

### Features

- 1.6mmx0.8mm SMT LED, 0.65mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE.

KPH-1608 SERIES

### Description

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

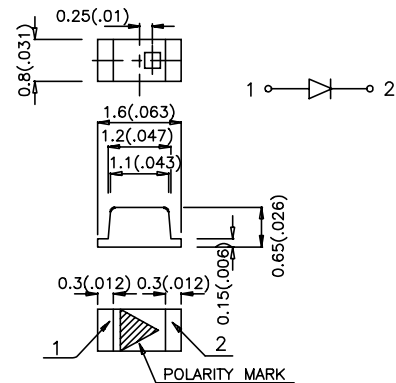
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Super Bright Green source color devices are made with Gallium Phosphide Green 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  $\pm 0.1(0.004)$  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.	Typ.	2 $\theta$ 1/2
KPH-1608HD	BRIGHT RED (GaP)	RED DIFFUSED	0.8	1.2	120°
KPH-1608HC	BRIGHT RED (GaP)	WATER CLEAR	0.8	1.2	120°
KPH-1608ID	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	5	12	120°
KPH-1608EC	HIGH EFFICIENCY RED (GaAsP/GaP)	WATER CLEAR	5	12	120°
KPH-1608SGD	SUPER BRIGHT GREEN (GaP)	GREEN DIFFUSED	3	12	120°
KPH-1608SGC	SUPER BRIGHT GREEN (GaP)	WATER CLEAR	3	12	120°
KPH-1608SGW	SUPER BRIGHT GREEN (GaP)	WHITE DIFFUSED	3	12	120°
KPH-1608YD	YELLOW (GaAsP/GaP)	YELLOW DIFFUSED	3	8	120°
KPH-1608YC	YELLOW (GaAsP/GaP)	WATER CLEAR	3	8	120°
KPH-1608SRD-PRV	SUPER BRIGHT RED (GaAlAs)	RED DIFFUSED	40	70	120°
KPH-1608SRC-PRV	SUPER BRIGHT RED (GaAlAs)	WATER CLEAR	40	70	120°

#### 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

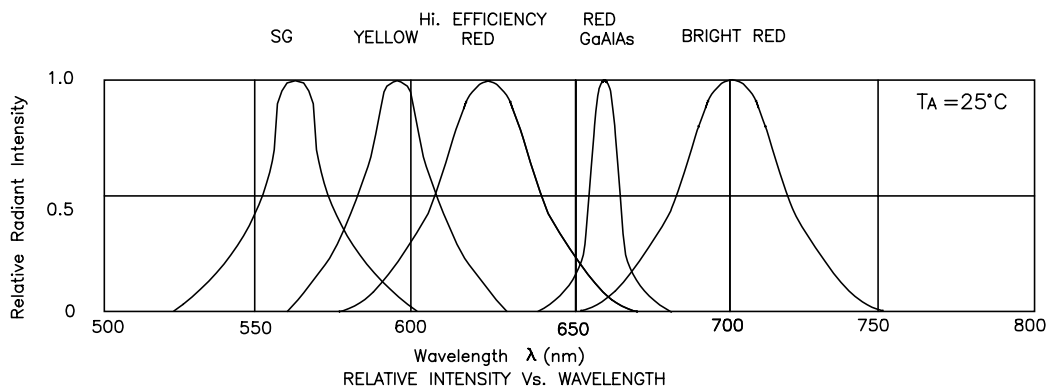
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Bright Red High Efficiency Red Super Bright Green Yellow Super Bright Red	700 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Super Bright Green Yellow Super 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

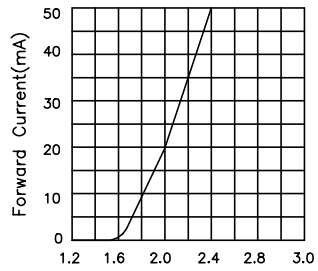
Parameter	Bright Red	High Efficiency Red	Super Bright Green	Yellow	Super Bright Red	Units
Power dissipation	120	105	105	105	100	mW
DC Forward Current	25	30	25	30	30	mA
Peak Forward Current [1]	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	V
Operating/Storage Temperature	-40°C To +85°C					

Note:

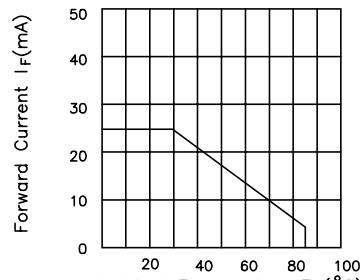
1. 1/10 Duty Cycle, 0.1ms Pulse Width.



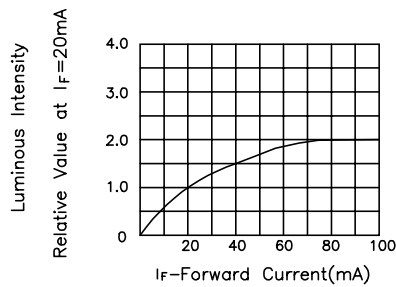
## Bright Red KPH-1608HD, KPH-1608HC



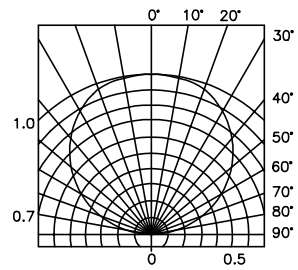
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

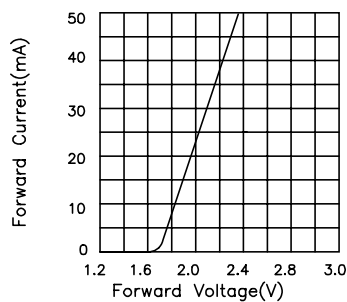


LUMINOUS INTENSITY Vs. FORWARD CURRENT

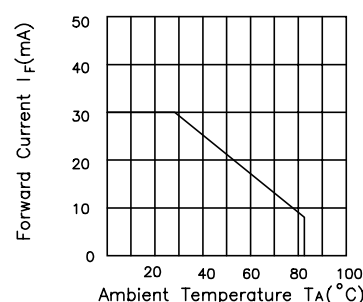


SPATIAL DISTRIBUTION

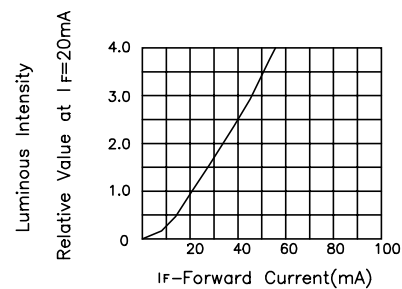
## High Efficiency Red KPH-1608ID, KPH-1608EC



FORWARD CURRENT Vs. FORWARD VOLTAGE

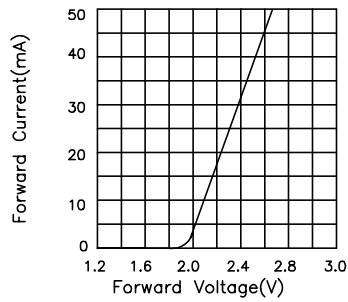


FORWARD CURRENT DERATING CURVE

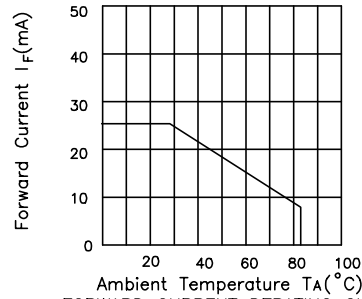


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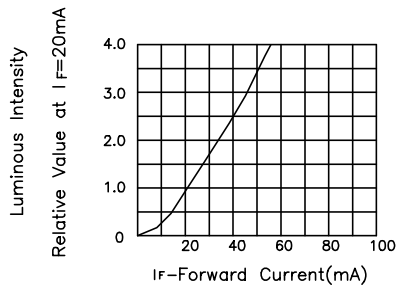
## Super Bright Green KPH-1608SGD, KPH-1608SGC, KPH-1608SGW



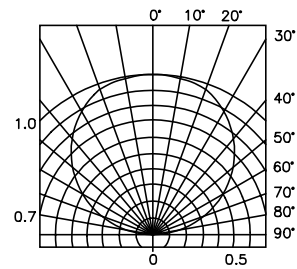
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

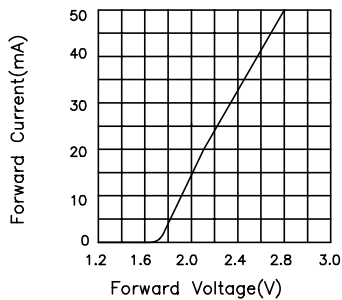


LUMINOUS INTENSITY Vs. FORWARD CURRENT

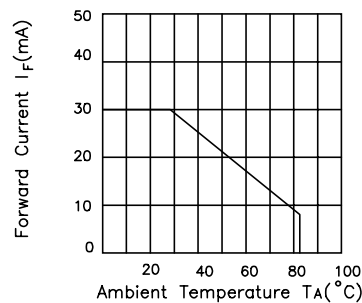


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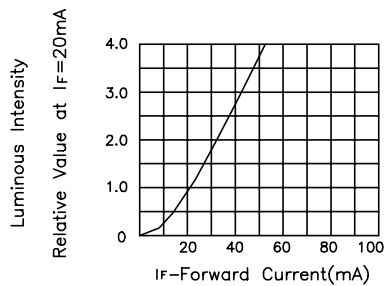
## Yellow KPH-1608YD, KPH-1608YC



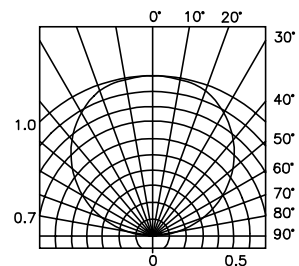
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

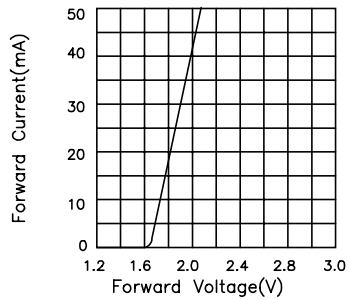


LUMINOUS INTENSITY Vs. FORWARD CURRENT

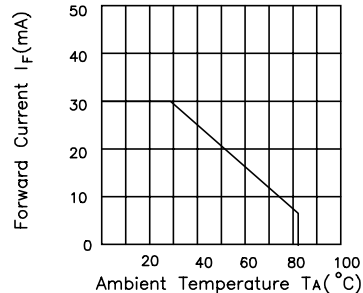


SPATIAL DISTRIBUTION

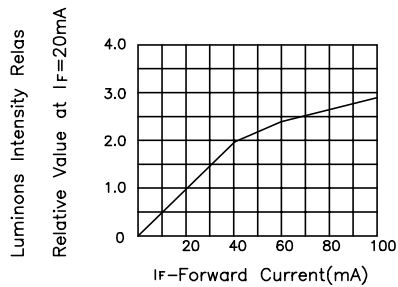
## Super Bright Red KPH-1608SRD-PRV, KPH-1608SRC-PRV



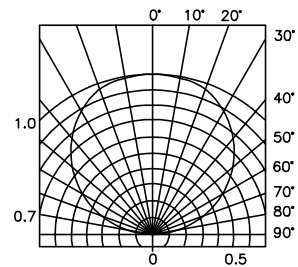
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

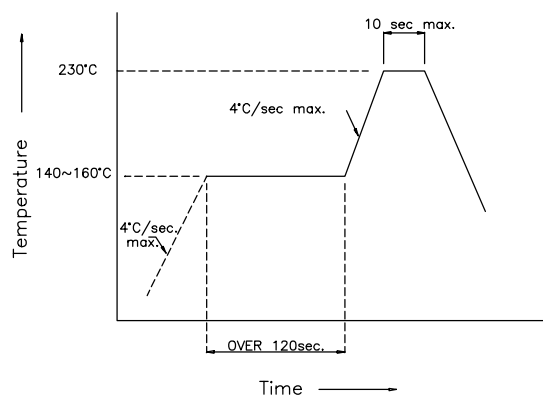


LUMINOUS INTENSITY Vs. FORWARD CURRENT

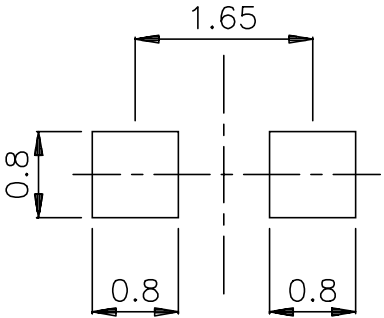


SPATIAL DISTRIBUTION

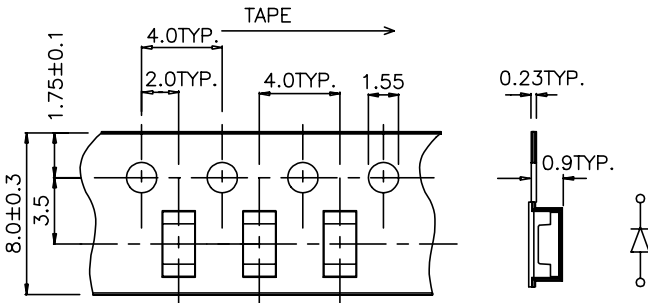
## KPH-1608 SERIES SMT Reflow Soldering Instructions



## KPH-1608 SERIES Recommended Soldering Pattern (Units : mm)



## KPH-1608 SERIES Tape Specifications (Units : mm)



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