

Kingbright®

T-1 3/4 (5mm) SOLID STATE LAMPS

L-51R RED	L-51E ORANGE
L-51H BRIGHT RED	L-51G GREEN
L-51I HIGH EFFICIENCY RED	L-51Y YELLOW
L-51SR SUPER BRIGHT RED	

Features

- LOW COST.
- LOW POWER CONSUMPTION.
- ULTRA BRIGHTNESS IS AVAILABLE.
- POPULAR T-1 3/4 DIAMETER PACKAGE.
- RELIABLE AND RUGGED.
- DIFFUSED TYPE.
- LONG LIFE - SOLID STATE RELIABILITY.

Description

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

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

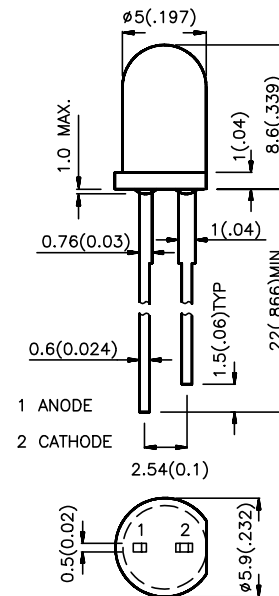
The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

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

The 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 subjected to change without notice.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @ 10 mA		Viewing Angle 2θ/2
			Min.	Max.	
L-51RD	RED (GaAsP)	RED DIFFUSED	0.3	1.3	60°
L-51HD	BRIGHT RED (GaP)	RED DIFFUSED	0.8	2	60°
L-51ID	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	12.5	20	60°
L-51ED	ORANGE (GaAsP/GaP)	ORANGE DIFFUSED	12.5	20	60°
L-51GD	GREEN (GaP)	GREEN DIFFUSED	3.2	8	60°
L-51YD	YELLOW (GaAsP/GaP)	YELLOW DIFFUSED	3.2	8	60°
L-51SRD-B	SUPER BRIGHT RED (GaAlAs)	RED DIFFUSED	*100	*200	60°

- Notes:
1. $\theta 1/2$ 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.

2-L51-1

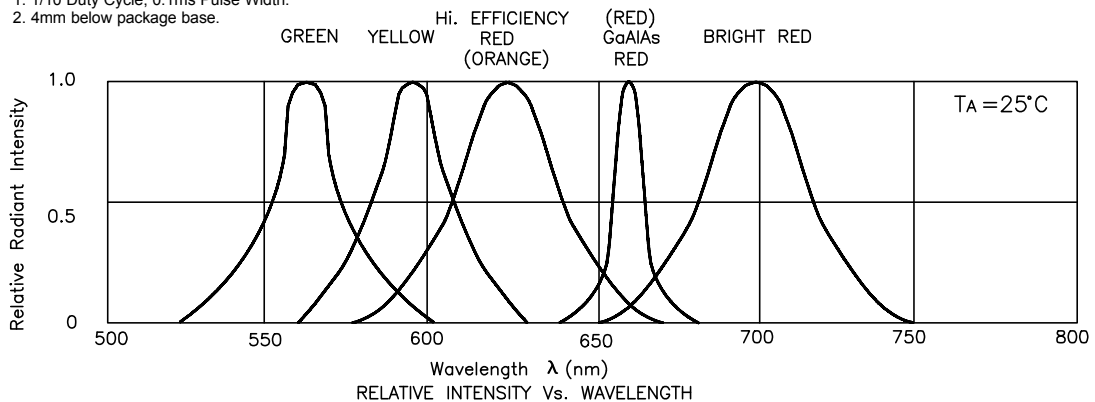
Electrical / Optical Characteristics at T_A=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ_{peak}	Peak Wavelength	Red Bright Red High Efficiency Red Orange Green Yellow Super Bright Red	660 700 625 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Red Bright Red High Efficiency Red Orange Green Yellow Super Bright Red	20 45 45 45 30 35 20		nm	IF=20mA
C	Capacitance	Red Bright Red High Efficiency Red Orange Green Yellow Super Bright Red	40 40 12 12 45 10 95		pF	VF=0V;f=1MHz
V _F	Forward Voltage	Red Bright Red High Efficiency Red Orange Green Yellow Super Bright Red	1.7 2.0 2.0 2.0 2.2 2.1 1.85	2.1 2.5 2.5 2.5 2.5 2.5 2.5	V	IF=20mA
I _R	Reverse Current	All	10		uA	VR = 5V

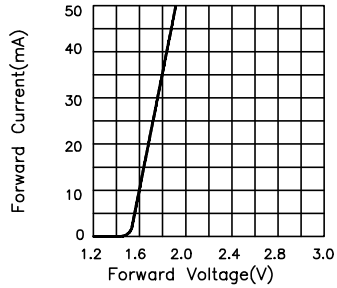
Absolute Maximum Ratings at T_A=25°C

Parameter	Red	Bright Red	High Efficiency Red	Orange	Green	Yellow	Super Bright Red	Units
Power dissipation	120	120	105	105	105	105	100	mW
DC Forward Current	30	25	30	30	25	30	30	mA
Peak Forward Current [1]	150	150	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	5	5	V
Operating/Storage Temperature	-40 °C To +85 °C							
Lead Soldering Temperature [2]	260 °C For 5 Seconds							

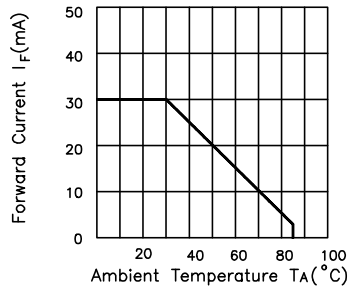
- Notes:
 1. 1/10 Duty Cycle, 0.1ms Pulse Width.
 2. 4mm below package base.



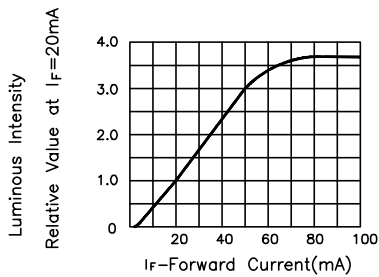
Red L-51RD



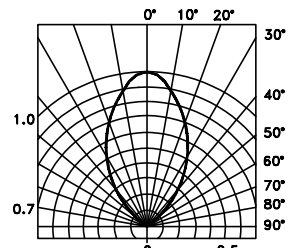
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

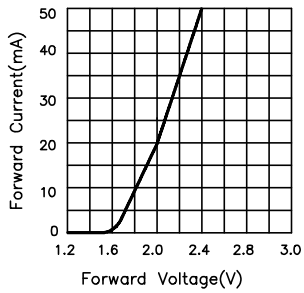


LUMINOUS INTENSITY Vs. FORWARD CURRENT

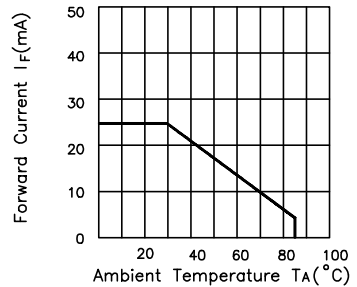


SPATIAL DISTRIBUTION

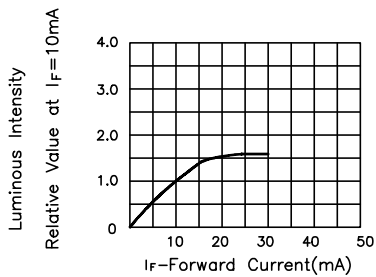
Bright Red L-51HD



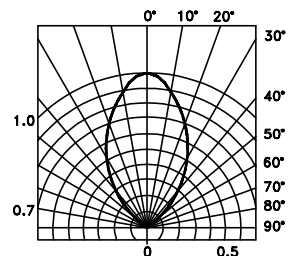
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

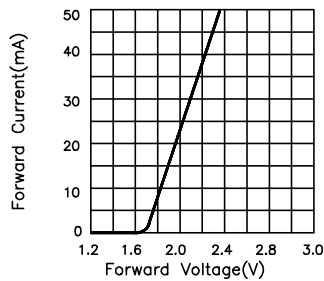


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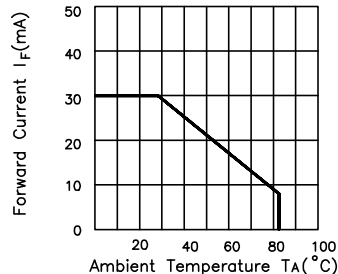


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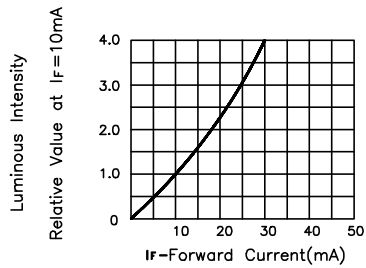
High Efficiency Red L-51ID
Orange L-51ED



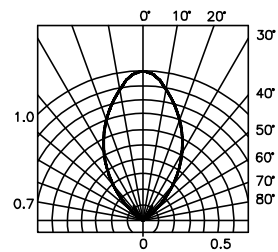
FORWARD CURRENT Vs. FORWARD VOLTAGE



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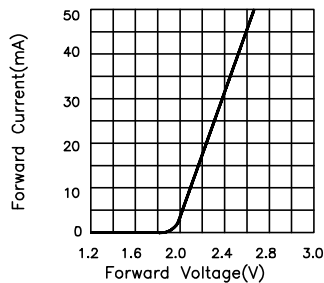


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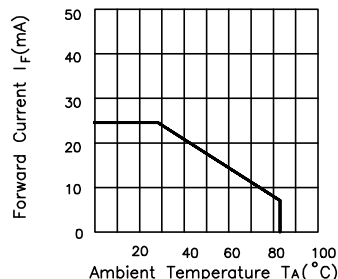


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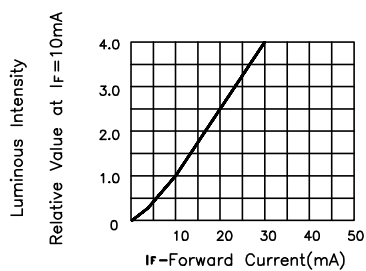
Green L-51GD



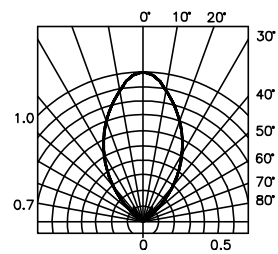
FORWARD CURRENT Vs. FORWARD VOLTAGE



Ambient Temperature T_A (°C)

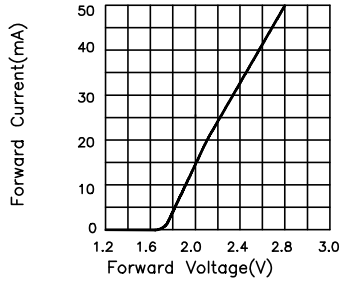


LUMINOUS INTENSITY Vs. FORWARD CURRENT

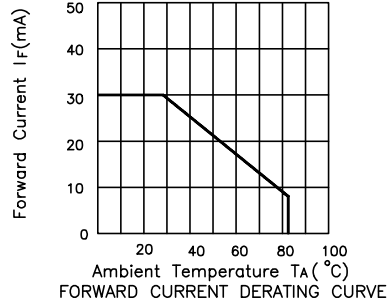


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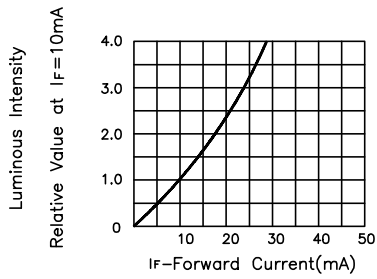
Yellow L-51YD



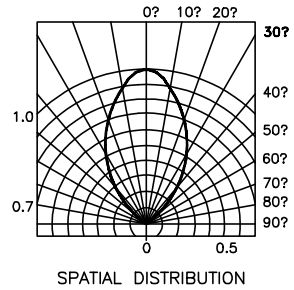
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

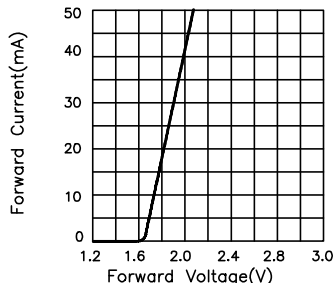


LUMINOUS INTENSITY Vs. FORWARD CURRENT

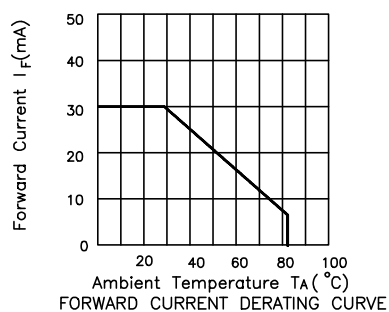


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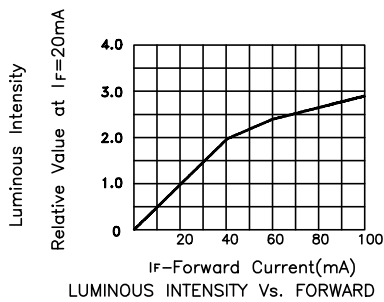
Super Bright Red L-51SRD



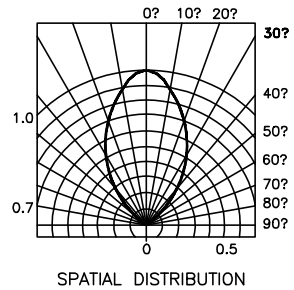
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



SPATIAL DISTRIBUTION