L-513HDT BRIGHT RED
L-513GDT GREEN
L-513IDT HIGH EFFICIENCY RED
L-513EDT ORANGE
L-513SGDT SUPER BRIGHT GREEN
L-513YDT YELLOW

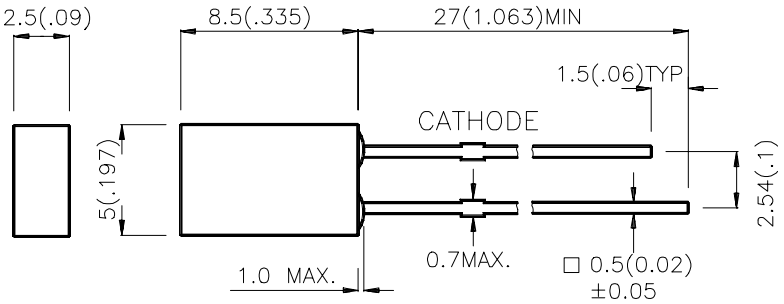
## Features

- LOW POWER CONSUMPTION.
- RELIABLE AND RUGGED.
- EXCELLENT UNIFORMITY OF LIGHT OUTPUT.
- SUITABLE FOR LEVEL INDICATOR.
- I.C. COMPATIBLE.
- 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 and 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.

## 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-513HDT | BRIGHT RED (GaP) | RED DIFFUSED | 0.5 | 1 | 110° |
| L-513IDT | HIGH EFFICIENCY RED (GaAsP/GaP) | RED DIFFUSED | 3 | 5 | 110° |
| L-513EDT | ORANGE (GaAsP/GaP) | ORANGE DIFFUSED | 3 | 5 | 110° |
| L-513GDT | GREEN (GaP) | GREEN DIFFUSED | 2 | 3 | 110° |
| L-513YDT | YELLOW (GaAsP/GaP) | YELLOW DIFFUSED | 2 | 3 | 110° |
| L-513SGDT | SUPER BRIGHT GREEN (GaP) | GREEN DIFFUSED | *8 | *10 | 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.

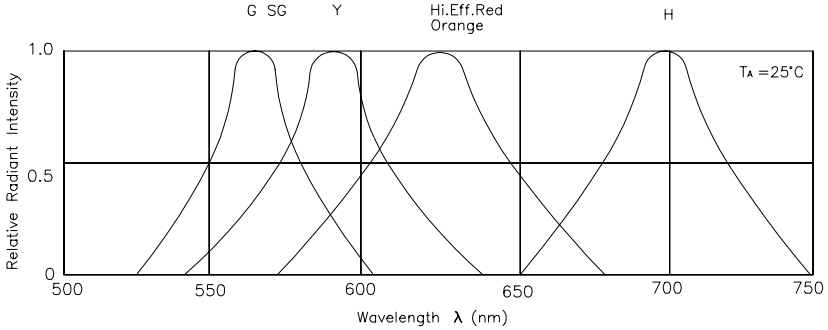
## Electrical / Optical Characteristics at $T_A$=25°C

| 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 Green | 700<br>627<br>627<br>565<br>590<br>565 | | nm | IF=20mA |
| λ D | Dominate Wavelength | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Green | 660<br>625<br>625<br>568<br>588<br>568 | | nm | IF=20mA |
| Δλ1/2 | Spectral Line Halfwidth | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Green | 45<br>45<br>45<br>30<br>35<br>30 | | nm | IF=20mA |
| C | Capacitance | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Green | 40<br>15<br>15<br>15<br>20<br>15 | | pF | VF=0V;f=1MHz |
| $V_F$ | Forward Voltage | Bright Red<br>High Efficiency Red<br>Orange<br>Green<br>Yellow<br>Super Bright Green | 2.25<br>2.0<br>2.0<br>2.2<br>2.1<br>2.2 | 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

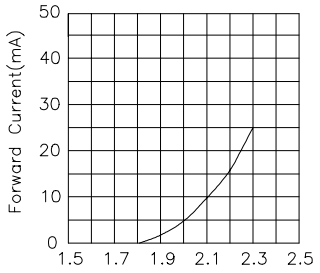
| Parameter | Bright Red | High Efficiency Red | Orange | Green | Yellow | Super Bright Green | Units |
|---|---|---|---|---|---|---|---|
| Power dissipation | 120 | 105 | 105 | 105 | 105 | 105 | mW |
| DC Forward Current | 25 | 30 | 30 | 25 | 30 | 25 | mA |
| Peak Forward Current [1] | 120 | 160 | 160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

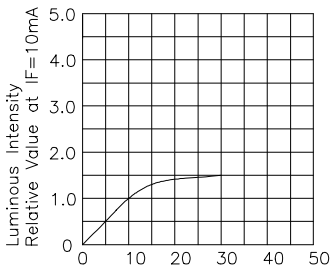



RELATIVE INTENSITY Vs. WAVELENGTH

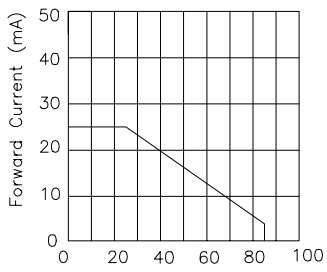
## Bright Red L-513HDT



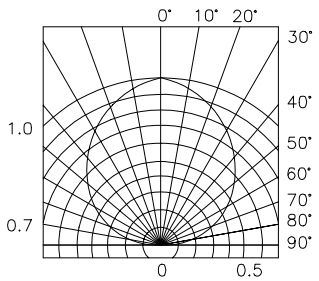

FORWARD CURRENT Vs. FORWARD VOLTAGE




LUMINOUS INTENSITY Vs. FORWARD CURRENT

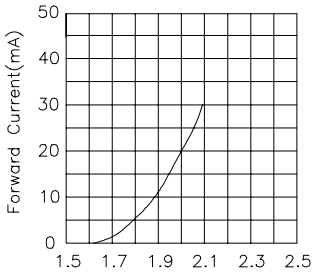



FORWARD CURRENT DERATING CURVE

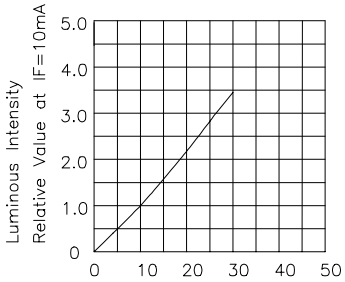



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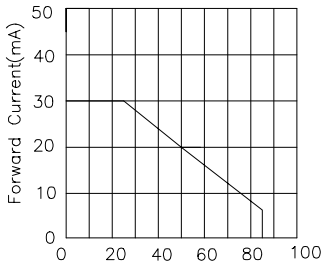
## High Efficiency Red L-513IDT



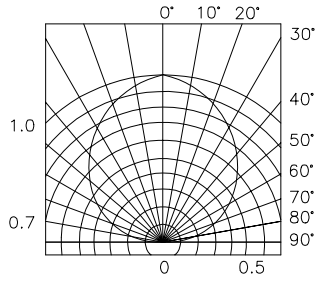

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

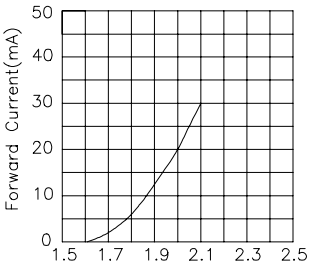



FORWARD CURRENT
DERATING CURVE

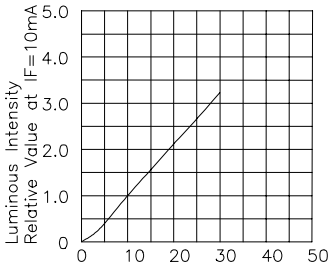



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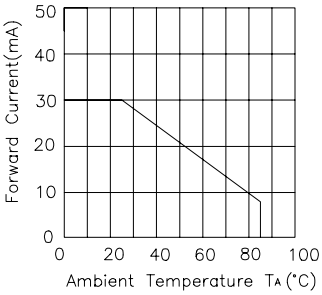
## Orange L-513EDT



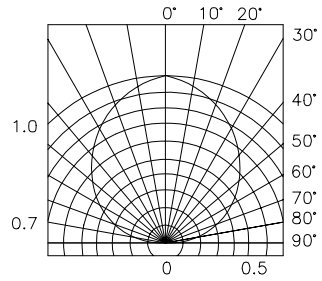

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

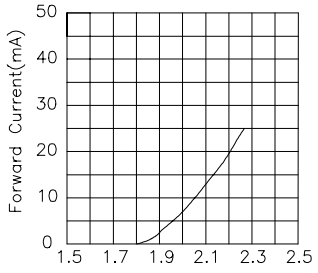



FORWARD CURRENT
DERATING CURVE

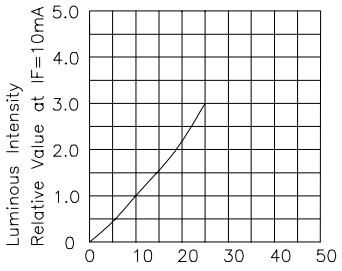



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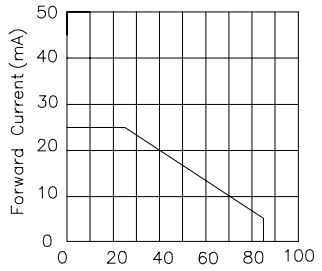
## Green L-513GDT



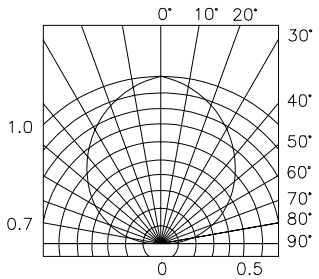

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

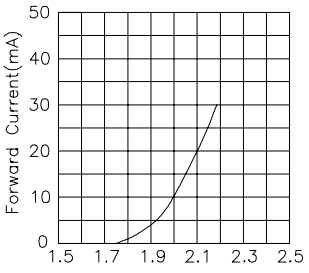



FORWARD CURRENT
DERATING CURVE

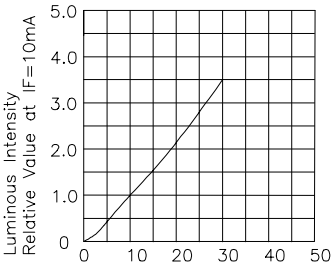



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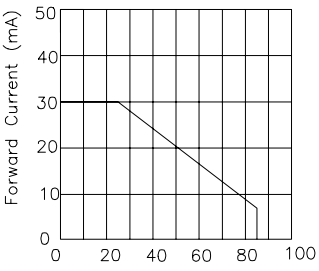
## Yellow L-513YDT



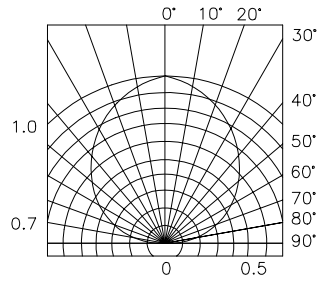

FORWARD CURRENT Vs.
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
FORWARD CURRENT

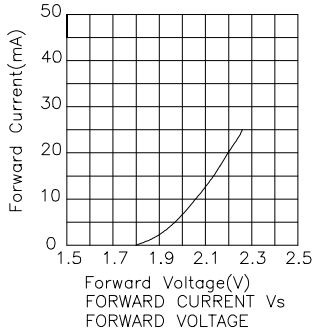



FORWARD CURRENT
DERATING CURVE

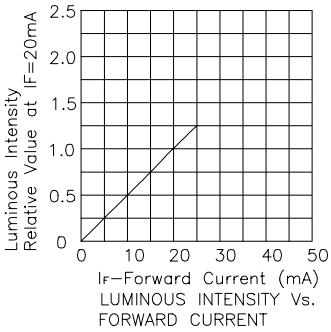



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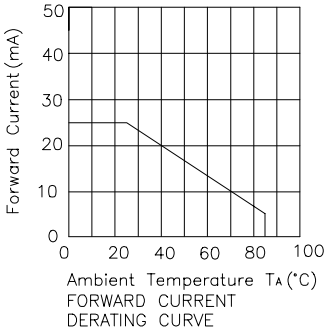
**Super Bright Green L-513SGDT**



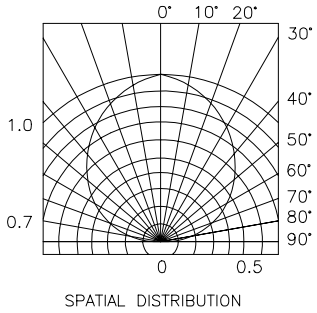

FORWARD CURRENT Vs
FORWARD VOLTAGE




LUMINOUS INTENSITY Vs.
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FORWARD CURRENT
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SPATIAL DISTRIBUTION

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