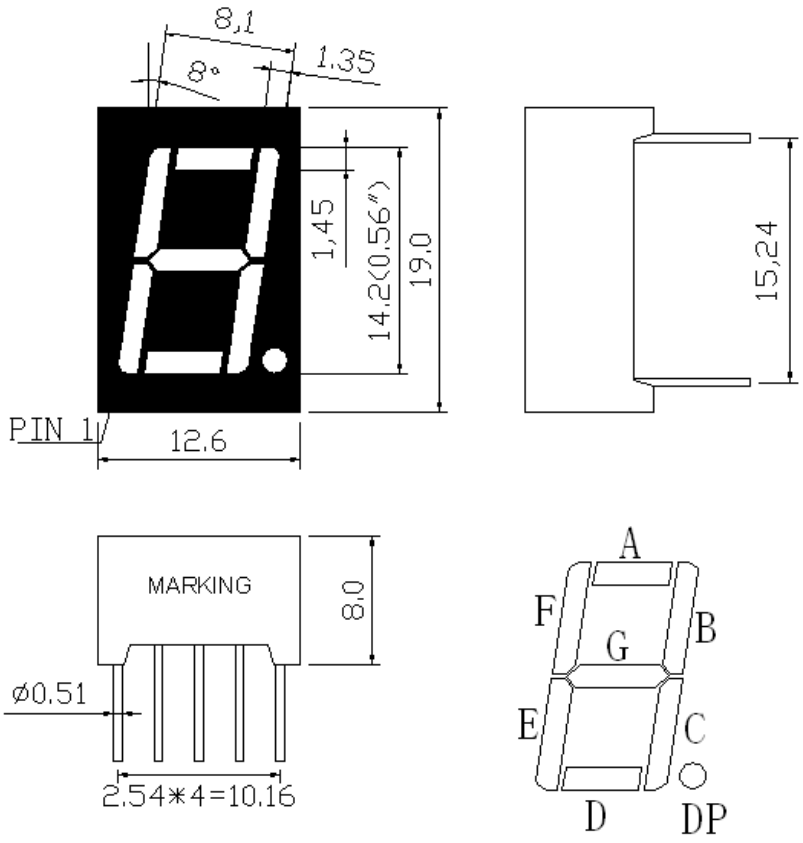
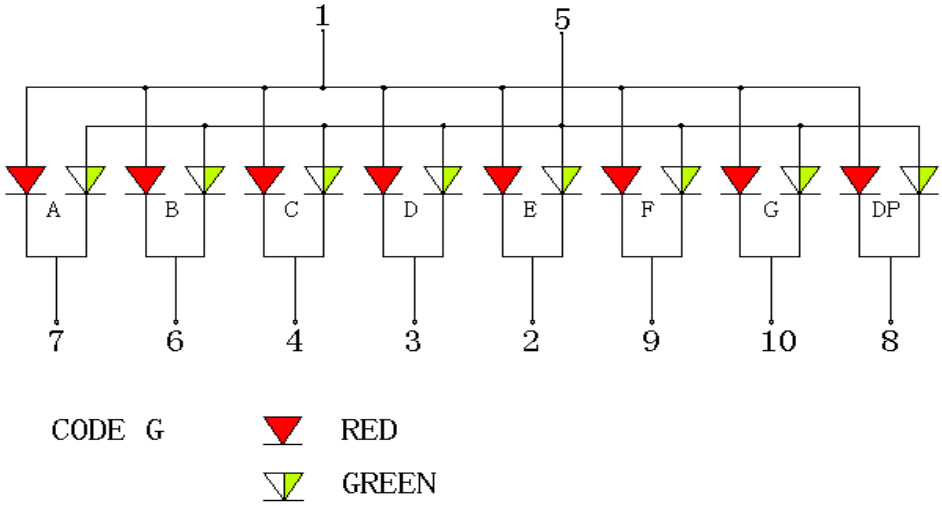
# P/N: E10561B-G-UR3K2-0-W

## PACKAGE DIMENSION




Pb-free

## INTERNAL CIRCUIT DIAGRAM




NOTES:

1. All dimensions are in millimeter;
2. Tolerance is ±0.25mm unless other specified;
3. Pin length, housing color, marking no & circuit diagram can be customized;
4. Specifications are subject to change without notice.

# P/N: E10561B-G-UR3K2-0-W

**CHARACTERS**

**Chip Material: AlGaInP / GaAs Yellow Green LED Chip**

**ABSOLUTE MAXIMUM RATINGS (Ta = 25℃)**

| PARAMETER | SYMBOL | MAXIMUM RATING | UNIT |
|---|---|---|---|
| Power Dissipation | $P_D$ | 65 | mW |
| Peak Forward Current (1/10 Duty Cycle, 0.1 Ms Pulse Width) | $I_{PEAK}$ | 100 | mA |
| DC Forward Current | $I_F$ | 25 | mA |
| Reverse Voltage | $V_R$ | 5 | V |
| Operating Temperature Range | Topr / Tstg | -40℃ to +85℃ | |
| Storage Temperature Range | Topr / Tstg | -40℃ to +100℃ | |

**ELECTRICAL OPTICAL CHARACTER AND CURVES (Ta = 25℃)**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITION (Per Chip) |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | - | 2.20 | 2.60 | V | $I_F$ =20mA |
| Luminous Intensity | $I_V$ | 12 | 14 | - | mcd | $I_F$ =20mA |
| Peak Emission Wavelength | λp | - | 575 | - | nm | $I_F$ =20mA |
| Dominant Emission Wavelength | λd | 565 | 570 | 575 | nm | $I_F$ =20mA |
| Spectral Line Half-Width | Δλ1/2 | - | 20 | - | nm | $I_F$ =20mA |
| Reverse Current | $I_R$ | - | 15 | - | uA | $V_R$ = 5V |

**Note:**

1. **Luminous intensity tolerance is ±10%;**
2. **Dominant Emission Wavelength tolerance is ±5%.**

# P/N: E10561B-G-UR3K2-0-W

## TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE

FIG. 1 Forward Current Vs. Forward Voltage

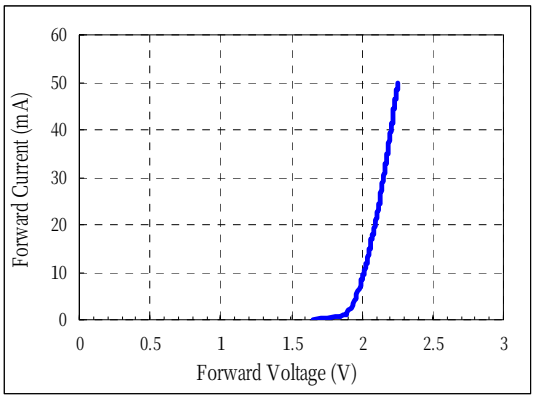



FIG. 2 Relative Intensity Vs. Forward Current

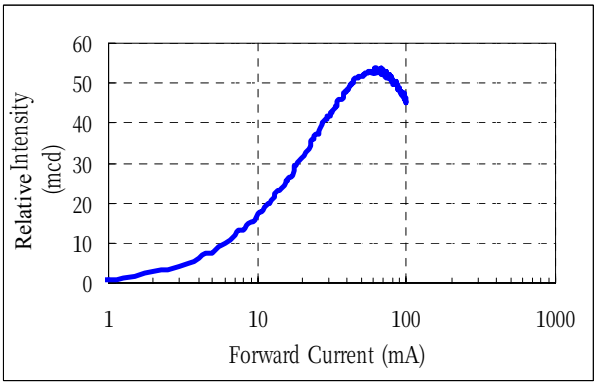



FIG. 3 Forward Voltage Vs. Temperature

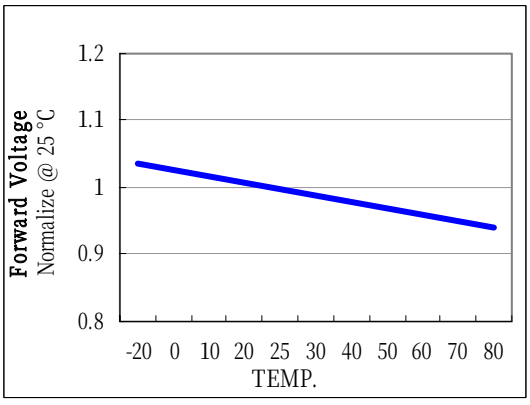



FIG. 4 Relative Intensity Vs. Temperature

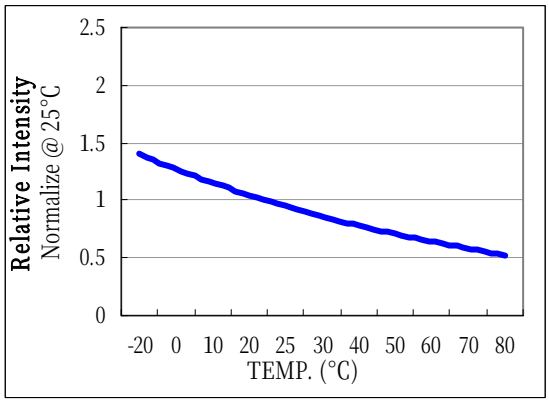
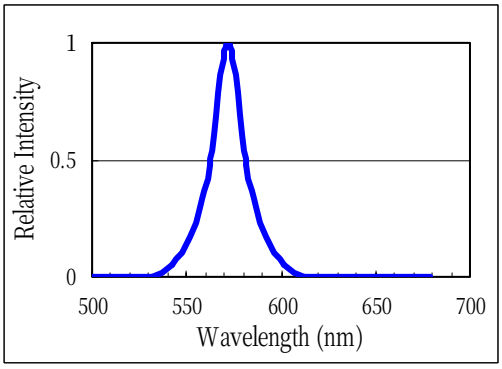



FIG. 5 Relative Intensity Vs. Wavelength



# P/N: E10561B-G-UR3K2-0-W

**CHARACTERS**

**Chip Material: AlGaInP / GaAs Ultra Bright Red LED Chip**

Pb-free

**ABSOLUTE MAXIMUM RATINGS (Ta = 25℃)**

| PARAMETER | SYMBOL | MAXIMUM RATING | UNIT |
|---|---|---|---|
| Power Dissipation | $P_D$ | 72 | mW |
| Peak Forward Current (1/10 Duty Cycle, 0.1 Ms Pulse Width) | $I_{PEAK}$ | 90 | mA |
| DC Forward Current | $I_F$ | 30 | mA |
| Reverse Voltage | $V_R$ | 5 | V |
| Operating Temperature Range | Topr / Tstg | -40°C to +85°C | |
| Storage Temperature Range | Topr / Tstg | -40°C to +100°C | |

**ELECTRICAL OPTICAL CHARACTER AND CURVES (Ta = 25℃)**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITION (Per Chip) |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | - | 2.05 | 2.40 | V | $I_F$ =20mA |
| Luminous Intensity | $I_V$ | 34 | 38 | 56 | mcd | $I_F$ =20mA |
| Peak Emission Wavelength | λp | - | 645 | - | nm | $I_F$ =20mA |
| Dominant Emission Wavelength | λd | 628 | 635 | 638 | nm | $I_F$ =20mA |
| Spectral Line Half-Width | Δλ1/2 | - | 20 | - | nm | $I_F$ =20mA |
| Reverse Current | $I_R$ | - | - | 10 | uA | $V_R$ = 5V |

**Note:**

1. **Luminous intensity tolerance is ±10%;**
2. **Dominant Emission Wavelength tolerance is ±5%.**

# P/N: E10561B-G-UR3K2-0-W

## TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE

FIG. 1 Forward Current Vs. Forward Voltage

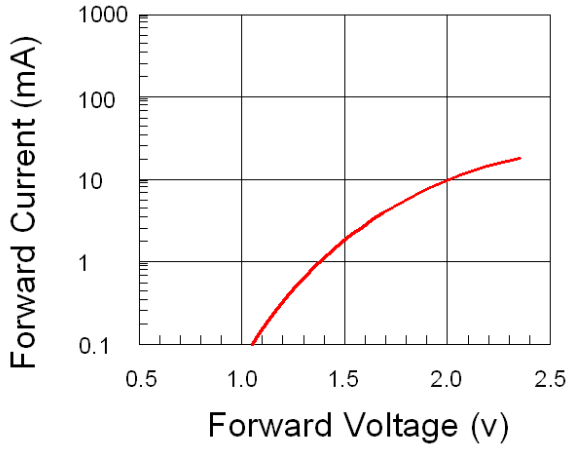



FIG. 2 Relative Intensity Vs. Forward Current

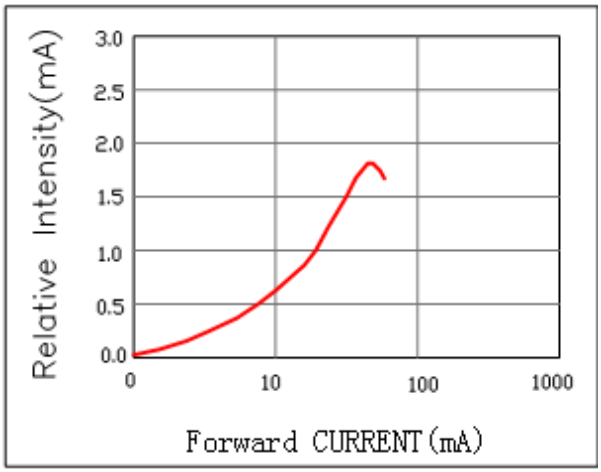



FIG. 3 Forward Voltage Vs. Temperature

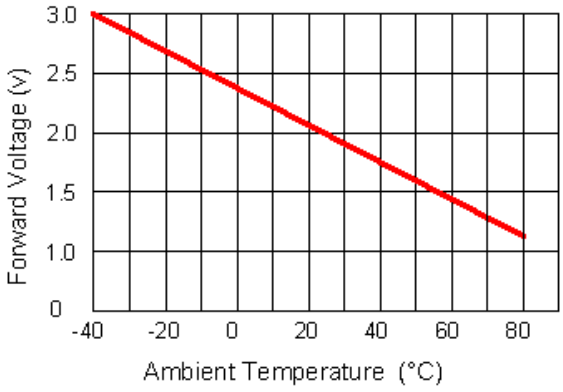



FIG. 4 Relative Intensity Vs. Temperature

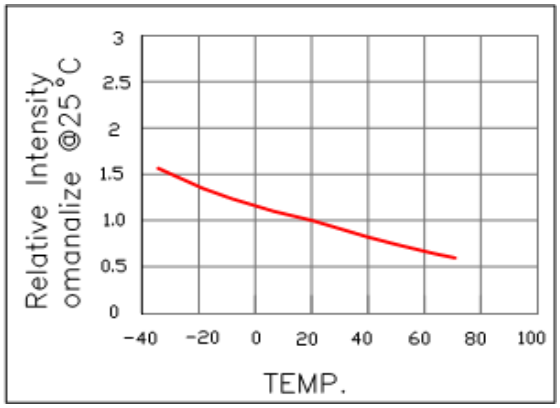
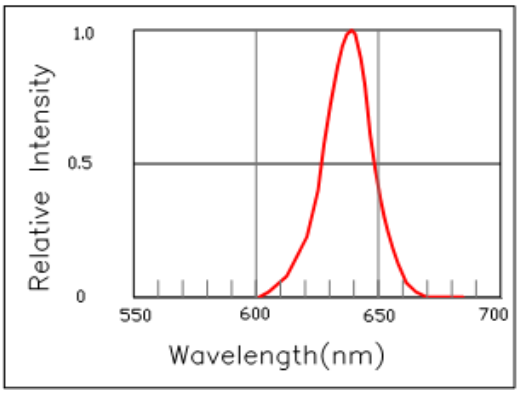
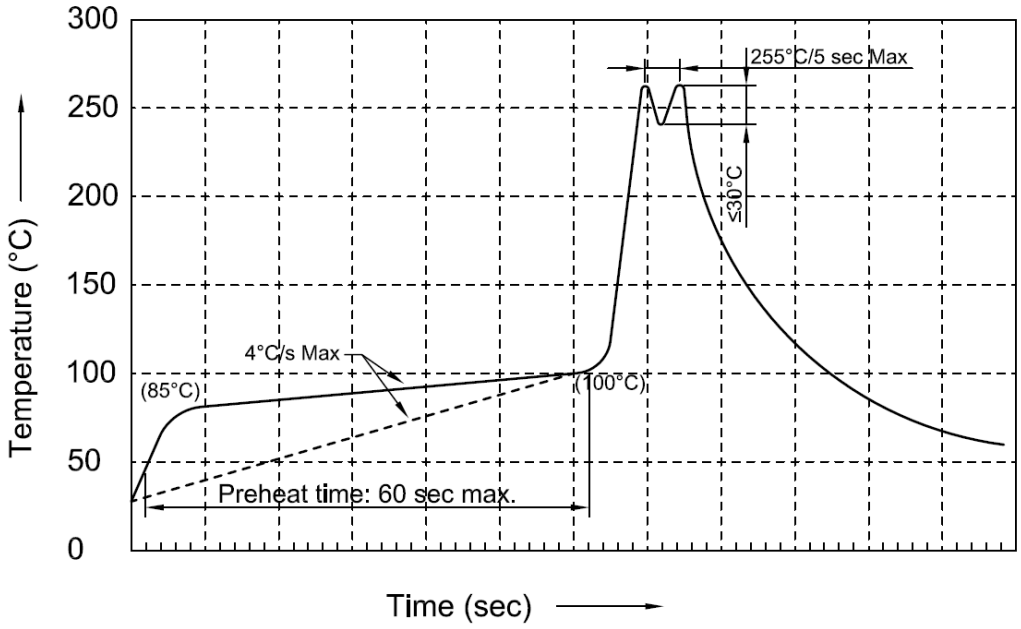



FIG. 5 Relative Intensity Vs. Wavelength



# P/N: E10561B-G-UR3K2-0-W

**Recommended Wave Soldering Profiles:**




Notes:

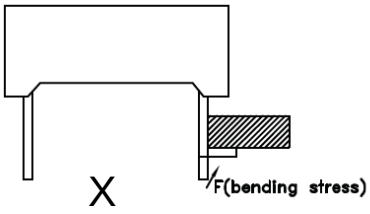
1. Recommend pre-heat temperature of 105℃ or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260℃.
2. Peak wave soldering temperature between 245-255℃ for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85℃.
4. Fixtures should not apply stress on the component when mounting and soldering process.
5. More than one wave soldering is not allowed.

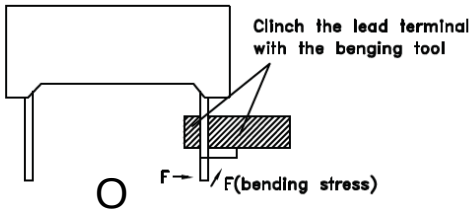
# P/N: E10561B-G-UR3K2-0-W

## THROUGH HOLE DISPLAY MOUNTING METHOD

**Lead Forming**

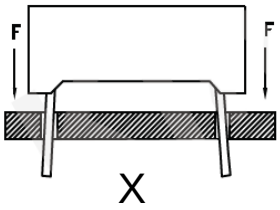
Bend the component leads by hand without proper tools is not allowed. The leads should be bent by clinching the upper part of the lead firmly such that the bending force is not exerted on the plastic body.

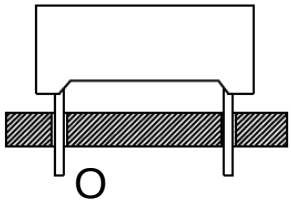


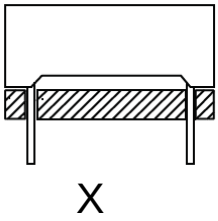

**Installation**

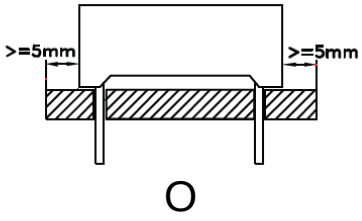
1. Do not apply stress to the lead terminals.
2. When inserting for assembly, ensure the terminal pitch matches the substrate board's hole pitch to prevent spreading or pinching the lead terminals.




1. The component shall be placed at least 5mm from edge of PCB to avoid damage caused excessive heat during wave soldering.




**Storage**

1. The LEDs should be stored at temp.≤ 30℃ &RH. ≤70% after being shipped from TOYO and the storage life limits are 3 months. If the LEDs are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and absorbent material.
2 .Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

**Soldering General Notes**

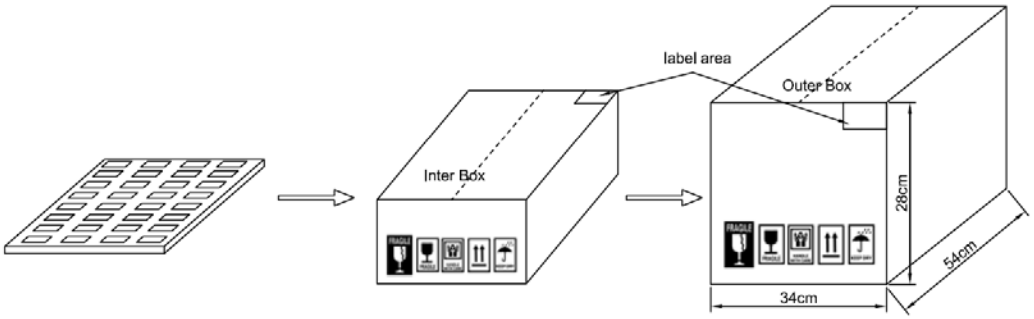
1. Through-hole displays are incompatible with reflow soldering.
2. If components will undergo multiple soldering processes where the components may be subjected to intense heat, please check with TOYO for compatibility.

**Cleaning**

1. Mild "no-clean" fluxes are recommended for use in soldering.
2. If cleaning is required, TOYO recommends to wash components enclosure with water only. Do not use organic solvents for cleaning, because they may damage the plastic parts. And the devices should not be washed for more than one minute.

# P/N: E10561B-G-UR3K2-0-W

**PACKING & LABEL SPECIFICATIONS**




Notes:

1. All dimension are in millimeter;
2. Tolerance is ±0.25mm unless otherwise specified.
3. Not recommend to solder within 3mm from the resin.
4. Any kind of LEDs can be made in taped.

# P/N: E10561B-G-UR3K2-0-W

**REVISION HISTORY**

| DATE | REVISION CONTENTS | VERSION |
|---|---|---|
| 2016-03-07 | New | A |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |