| | |
|---|---|
| L-113HDT BRIGHT RED | L-113GDT GREEN |
| L-113IDT HIGH EFFICIENCY RED | L-113EDT ORANGE |
| L-113SRDT SUPER BRIGHT RED | L-113YDT YELLOW |

## Features

- LOW POWER CONSUMPTION.
- RELIABLE AND RUGGED.
- EXCELLENT UNIFORMITY OF LIGHT OUTPUT.
- SUPER BRIGHT RED VERSION IS AVAILABLE.
- SUPER BRIGHT RED AND SUPER GREEN BI-COLOR VERSION IS AVAILABLE.
- SUITABLE FOR LEVEL INDICATOR.
- LONG LIFE - SOLID STATE RELIABILITY.

## Description

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

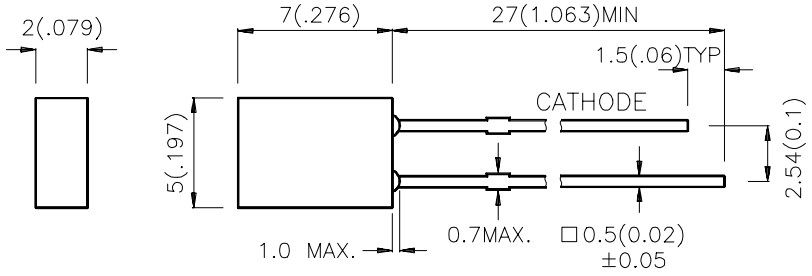
The High Efficiency Red and Orange source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The 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 ±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 |
| L-113HDT | BRIGHT RED (GaP) | RED DIFFUSED | 0.5 | 1 | 110° |
| L-113IDT | HIGH EFFICIENCY RED (GaAsP/GaP) | RED DIFFUSED | 3 | 5 | 110° |
| L-113EDT | ORANGE (GaAsP/GaP) | ORANGE DIFFUSED | 3 | 5 | 110° |
| L-113GDT | GREEN (GaP) | GREEN DIFFUSED | 2 | 5 | 110° |
| L-113YDT | YELLOW (GaAsP/GaP) | YELLOW DIFFUSED | 1 | 4 | 110° |
| L-113SRDT | SUPER BRIGHT RED (GaAlAs) | RED DIFFUSED | *40 | *80 | 110° |

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.

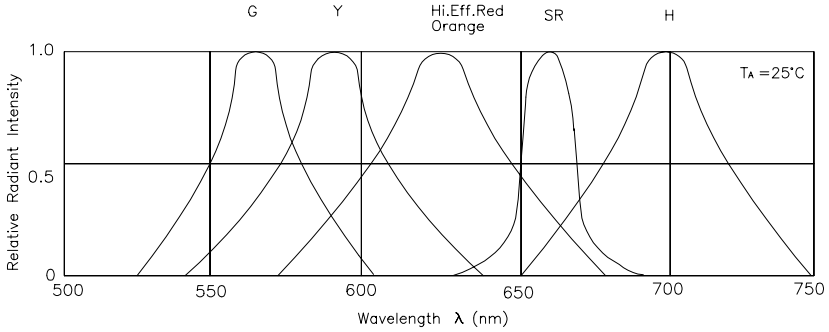
## Electrical / Optical Characteristics at $T_A$=25ºC

| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
|---|---|---|---|---|---|---|
| λpeak | Peak Wavelength | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Red | 700<br>627<br>627<br>565<br>590<br>660 | | nm | IF=20mA |
| λ D | Dominate Wavelength | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Red | 660<br>625<br>625<br>568<br>588<br>640 | | nm | IF=20mA |
| Δλ1/2 | Spectral Line Halfwidth | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Red | 45<br>45<br>45<br>30<br>35<br>20 | | nm | IF=20mA |
| C | Capacitance | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Red | 40<br>15<br>15<br>15<br>20<br>45 | | pF | VF=0V;f=1MHz |
| $V_F$ | Forward Voltage | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Red | 2.25<br>2.0<br>2.0<br>2.2<br>2.1<br>1.85 | 2.5<br>2.5<br>2.5<br>2.5<br>2.5<br>2.5 | V | IF=20mA |
| $I_R$ | Reverse Current | All | | 10 | uA | VR = 5V |

## Absolute Maximum Ratings at $T_A$=25°C

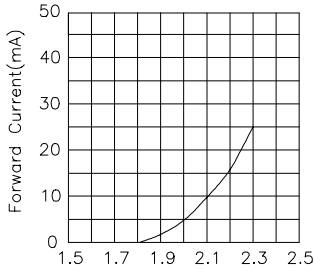
| Parameter | Bright Red | High Efficiency Red | Orange | Green | Yellow | Super Bright Red | Units |
|---|---|---|---|---|---|---|---|
| Power dissipation | 120 | 105 | 105 | 105 | 105 | 100 | mW |
| DC Forward Current | 25 | 30 | 30 | 25 | 30 | 30 | mA |
| Peak Forward Current [1] | 120 | 160 | 160 | 140 | 140 | 155 | 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. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 4mm below package base.

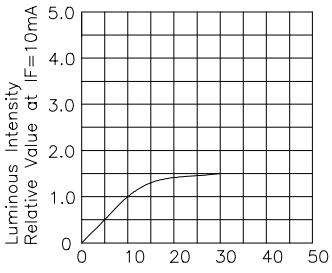



RELATIVE INTENSITY Vs. WAVELENGTH

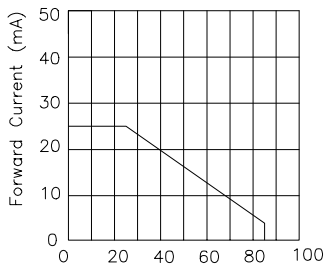
## Bright Red L-113HDT



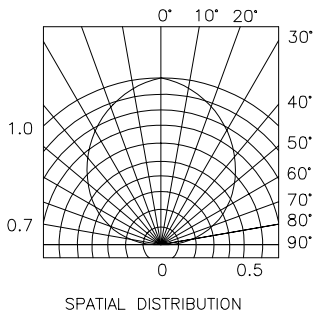

FORWARD CURRENT Vs.
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

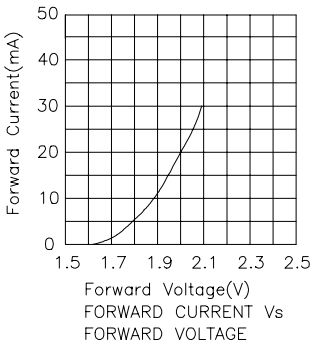



FORWARD CURRENT
DERATING CURVE

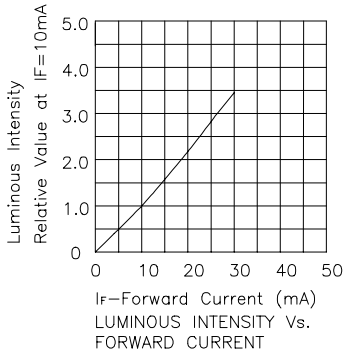



SPATIAL DISTRIBUTION

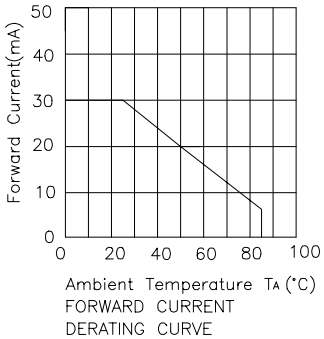
## High Efficiency Red L-113IDT



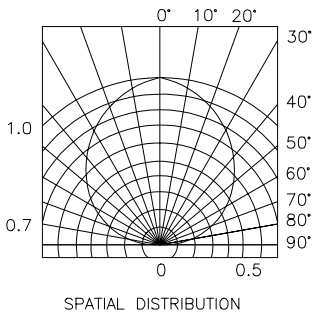

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

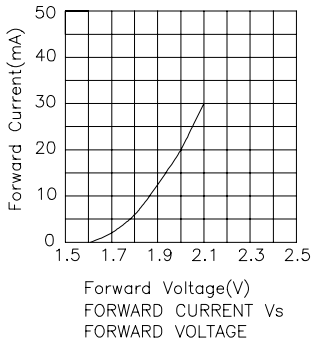



FORWARD CURRENT
DERATING CURVE

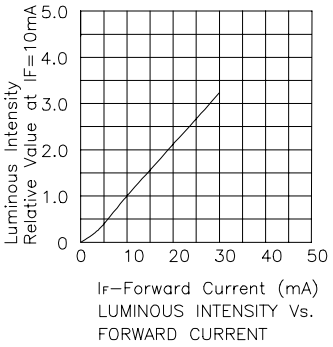



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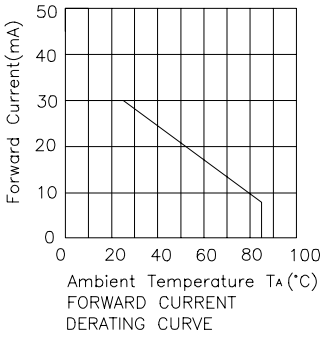
## Orange L-113EDT



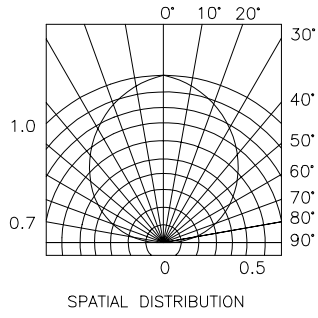

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

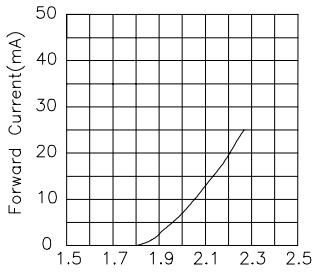



FORWARD CURRENT
DERATING CURVE

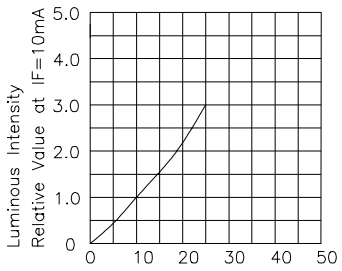



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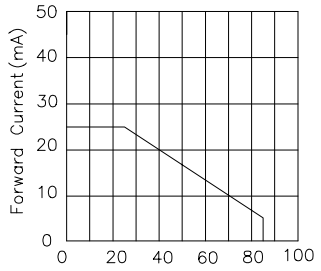
## Green L-113GDT



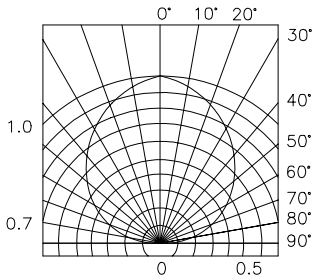

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

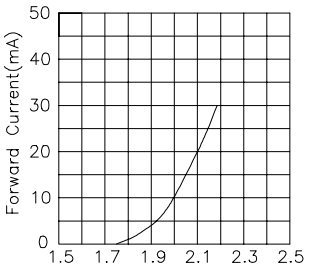



FORWARD CURRENT
DERATING CURVE

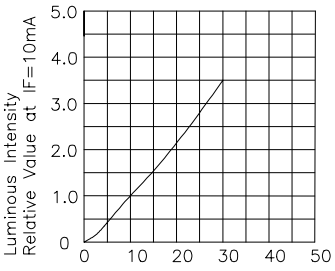



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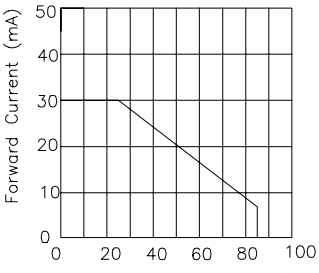
## Yellow L-113YDT



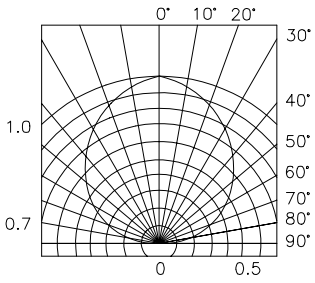

FORWARD CURRENT Vs.
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

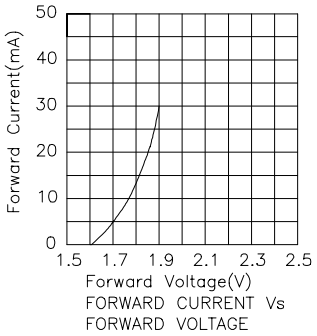



FORWARD CURRENT
DERATING CURVE

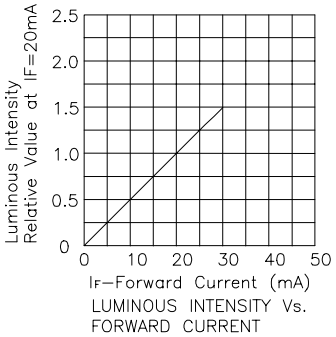



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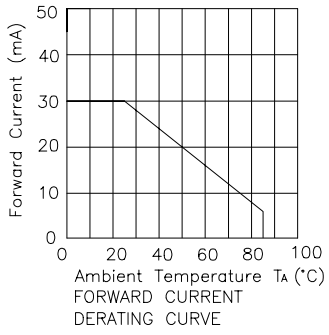
**Super Bright Red L-113SRDT**



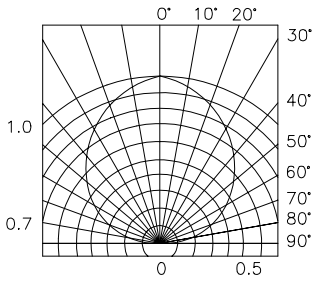

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT




FORWARD CURRENT
DERATING CURVE




SPATIAL DISTRIBUTION