

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.

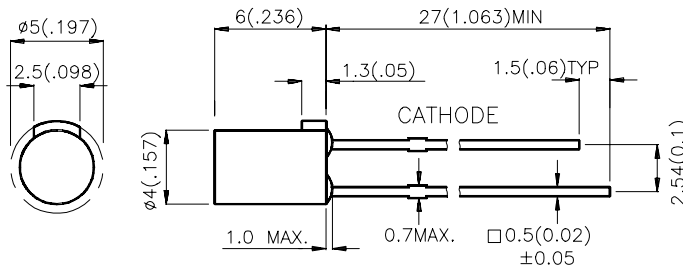
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

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_A=25°C

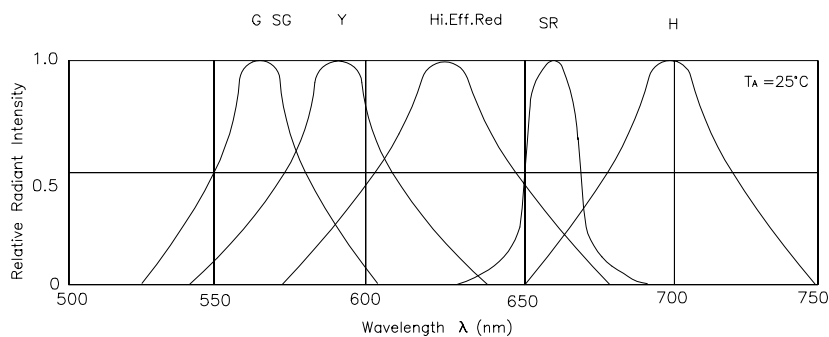
| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
|-------------------|-------------------------|--|--|--|-------|-----------------|
| λ _{peak} | Peak Wavelength | Bright Red High Efficiency Red Green Yellow Super Bright Red Super Bright Green | 700 627 565 590 660 565 | | nm | IF=20mA |
| λ _D | 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 _{1/2} | 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 _F | 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 _R | 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 | | | | | | |

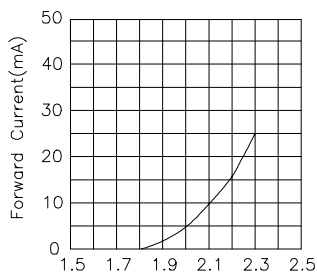
Notes:

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

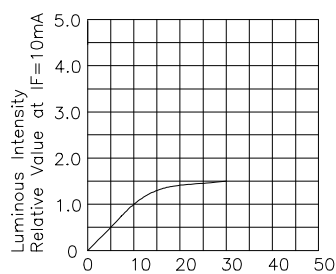


RELATIVE INTENSITY Vs. WAVELENGTH

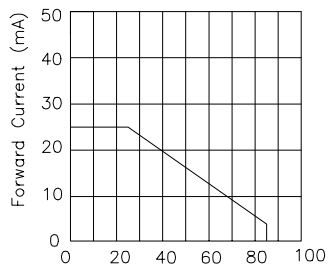
Bright Red L1413HDT



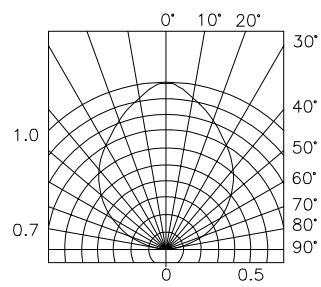
FORWARD CURRENT Vs. FORWARD VOLTAGE



LUMINOUS INTENSITY Vs. FORWARD CURRENT

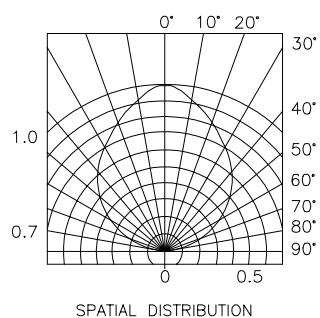
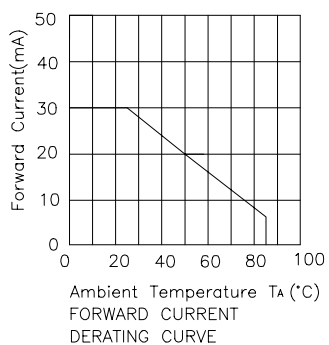
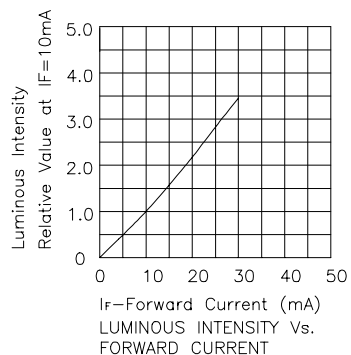
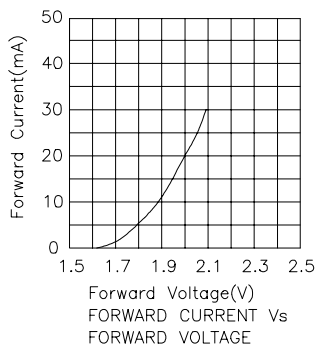


DERATING CURVE

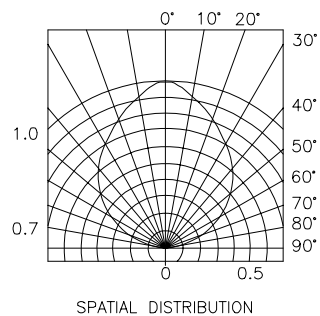
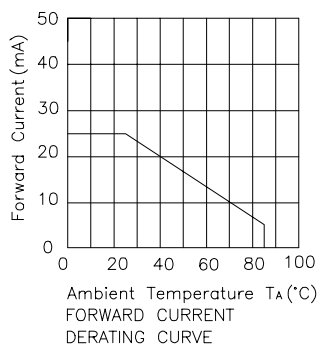
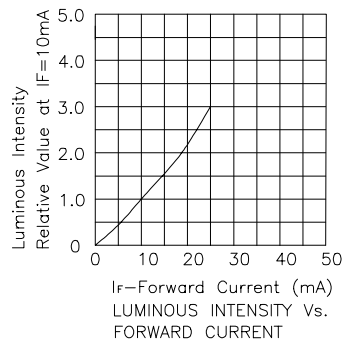
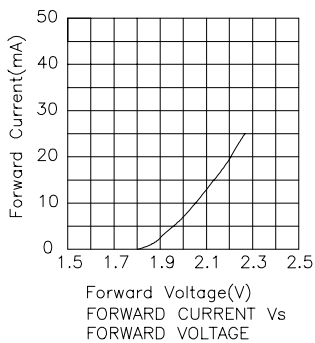


SPATIAL DISTRIBUTION

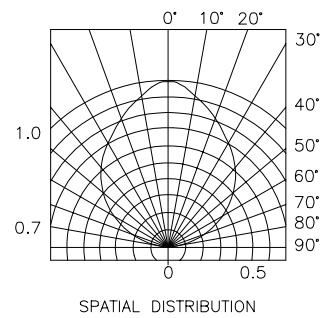
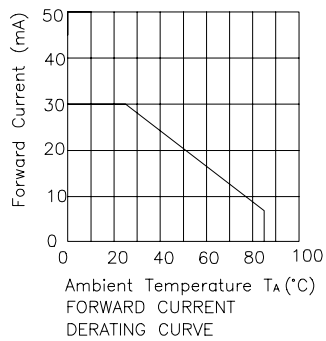
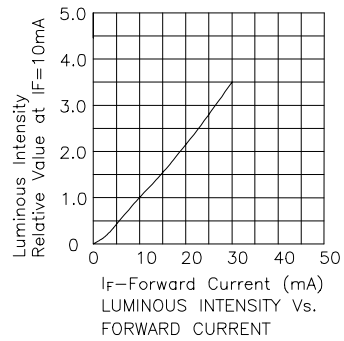
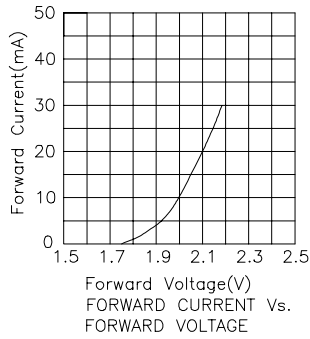
High Efficiency Red L1413IDT, L1413ITL



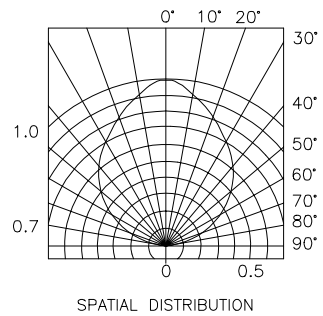
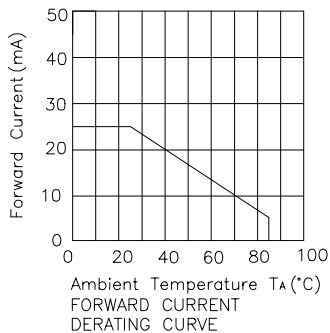
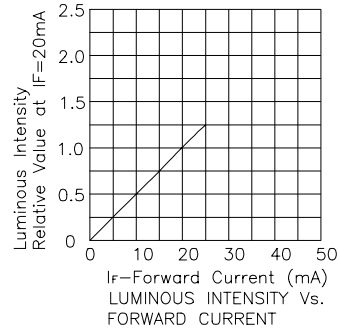
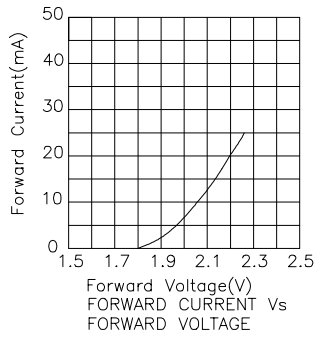
Green L1413GDT



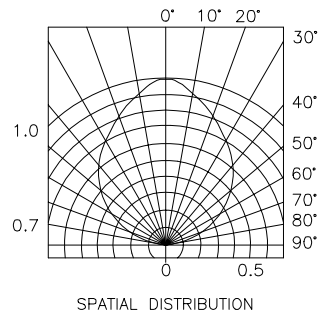
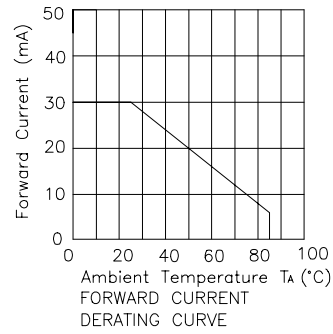
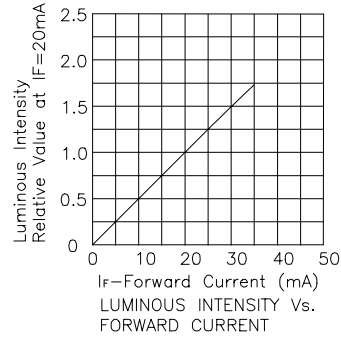
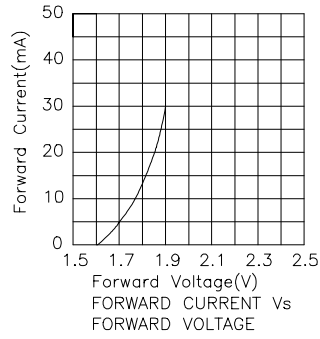
Yellow L1413YDT



Super Bright Green L1413SGDL



Super Bright Red L1413SRDT



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