

# Kingbright®

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

L-53H BRIGHT RED	L-53E ORANGE
L-53I HIGH EFFICIENCY RED	L-53G GREEN
L-53N PURE ORANGE	L-53Y YELLOW
L-53PG PURE GREEN	
L-53SRSG SUPER BRIGHT RED/ SUPER BRIGHT GREEN	

### Features

- LOW POWER CONSUMPTION.
- HIGH INTENSITY.
- VERSATILE MOUNTING ON P.C. BOARD OR PANEL.
- LOW CURRENT REQUIREMENTS.
- POPULAR T-1 3/4 DIAMETER, 1" LEAD LENGTH.
- RELIABLE AND RUGGED.
- SUPER BRIGHT RED AND SUPER GREEN BI-COLOR VERSION IS AVAILABLE.
- AVAILABLE ON TAPE AND REEL.
- DIFFUSED, TRANSPARENT AND WATER CLEAR TYPE.

### Description

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

The Green and Super Bright 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.

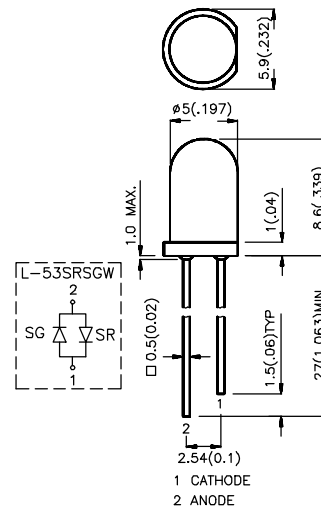
The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

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

The Pure Green source color devices are made with Gallium Phosphide Pure Green 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 2 $\theta$ 1/2
			Min.	Max.	
L-53HD	BRIGHT RED (GaP)	RED DIFFUSED	2	5	60°
L-53ID	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	12.5	80	60°
L-53IT		RED TRANSPARENT	50	200	30°
L-53EC		WATER CLEAR	50	200	30°
L-53ED	ORANGE (GaAsP/GaP)	ORANGE DIFFUSED	12.5	80	60°
L-53GD	GREEN (GaP)	GREEN DIFFUSED	5	32	60°
L-53GT		GREEN TRANSPARENT	20	150	30°
L-53GC		WATER CLEAR	20	150	30°
L-53YD		YELLOW DIFFUSED	5	32	60°
L-53YT	YELLOW (GaAsP/GaP)	YELLOW TRANSPARENT	20	80	30°
L-53YC		WATER CLEAR	20	80	30°
L-53ND		ORANGE DIFFUSED	12.5	80	60°
L-53NT	PURE ORANGE (GaAsP/GaP)	ORANGE TRANSPARENT	50	200	30°
L-53NC		WATER CLEAR	50	200	30°
L-53PGD		GREEN DIFFUSED	2	8	60°
L-53PGT	PURE GREEN (GaP)	GREEN TRANSPARENT	5	32	30°
L-53PGC		WATER CLEAR	5	32	30°
L-53SRSGW		SUPER BRIGHT RED (GaAlAs)	WHITE DIFFUSED	*80	*200
	SUPER BRIGHT GREEN (GaP)		*12.5	*40	

- 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.

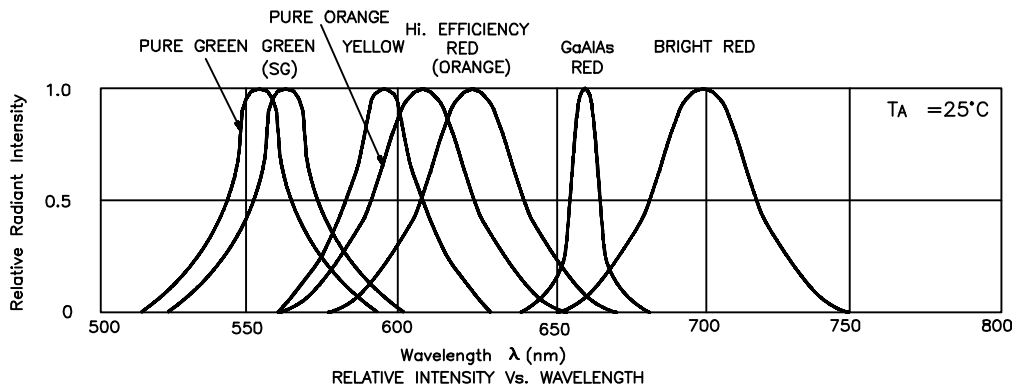
**Electrical / Optical Characteristics at T<sub>A</sub>=25°C**

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Bright Red High Efficiency Red Orange Green Yellow Super Bright Red Super Bright Green Pure Orange Pure Green	700 625 625 565 590 660 565 610 555		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Orange Green Yellow Super Bright Red Super Bright Green Pure Orange Pure Green	45 45 45 30 35 20 30 35 30		nm	IF=20mA
C	Capacitance	Bright Red High Efficiency Red Orange Green Yellow Super Bright Red Super Bright Green Pure Orange Pure Green	40 12 12 45 10 95 45 15 45		pF	VF=0V;f=1MHz
V <sub>F</sub>	Forward Voltage	Bright Red High Efficiency Red Orange Green Yellow Super Bright Red Super Bright Green Pure Orange Pure Green	2.0 2.0 2.0 2.2 2.1 1.85 2.2 2.0 2.25	2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.6 2.6	V	IF=20mA
I <sub>R</sub>	Reverse Current	All	10		uA	VR = 5V

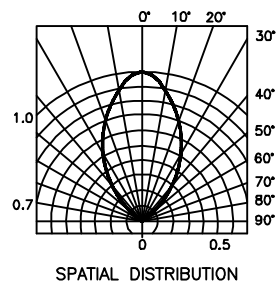
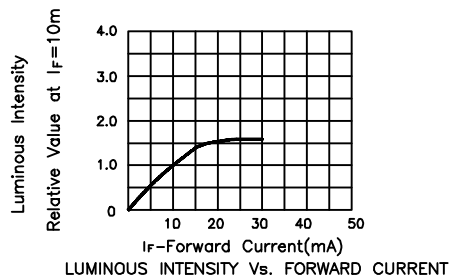
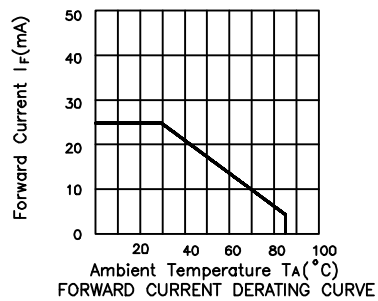
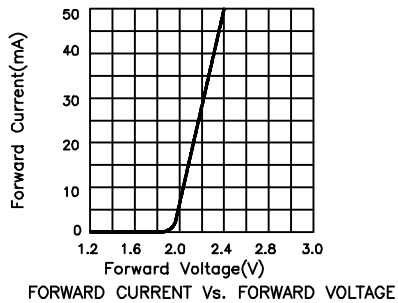
**Absolute Maximum Ratings at T<sub>A</sub>=25°C**

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

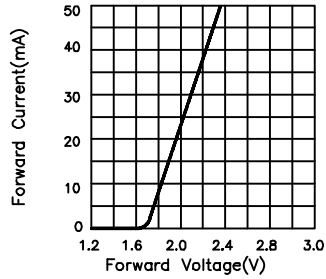
Notes:  
 1. 1/10 Duty Cycle, 0.1ms Pulse Width.  
 2. 4mm below package base.



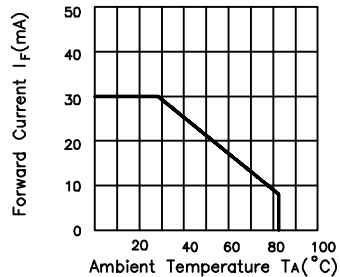
### Bright Red L-53HD



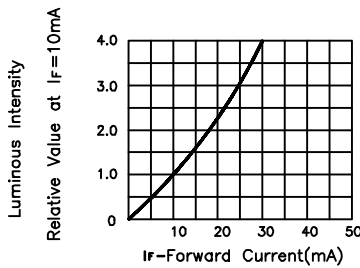
**High Efficiency Red L-53ID,L-53IT,L-53EC**  
**Orange L-53ED**



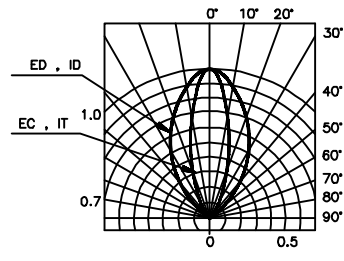
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

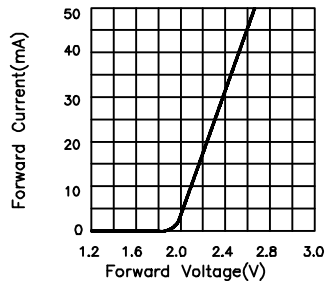


LUMINOUS INTENSITY Vs. FORWARD CURRENT

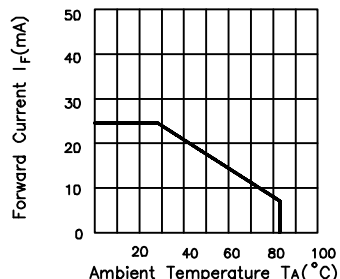


SPATIAL DISTRIBUTION

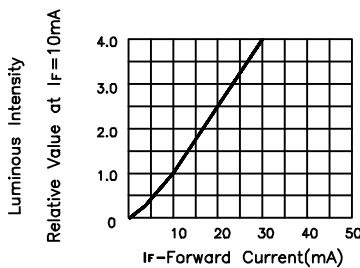
**Green L-53GD,L-53GT,L-53GC**



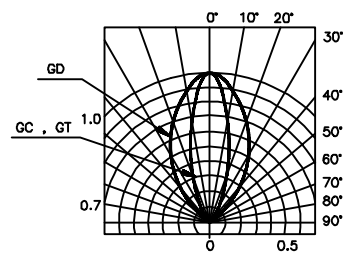
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

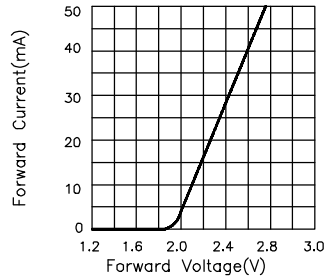


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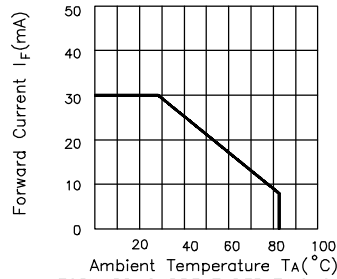


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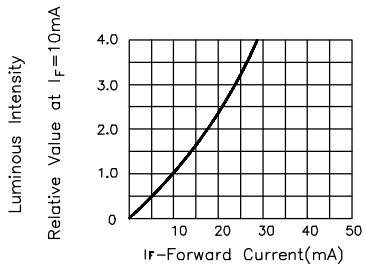
**Yellow L-53YD,L-53YT,L-53YC**



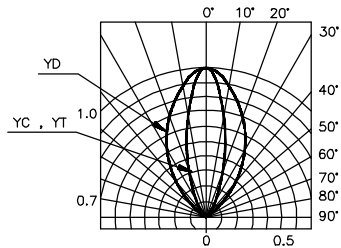
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

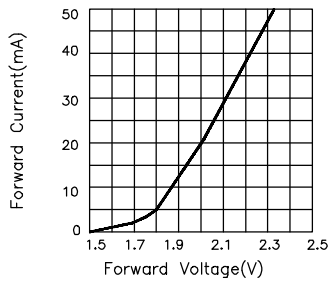


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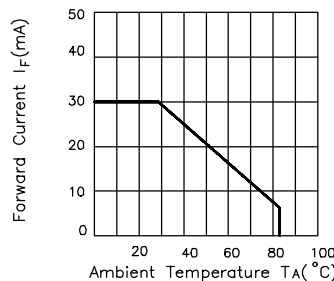


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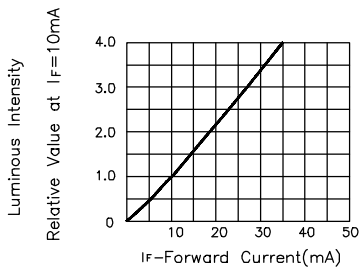
**Pure Orange L-53ND,L-53NT,L-53NC**



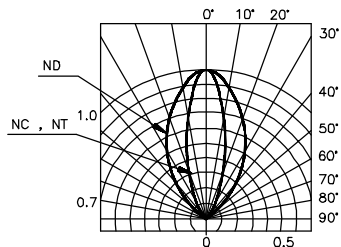
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

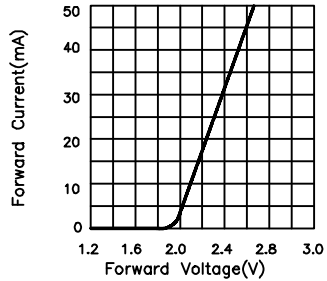


LUMINOUS INTENSITY Vs. FORWARD CURRENT

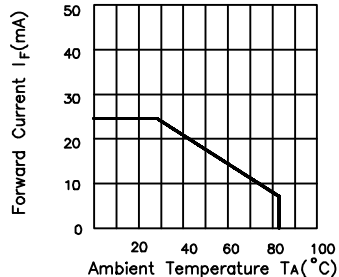


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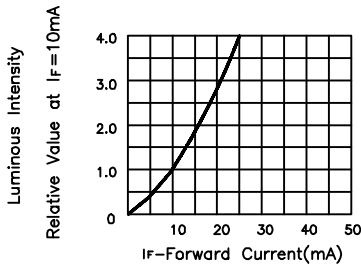
**Pure Green L-53PGD,L-53PGT,L-53PGC**



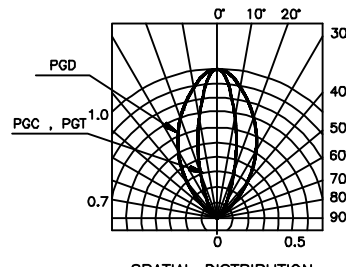
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

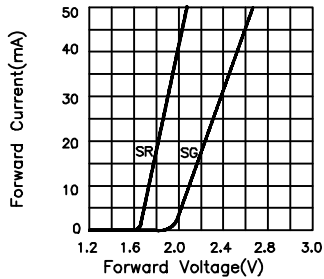


LUMINOUS INTENSITY Vs. FORWARD CURRENT

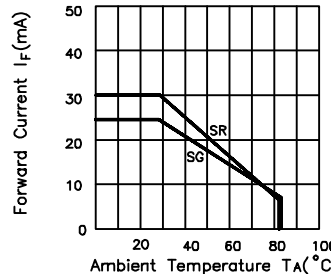


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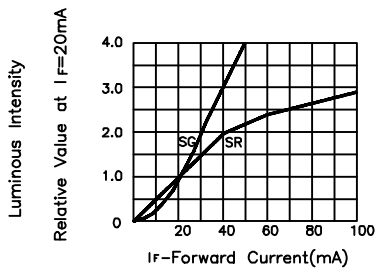
**Super Bright Red / Super Bright Green L-53SRSGW**



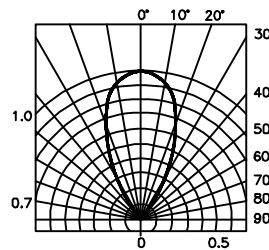
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



SPATIAL DISTRIBUTION