Kingbright

**2.0x1.25mm SMD CHIP LED LAMP**

Part Number: KPT-2012EC High Efficiency Red

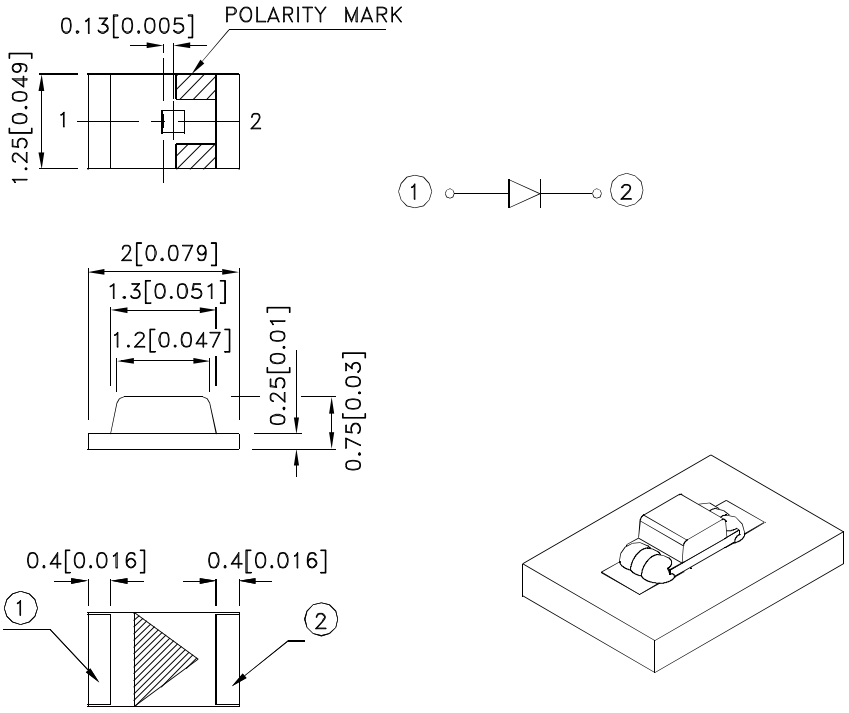
## Features

- 2.0mm x1.25mm SMT LED,0.75mm thickness.
- Low power consumption.
- Wide viewing angle.
- Ideal for backlight and indicator.
- Various colors and lens types available.
- Package : 2000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

## Description

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

## Package Dimensions




Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1(0.004") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

## Selection Guide

| Part No. | Dice | Lens Type | Iv (mcd) [2] @ 20mA | | Viewing Angle [1] |
|---|---|---|---|---|---|
| | | | Min. | Typ. | 2θ1/2 |
| KPT-2012EC | High Efficiency Red (GaAsP/GaP) | Water Clear | 8 | 15 | 120° |
| | | | *3 | *8 | |

Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous Flux: +/-15%.
*Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

## Electrical / Optical Characteristics at TA=25°C

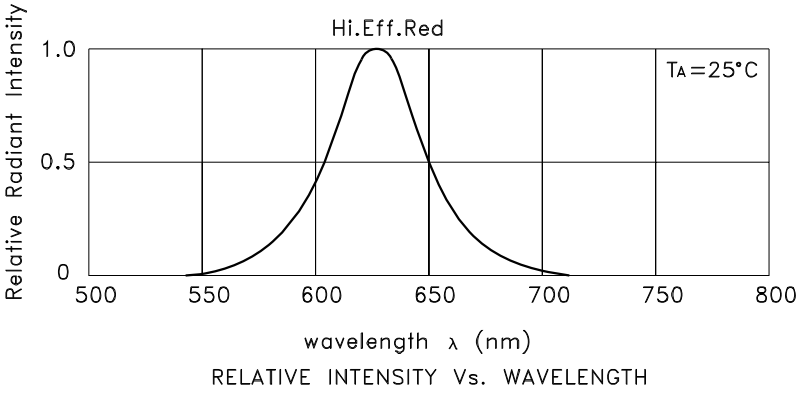
| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
|---|---|---|---|---|---|---|
| λpeak | Peak Wavelength | High Efficiency Red | 627 | | nm | $I_F$=20mA |
| λD [1] | Dominant Wavelength | High Efficiency Red | 617 | | nm | $I_F$=20mA |
| Δλ1/2 | Spectral Line Half-width | High Efficiency Red | 45 | | nm | $I_F$=20mA |
| C | Capacitance | High Efficiency Red | 15 | | pF | $V_F$=0V;f=1MHz |
| $V_F$ [2] | Forward Voltage | High Efficiency Red | 2 | 2.5 | V | $I_F$=20mA |
| $I_R$ | Reverse Current | High Efficiency Red | | 10 | uA | $V_R$=5V |

Notes:
1.Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
3. Wavelength value is traceable to the CIE127-2007 compliant national standards.

## Absolute Maximum Ratings at TA=25°C

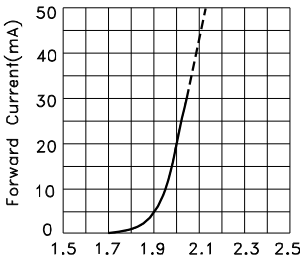
| Parameter | High Efficiency Red | Units |
|---|---|---|
| Power dissipation | 75 | mW |
| DC Forward Current | 30 | mA |
| Peak Forward Current [1] | 160 | mA |
| Reverse Voltage | 5 | V |
| Operating Temperature | -40°C To +85°C | |
| Storage Temperature | -40°C To +85°C | |

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

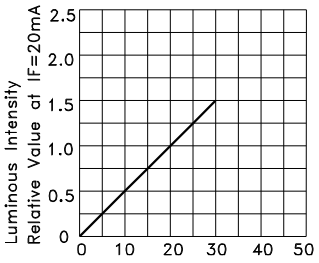


RELATIVE INTENSITY Vs. WAVELENGTH

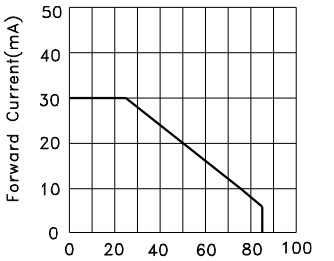
**High Efficiency Red KPT-2012EC**



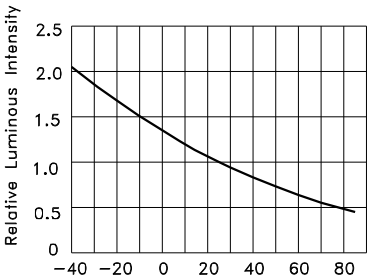
FORWARD CURRENT Vs.
FORWARD VOLTAGE



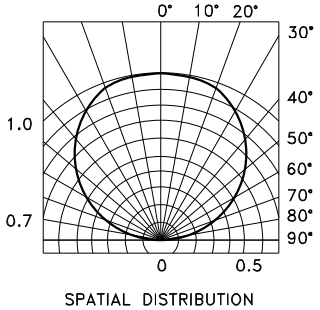
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE



LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

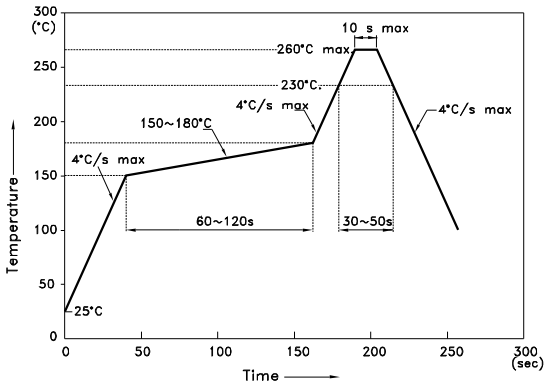


SPATIAL DISTRIBUTION

## KPT-2012EC

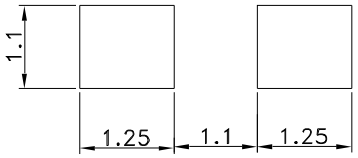
**Reflow soldering is recommended and the soldering profile is shown below.**
**Other soldering methods are not recommended as they might cause damage to the product.**

Reflow Soldering Profile For Lead-free SMT Process.

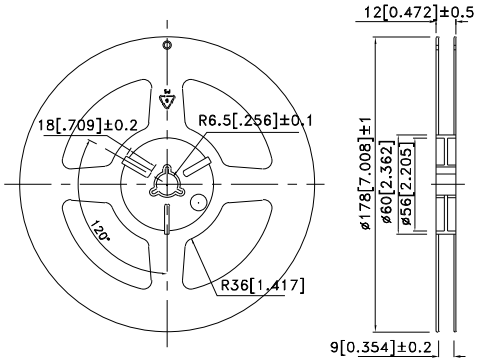



NOTES:
1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

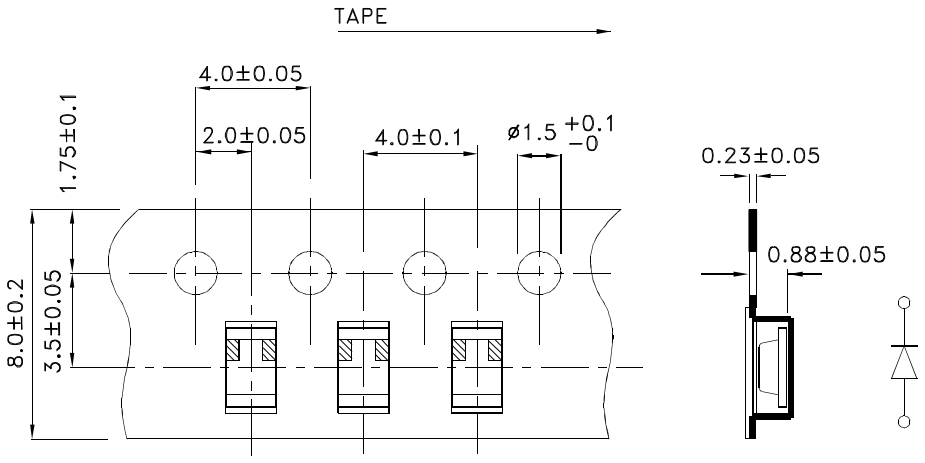
### Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)



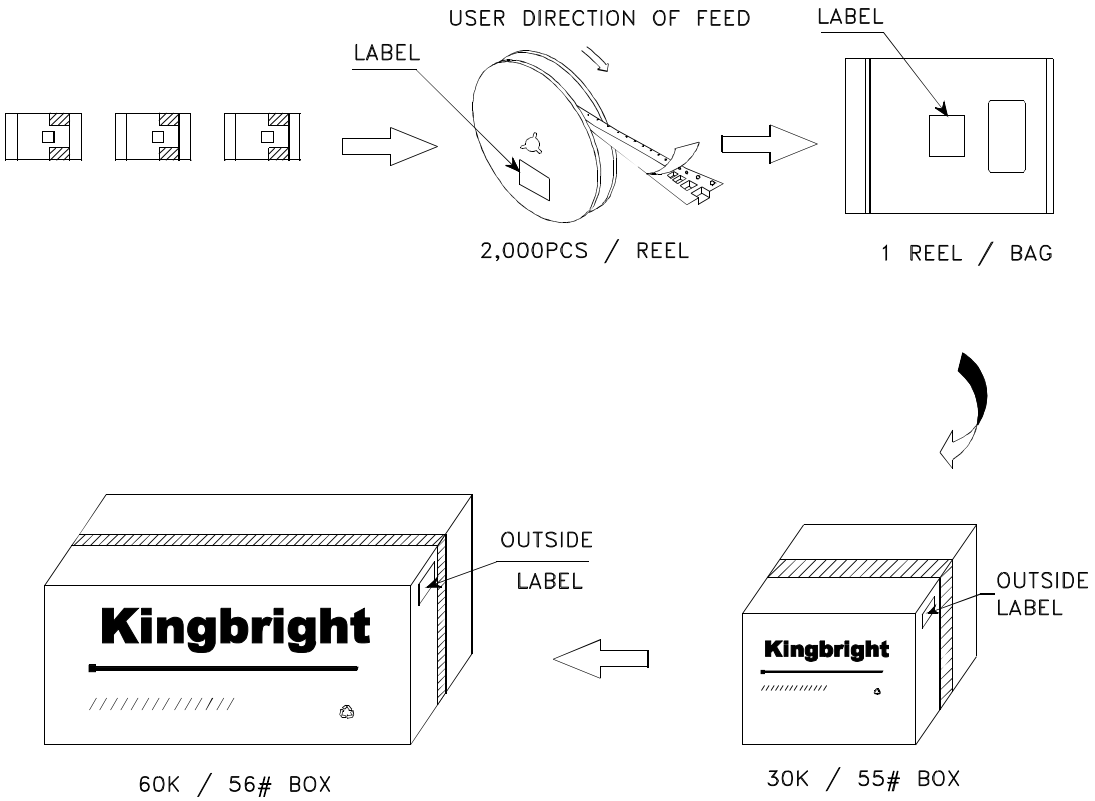

### Reel Dimension

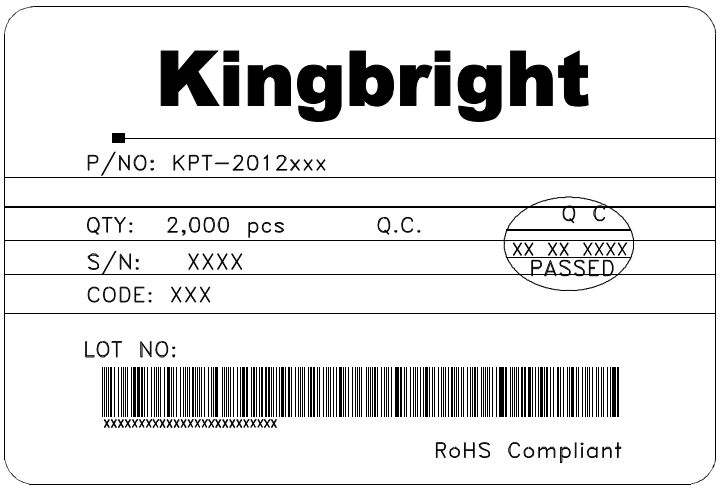



### Tape Dimensions (Units : mm)



**PACKING & LABEL SPECIFICATIONS** **KPT-2012EC**




Detailed application notes are listed on our website.
http://www.kingbright.com/application_notes