

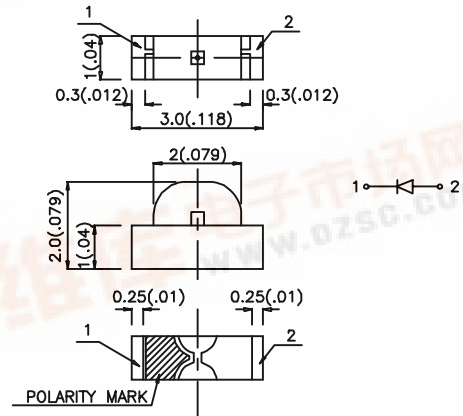
3.0x1.0mm SMD CHIP LED LAMPS

Features

APA3010 SERIES

- 3.0mmx1.0mm SMT LED, 2.0mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE.

Package Dimensions



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.

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.15(0.006)$  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
APA3010HD	BRIGHT RED (GaP)	RED DIFFUSED	0.8	1.2	120°
APA3010HC	BRIGHT RED (GaP)	WATER CLEAR	0.8	1.2	120°
APA3010ID	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	5	12	120°
APA3010EC	HIGH EFFICIENCY RED (GaAsP/GaP)	WATER CLEAR	5	12	120°
APA3010SGD	SUPER BRIGHT GREEN (GaP)	GREEN DIFFUSED	3	12	120°
APA3010QYC	SUPER BRIGHT GREEN (GaP)	WATER CLEAR	3	12	120°
APA3010YD	YELLOW (GaAsP/GaP)	YELLOW DIFFUSED	3	8	120°
APA3010YC	YELLOW (GaAsP/GaP)	WATER CLEAR	3	8	120°
APA3010SRDPRV	SUPER BRIGHT RED (GaAlAs)	RED DIFFUSED	40	70	120°
APA3010SRCPRV	SUPER BRIGHT RED (GaAlAs)	WATER CLEAR	40	70	120°

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

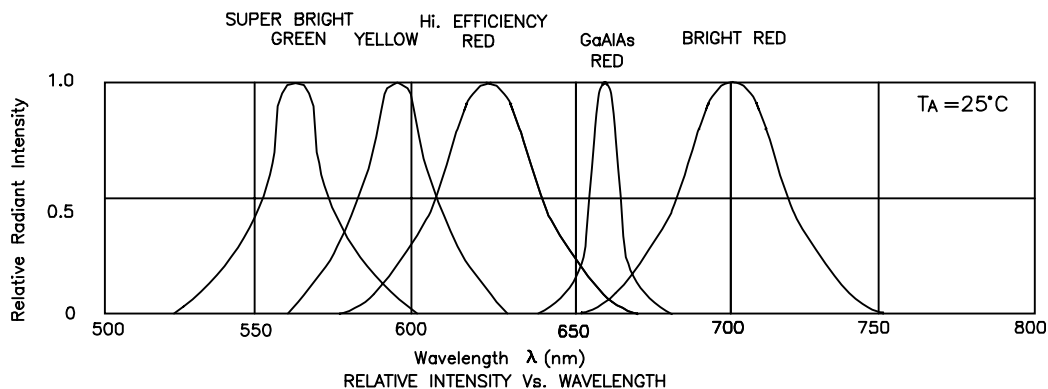
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Bright Red High Efficiency Red Super Bright Green Yellow Super Bright Red	700 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Super Bright Green Yellow Super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

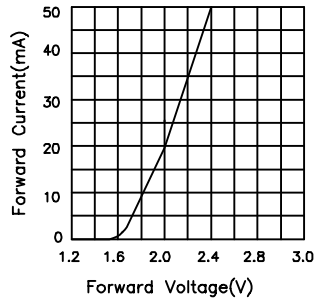
Parameter	Bright Red	High Efficiency Red	Super Bright Green	Yellow	Super Bright Red	Units
Power dissipation	120	105	105	105	100	mW
DC Forward Current	25	30	25	30	30	mA
Peak Forward Current [1]	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	V
Operating/Storage Temperature	-40°C To +85°C					

Note:

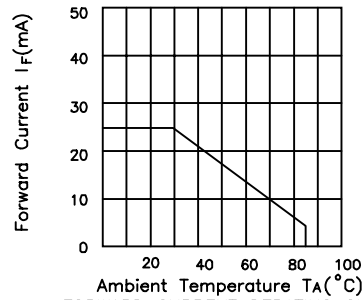
1. 1/10 Duty Cycle, 0.1ms Pulse Width.



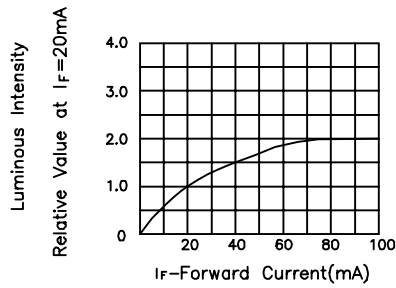
## Bright Red APA3010HD, APA3010HC



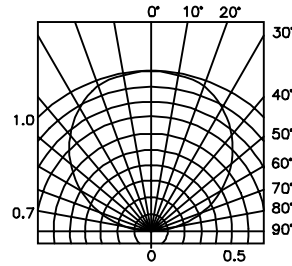
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

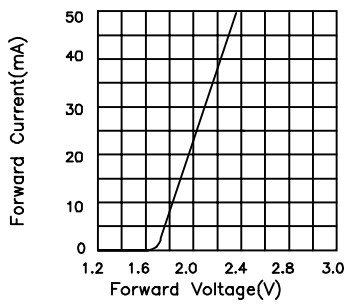


LUMINOUS INTENSITY Vs. FORWARD CURRENT

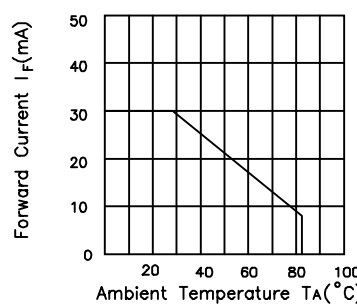


SPATIAL DISTRIBUTION

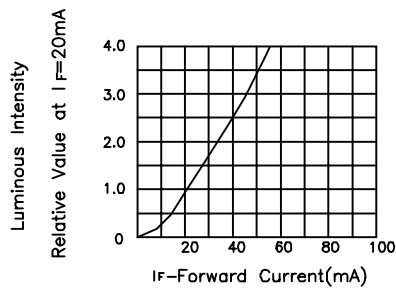
## High Efficiency Red APA3010ID, APA3010EC



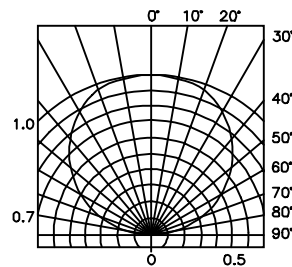
FORWARD CURRENT Vs. FORWARD VOLTAGE



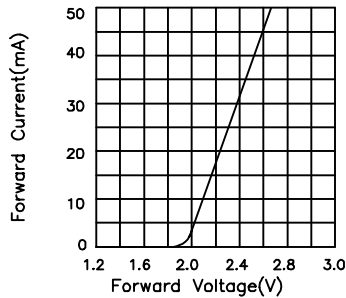
FORWARD CURRENT DERATING CURVE



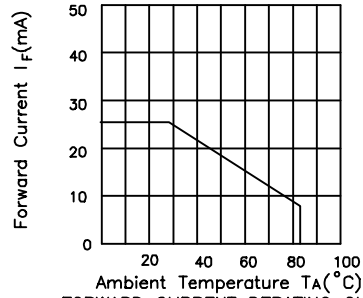
SPATIAL DISTRIBUTION



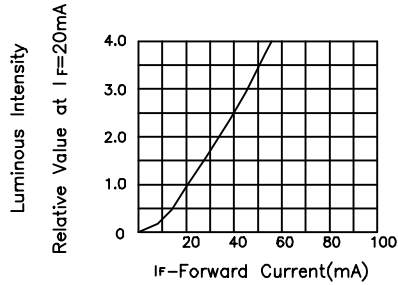
## Super Bright Green APA3010SGD,APA3010QYC



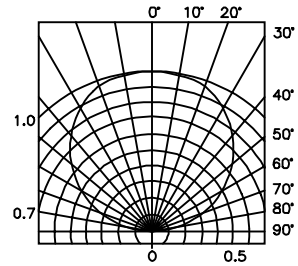
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

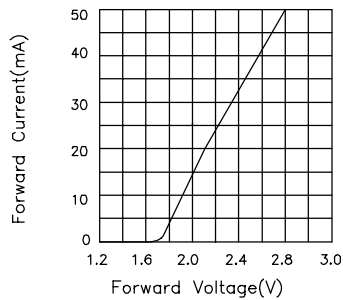


LUMINOUS INTENSITY Vs. FORWARD CURRENT

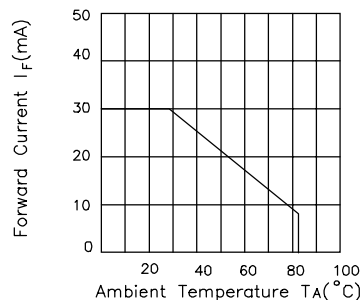


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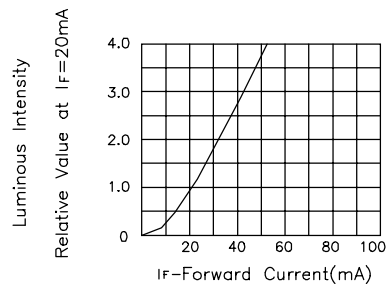
## Yellow APA3010YD,APA3010YC



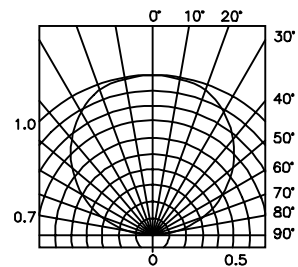
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

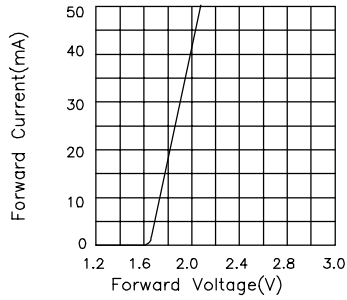


LUMINOUS INTENSITY Vs. FORWARD CURRENT

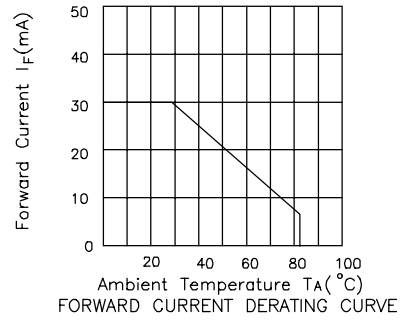


SPATIAL DISTRIBUTION

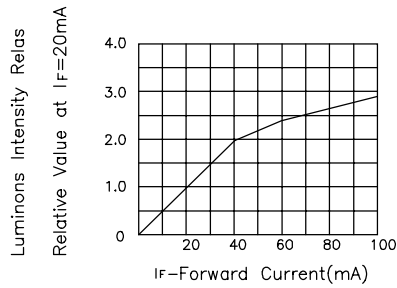
## Super Bright Red APA3010SRDPRV,APA3010SRCPRV



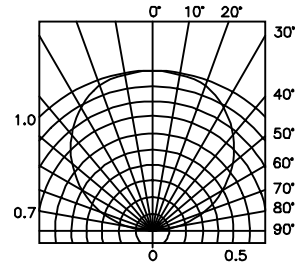
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

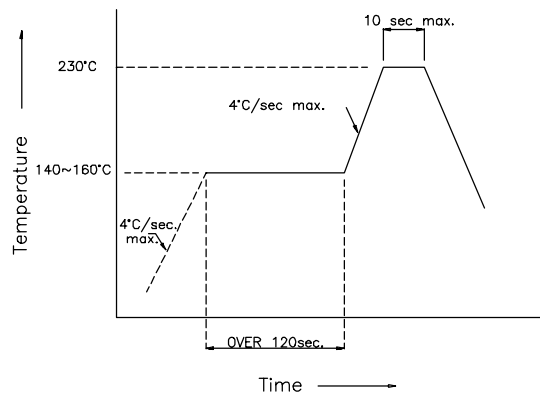


LUMINOUS INTENSITY Vs. FORWARD CURRENT



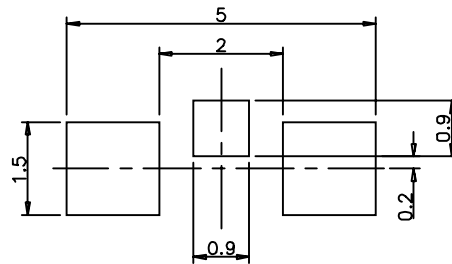
SPATIAL DISTRIBUTION

## APA3010 SERIES SMT Reflow Soldering Instructions



## APA3010 SERIES Recommended Soldering Pattern (Units : mm)

FOR REFLOW SOLDERING



## APA3010 SERIES Tape Specifications (Units : mm)

