

# Kingbright®

## T-1 (3mm) SOLID STATE LAMPS

|                            |               |
|----------------------------|---------------|
| L-934H BRIGHT RED          | L-934E ORANGE |
| L-934I HIGH EFFICIENCY RED | L-934G GREEN  |
| L-934N PURE ORANGE         | L-934Y YELLOW |
| L-934PG PURE GREEN         |               |

### Features

- HIGH INTENSITY.
- LOW POWER CONSUMPTION.
- POPULAR T-1 DIAMETER PACKAGE.
- GENERAL PURPOSE LEADS.
- RELIABLE AND RUGGED.
- 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 source color devices are made with Gallium Phosphide Green Light Emitting Diode.

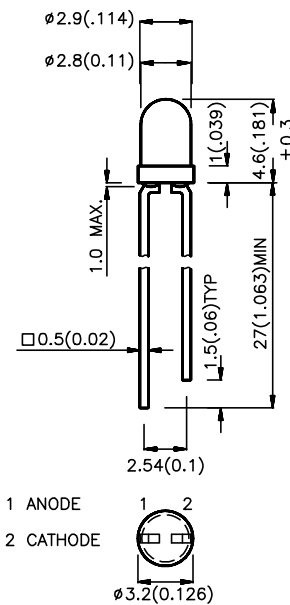
The High Efficiency Red and Orange source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

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

The 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)<br>@ 10 mA |      | Viewing<br>Angle |
|----------|---------------------------------|--------------------|---------------------|------|------------------|
|          |                                 |                    | Min.                | Max. |                  |
| L-934HD  | BRIGHT RED (GaP)                | RED DIFFUSED       | 1.3                 | 5    | 60°              |
| L-934ID  | HIGH EFFICIENCY RED (GaAsP/GaP) | RED DIFFUSED       | 8                   | 50   | 60°              |
| L-934IT  |                                 | RED TRANSPARENT    | 20                  | 125  | 50°              |
| L-934EC  |                                 | WATER CLEAR        | 20                  | 125  | 50°              |
| L-934ED  | ORANGE (GaAsP/GaP)              | ORANGE DIFFUSED    | 8                   | 50   | 60°              |
| L-934GD  | GREEN (GaP)                     | GREEN DIFFUSED     | 8                   | 32   | 60°              |
| L-934GT  |                                 | GREEN TRANSPARENT  | 20                  | 80   | 50°              |
| L-934GC  |                                 | WATER CLEAR        | 20                  | 80   | 50°              |
| L-934YD  | YELLOW (GaAsP/GaP)              | YELLOW DIFFUSED    | 8                   | 32   | 60°              |
| L-934YT  |                                 | YELLOW TRANSPARENT | 10                  | 50   | 50°              |
| L-934YC  |                                 | WATER CLEAR        | 10                  | 50   | 50°              |
| L-934ND  | PURE ORANGE                     | ORANGE DIFFUSED    | 8                   | 50   | 60°              |
| L-934NT  |                                 | ORANGE TRANSPARENT | 20                  | 125  | 50°              |
| L-934NC  |                                 | WATER CLEAR        | 20                  | 125  | 50°              |
| L-934PGD | PURE GREEN (GaP)                | GREEN DIFFUSED     | 2                   | 8    | 60°              |
| L-934PGT |                                 | GREEN TRANSPARENT  | 3.2                 | 20   | 50°              |
| L-934PGC |                                 | WATER CLEAR        | 3.2                 | 20   | 50°              |

Note:

1.  $\theta 1/2$  is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

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

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

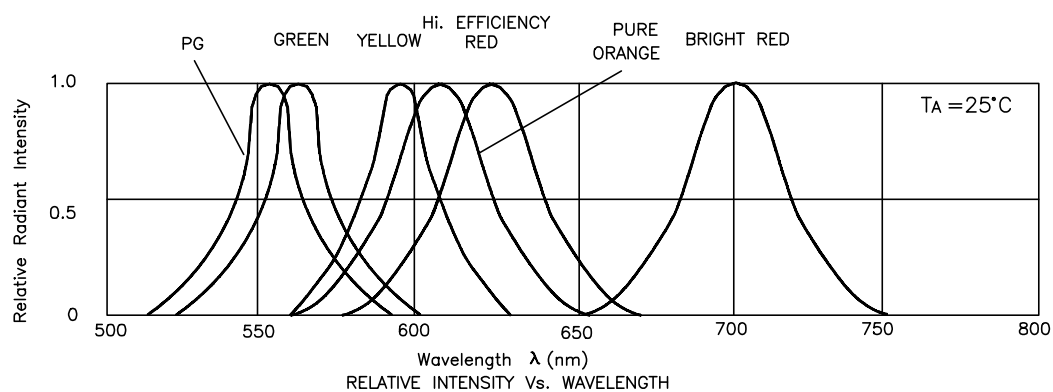
### Absolute Maximum Ratings at T<sub>A</sub>=25°C

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

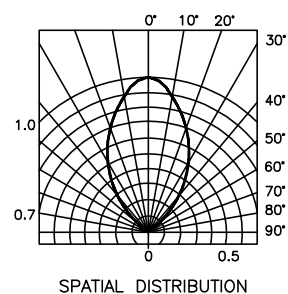
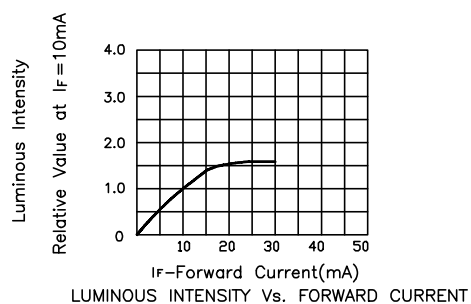
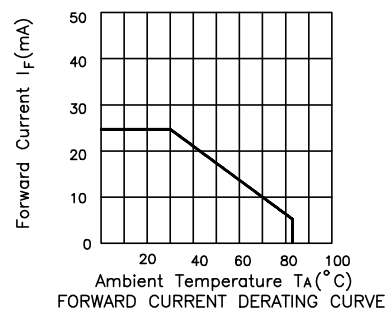
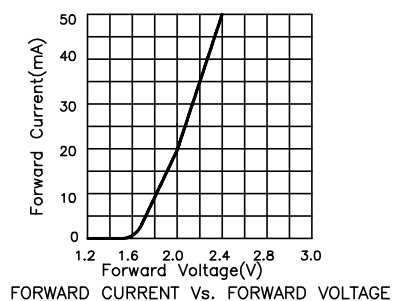
Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.

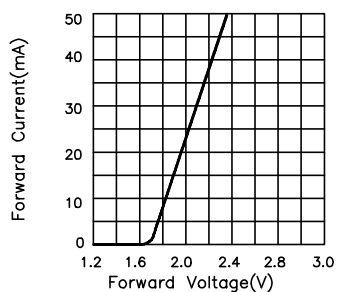
2. 4mm below package base.



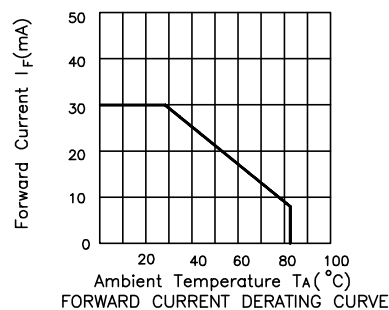
### Bright Red L-934HD



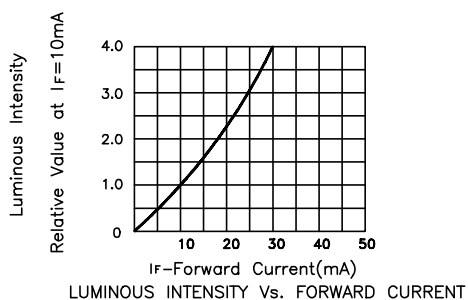
## High Efficiency Red L-934ID,L-934IT,L-934EC Orange L-934ED



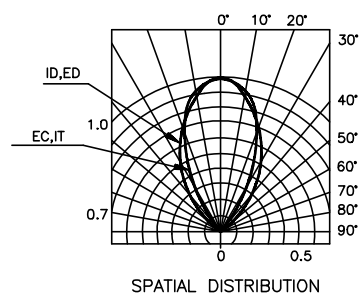
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

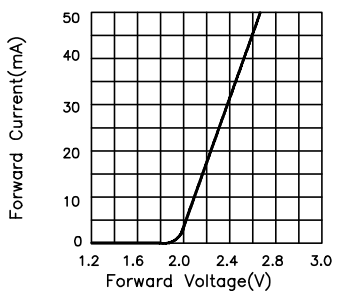


LUMINOUS INTENSITY Vs. FORWARD CURRENT

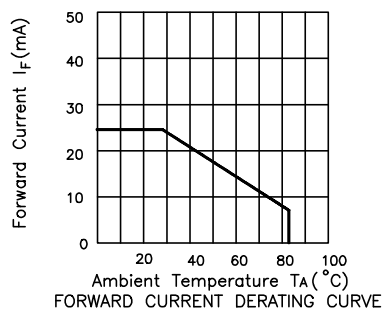


SPATIAL DISTRIBUTION

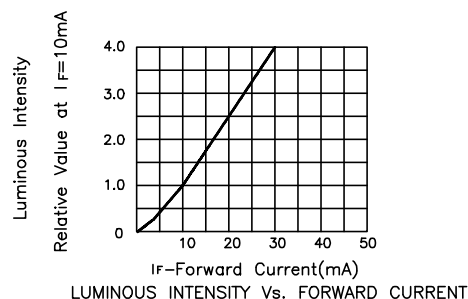
## Green L-934GD,L-934GT,L-934GC



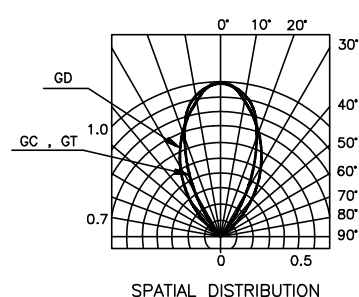
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

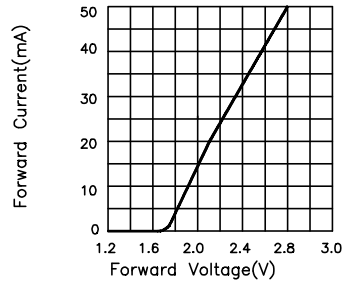


LUMINOUS INTENSITY Vs. FORWARD CURRENT

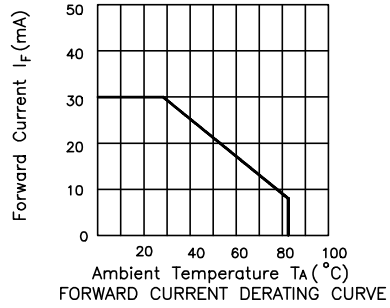


SPATIAL DISTRIBUTION

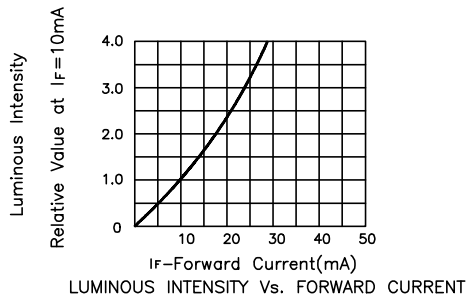
## Yellow L-934YD,L-934YT,L-934YC



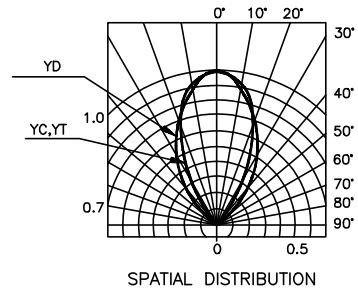
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

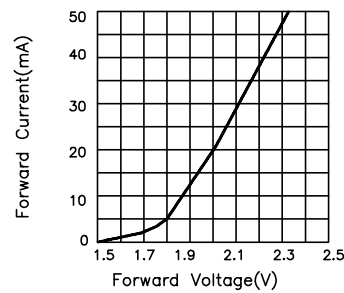


LUMINOUS INTENSITY Vs. FORWARD CURRENT

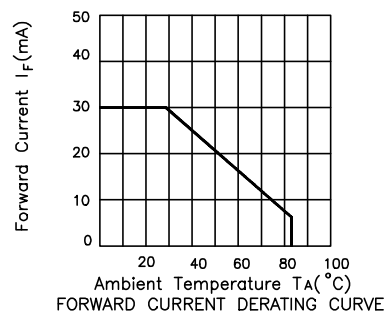


SPATIAL DISTRIBUTION

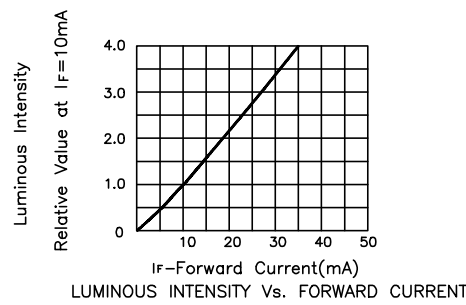
## Pure Orange L-934ND,L-934NT,L-934NC



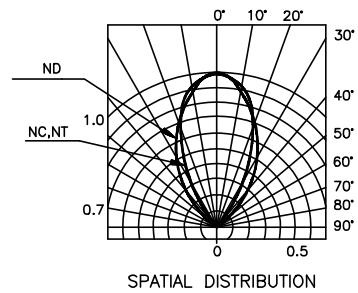
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



SPATIAL DISTRIBUTION

Pure Green L-934PGD,L-934PGT,L-934PGC

