

**Kingbright KP-3216 Series**

| <b>Order Code</b> | <b>Manufacturers Part No</b> | <b>Description</b> |
|-------------------|------------------------------|--------------------|
| 530-145           | KP-3216SRT                   | Super red LED1206  |

RoHS compliant

The enclosed information is believed to be correct. Information may change without notice due to product improvement. Check to ensure that the product is suitable for the intended application. E. and O.E

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# Kingbright®

## 3.2x1.6mm SMD CHIP LED LAMPS

KP-3216

### Features

- 3.2mmx1.6mm SMT LED. 1.1mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE.

### Description

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

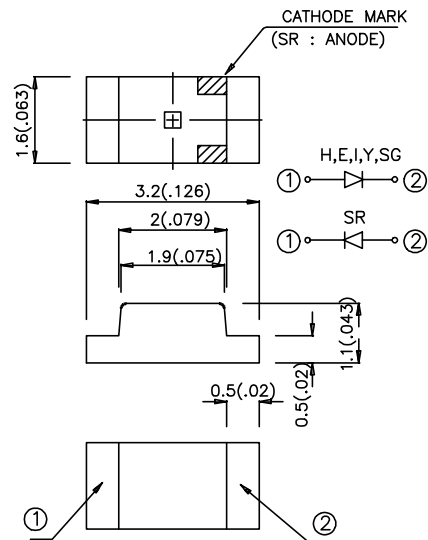
The Super Bright Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

The High Efficiency Red 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 Diodes.

### Package Dimensions



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.2$  (0.0079") 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>@ 20 mA |      | Viewing Angle<br><b>2<math>\theta</math>/2</b> |
|------------|---------------------------------|-----------------|---------------------|------|--|
|            |                                 |                 | Min.                | Typ. |  |
| KP-3216HD  | BRIGHT RED (GaP)                | RED DIFFUSED    | 0.8                 | 1.25 | 120°   |
| KP-3216HC  | BRIGHT RED (GaP)                | WATER CLEAR     | 0.8                 | 1.25 | 120°   |
| KP-3216HT  | BRIGHT RED (GaP)                | RED TRAS.       | 0.8                 | 1.2  | 120°   |
| KP-3216ID  | HIGH EFFICIENCY RED (GaAsP/GaP) | RED DIFFUSED    | 5                   | 12.5 | 120°   |
| KP-3216EC  | HIGH EFFICIENCY RED (GaAsP/GaP) | WATER CLEAR     | 5                   | 12.5 | 120°   |
| KP-3216IT  | HIGH EFFICIENCY RED (GaAsP/GaP) | RED TRANS.      | 5                   | 12.5 | 120°   |
| KP-3216YD  | YELLOW (GaAsP/GaP)              | YELLOW DIFFUSED | 3.2                 | 8    | 120°   |
| KP-3216YC  | YELLOW (GaAsP/GaP)              | WATER CLEAR     | 3.2                 | 8    | 120°   |
| KP-3216YT  | YELLOW (GaAsP/GaP)              | YELLOW TRANS.   | 3.2                 | 8    | 120°   |
| KP-3216SRD | SUPER BRIGHT RED (GaAlAs)       | RED DIFFUSED    | 40                  | 70   | 120°   |
| KP-3216SRC | SUPER BRIGHT RED (GaAlAs)       | WATER CLEAR     | 40                  | 70   | 120°   |
| KP-3216SRT | SUPER BRIGHT RED (GaAlAs)       | RED TRANS.      | 40                  | 70   | 120°   |
| KP-3216SGD | SUPER BRIGHT GREEN (GaP)        | GREEN DIFFUSED  | 3.2                 | 12.5 | 120°   |
| KP-3216SGC | SUPER BRIGHT GREEN (GaP)        | WATER CLEAR     | 3.2                 | 12.5 | 120°   |
| KP-3216SGT | SUPER BRIGHT GREEN (GaP)        | GREEN TRNS.     | 3.2                 | 12.5 | 120°   |

#### Note:

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

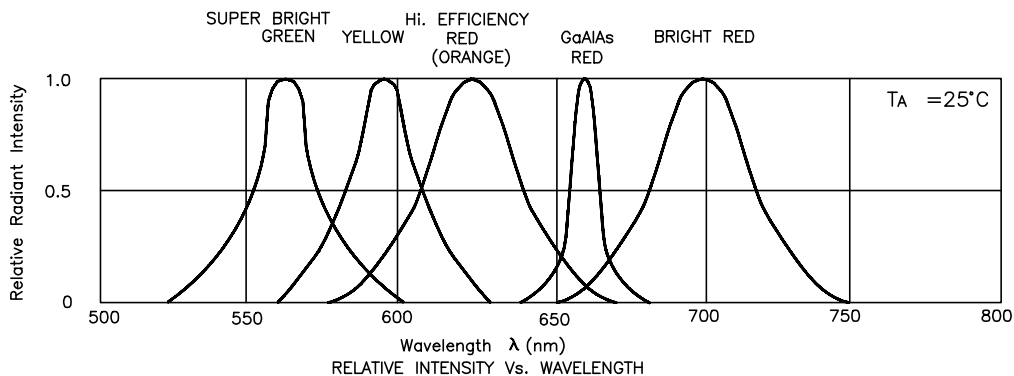
### Electrical / Optical Characteristics at T<sub>A</sub>=25°C

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

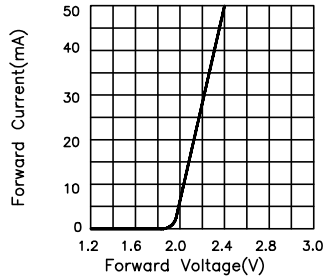
### Absolute Maximum Ratings at T<sub>A</sub>=25°C

| Parameter                      | Bright Red           | High Efficiency Red | Yellow | Super Bright Red | Super Bright Green | Units |
|--------------------------------|----------------------|---------------------|--------|------------------|--------------------|-------|
| Power dissipation              | 105                  | 105                 | 105    | 100              | 105                | mW    |
| DC Forward Current             | 25                   | 30                  | 30     | 30               | 25                 | mA    |
| Peak Forward Current [1]       | 150                  | 150                 | 150    | 150              | 150                | mA    |
| Reverse Voltage                | 5                    | 5                   | 5      | 5                | 5                  | V     |
| Operating/Storage Temperature  | -40 °C To +85 °C     |                     |        |                  |                    |       |
| Lead Soldering Temperature [2] | 230 °C For 3 Seconds |                     |        |                  |                    |       |

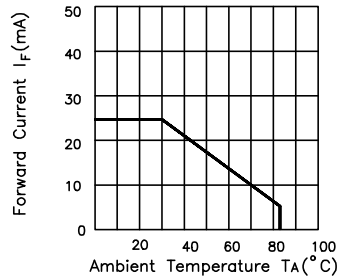
Note:  
1. 1/10 Duty Cycle, 0.1ms Pulse Width.



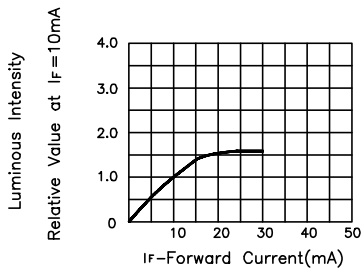
Bright Red KP-3216HD, KP-3216HC, KP-3216HT



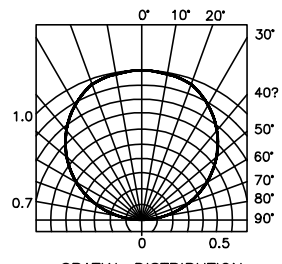
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

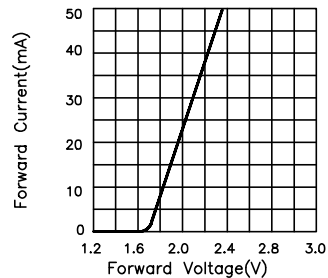


LUMINOUS INTENSITY Vs. FORWARD CURRENT

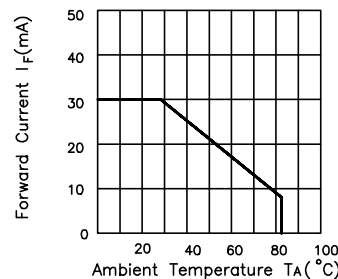


SPATIAL DISTRIBUTION

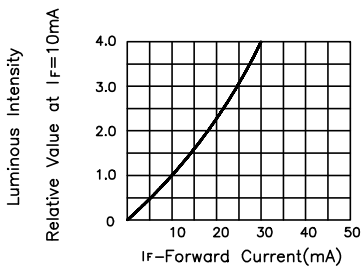
High Efficiency Red KP-3216ID, KP-3216EC, KP-3216IT



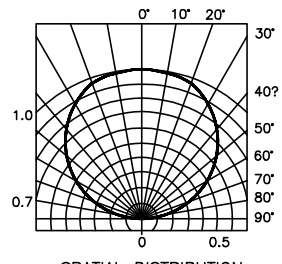
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

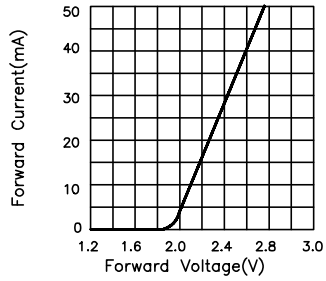


LUMINOUS INTENSITY Vs. FORWARD CURRENT

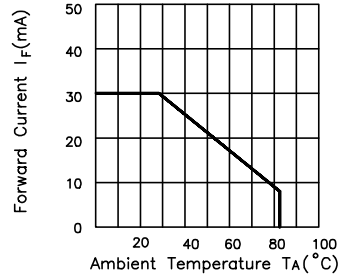


SPATIAL DISTRIBUTION

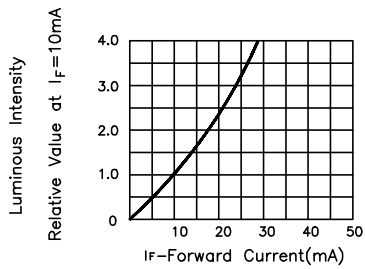
Yellow KP-3216YD, KP-3216YC, KP-3216YT



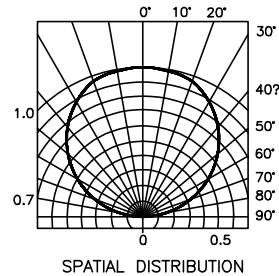
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

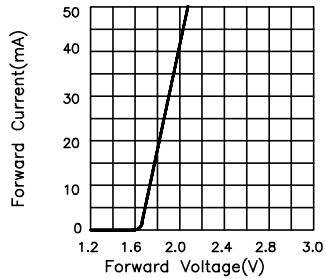


LUMINOUS INTENSITY Vs. FORWARD CURRENT

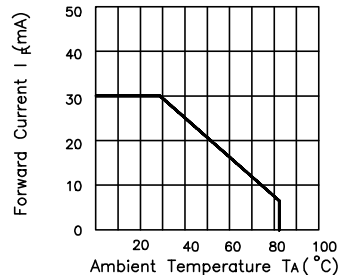


SPATIAL DISTRIBUTION

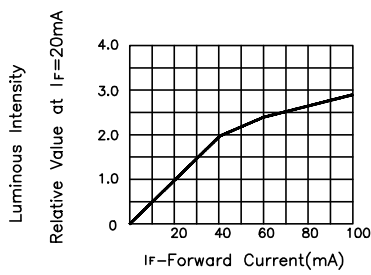
Super Bright Red KP-3216SRD, KP-3216SRC, KP-3216SRT



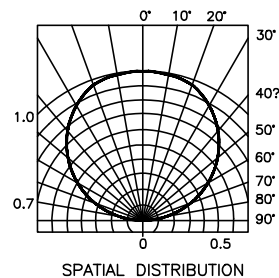
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

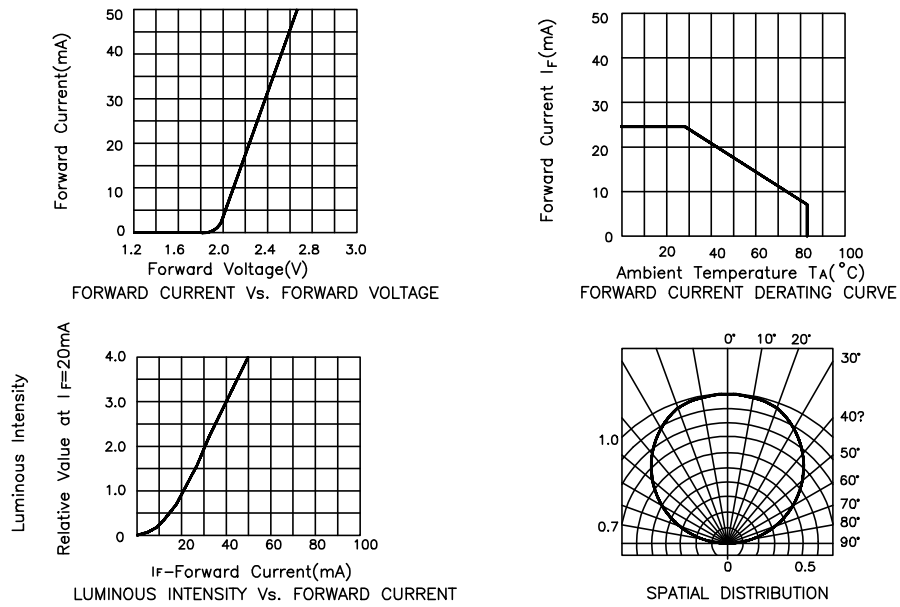


LUMINOUS INTENSITY Vs. FORWARD CURRENT

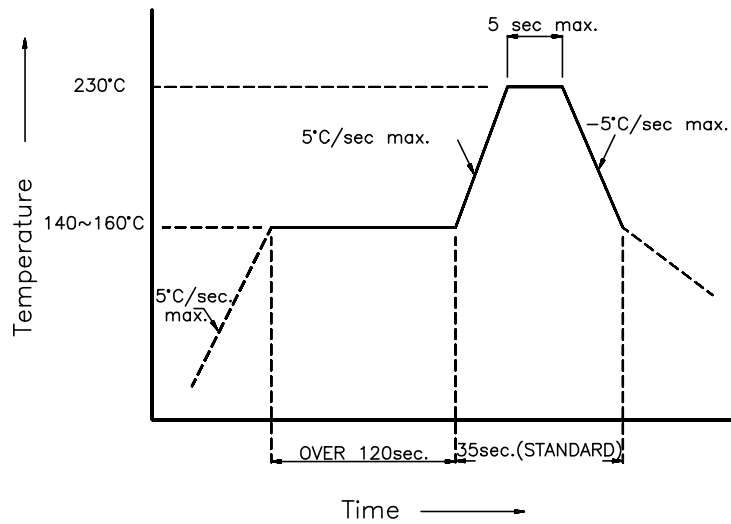


SPATIAL DISTRIBUTION

Super Bright Green KP-3216SGD, KP-3216SGC, KP-3216SGT

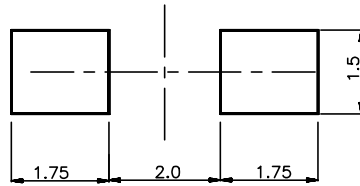


KP-3216 Series SMT Reflow Soldering Instructions

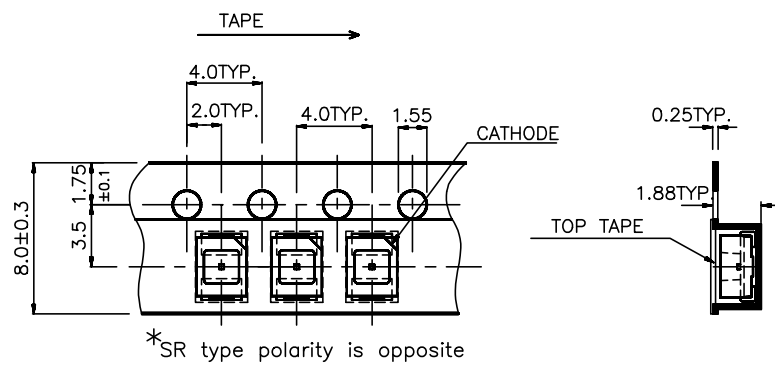


## KP-3216 Series Recommended Soldering Pattern

FOR REFLOW SOLDERING



## KP-3216 Series Tape Specifications



(Units : mm)