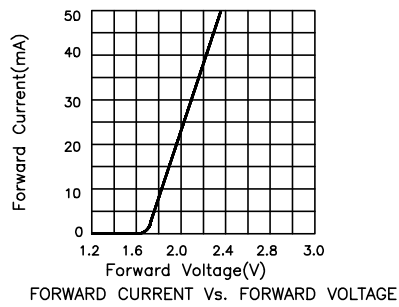
- 1/10 Duty Cycle, 0.1ms Pulse Width.
- 4mm below package base.



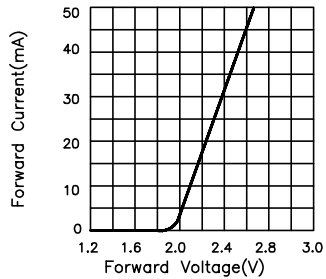
### Bright Red L-704HD



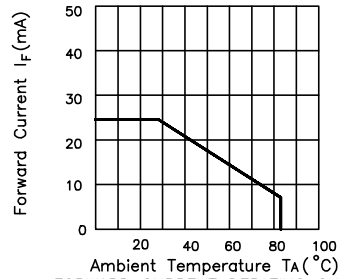
### High Efficiency Red L-704ID Orange L-704ED



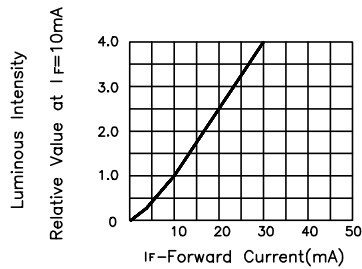
### Green L-704GD



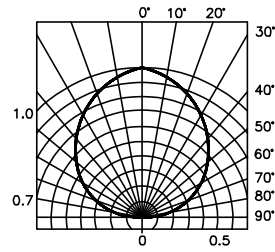
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

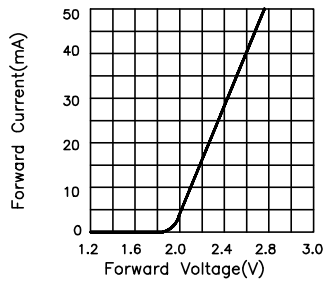


LUMINOUS INTENSITY Vs. FORWARD CURRENT

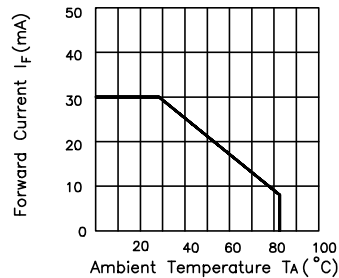


SPATIAL DISTRIBUTION

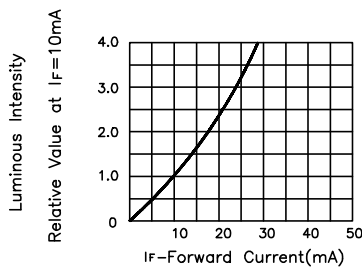
### Yellow L-704YD



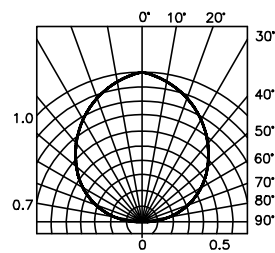
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

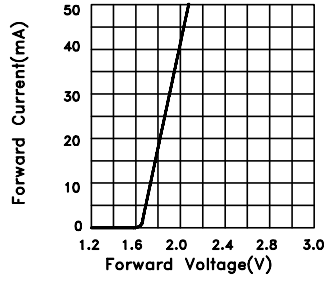


LUMINOUS INTENSITY Vs. FORWARD CURRENT

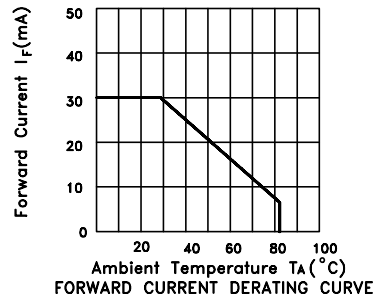


SPATIAL DISTRIBUTION

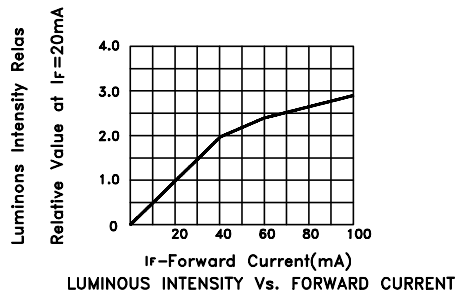
# Super Bright Red L-704SRD



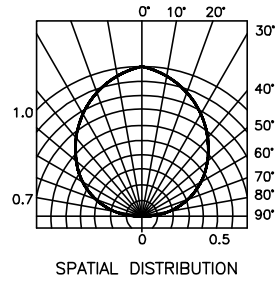
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



SPATIAL DISTRIBUTION