

L1413HDT BRIGHT RED                      L1413GDT GREEN  
 L1413lxx HIGH EFFICIENCY RED        L1413YDT YELLOW  
 L1413SRDT SUPER BRIGHT RED  
 L1413SGDL SUPER BRIGHT GREEN

### Features

- CYLINDRICAL TYPE, FLAT TOP.
- CONVEX CATHODE MARK ON BODY.
- LOW POWER CONSUMPTION.
- I.C. COMPATIBLE.
- RELIABLE AND RUGGED.
- LONG LIFE - SOLID STATE RELIABILITY.

### Description

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

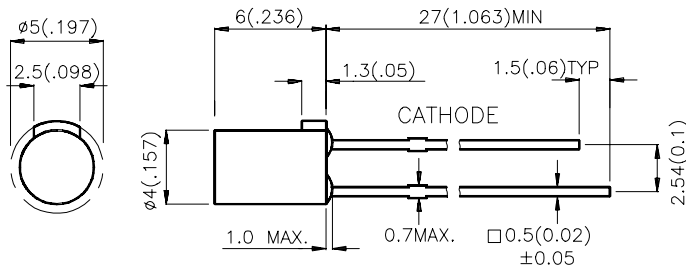
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Green and Super Bright Green source color devices are made with Gallium Phosphide 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  $\pm 0.25(0.01)$ " unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subject to change without notice.

## Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @ 10 mA *20mA		Viewing Angle
			Min.	Typ.	2θ1/2
L1413HDT	BRIGHT RED (GaP)	RED DIFFUSED	0.3	1	100°
L1413IDT	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	3	5	100°
L1413ITL		RED TRANSPARENT	12	20	100°
L1413GDT	GREEN (GaP)	GREEN DIFFUSED	1.2	3	100°
L1413SGDL	SUPER BRIGHT GREEN (GaP)	GREEN DIFFUSED	*3	*10	100°
L1413YDT	YELLOW (GaAsP/GaP)	YELLOW DIFFUSED	1.2	3	100°
L1413SRDT	SUPER BRIGHT RED (GaAlAs)	RED DIFFUSED	*50	*80	100°

Notes:

1. θ1/2 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

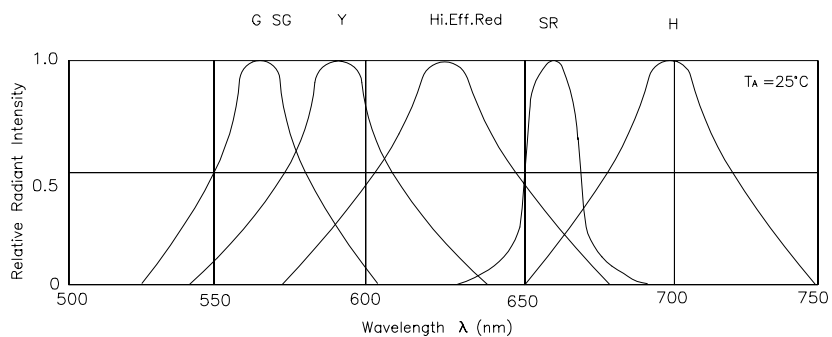
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ <sub>peak</sub>	Peak Wavelength	Bright Red High Efficiency Red Green Yellow Super Bright Red Super Bright Green	700 627 565 590 660 565		nm	IF=20mA
λ <sub>D</sub>	Dominate Wavelength	Bright Red High Efficiency Red Green Yellow Super Bright Red Super Bright Green	660 625 568 588 640 568		nm	IF=20mA
Δλ <sub>1/2</sub>	Spectral Line Halfwidth	Bright Red High Efficiency Red Green Yellow Super Bright Red Super Bright Green	45 45 30 35 20 30		nm	IF=20mA
C	Capacitance	Bright Red High Efficiency Red Green Yellow Super Bright Red Super Bright Green	40 15 15 20 45 15		pF	VF=0V;f=1MHz
V <sub>F</sub>	Forward Voltage	Bright Red High Efficiency Red Green Yellow Super Bright Red Super Bright Green	2.25 2.0 2.2 2.1 1.85 2.2	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 $T_A=25^\circ\text{C}$

Parameter	Bright Red	High Efficiency Red	Green	Yellow	Super Bright Red	Super Bright Green	Units
Power dissipation	120	105	105	105	100	105	mW
DC Forward Current	25	30	25	30	30	25	mA
Peak Forward Current [1]	120	160	140	140	155	140	mA
Reverse Voltage	5	5	5	5	5	5	V
Operating/Storage Temperature	-40°C To +85°C						
Lead Solder Temperature [2]	260°C For 5 Seconds						

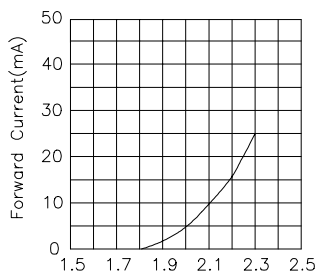
Notes:

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

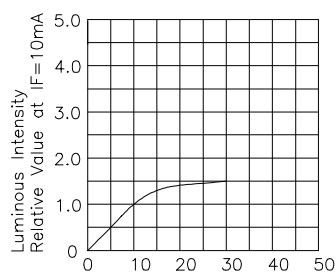


RELATIVE INTENSITY Vs. WAVELENGTH

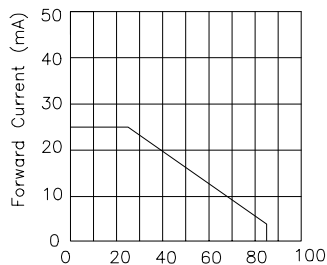
## Bright Red L1413HDT



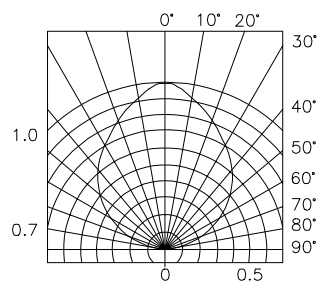
Forward Voltage(V)  
FORWARD CURRENT Vs.  
FORWARD VOLTAGE



$I_F$ -Forward Current (mA)  
LUMINOUS INTENSITY Vs.  
FORWARD CURRENT

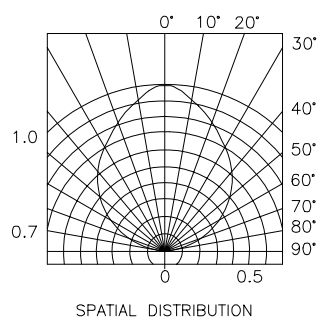
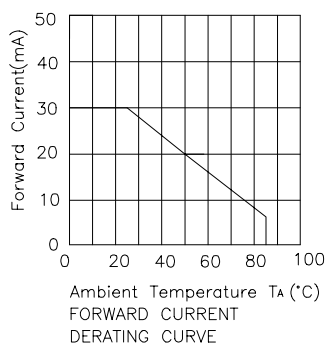
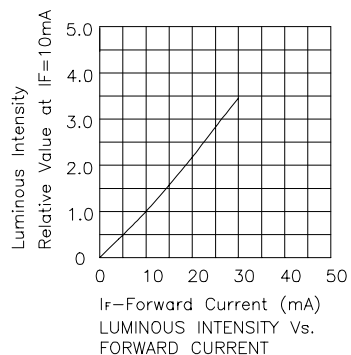
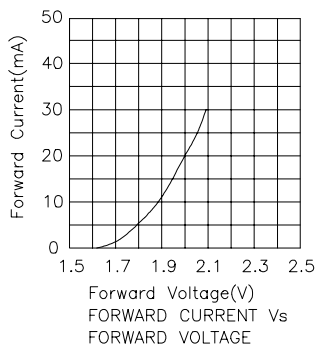


FORWARD CURRENT  
DERATING CURVE

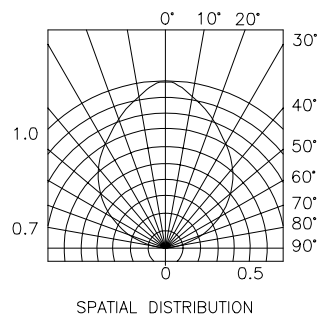
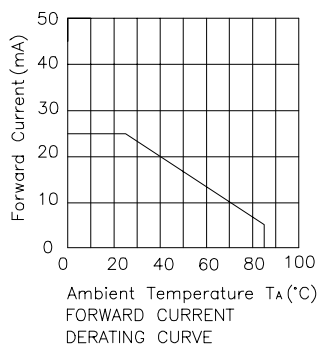
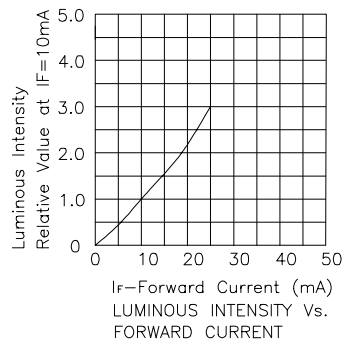
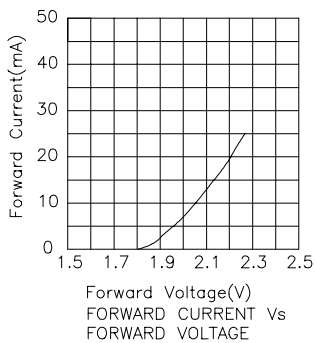


SPATIAL DISTRIBUTION

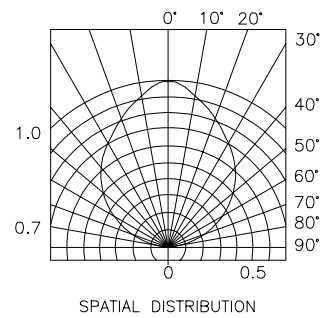
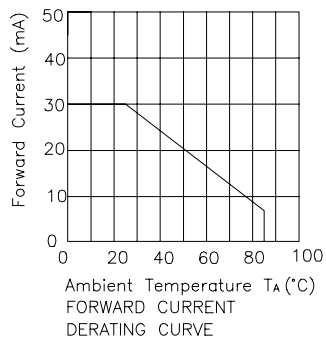
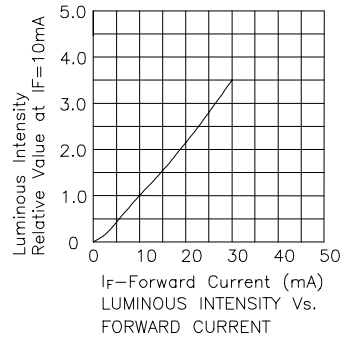
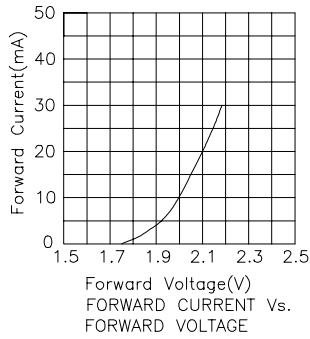
## High Efficiency Red L1413IDT, L1413ITL



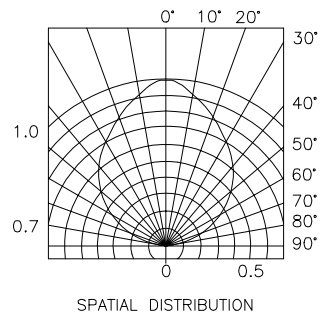
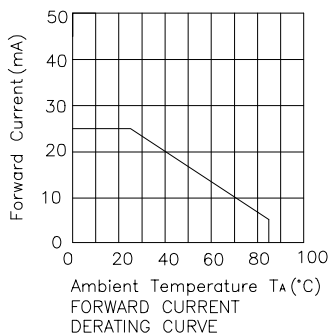
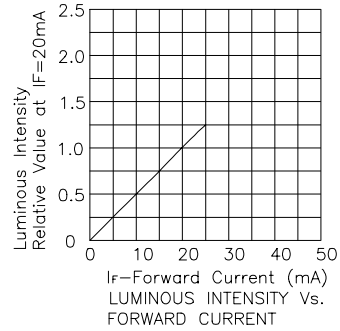
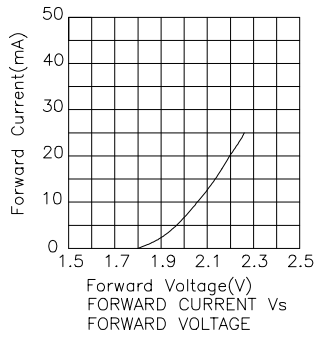
## Green L1413GDT



## Yellow L1413YDT



## Super Bright Green L1413SGDL



## Super Bright Red L1413SRDT

