


**Pb-free  
HEAT**
**STANLEY**

# 1314C Series

Top View Type Tri-color

## Features

|                         |                                                                                                                                                                                                                                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Package                 | Top View Type, Milky White Resin                                                                                                                                                                                                                                                                        |
| Product features        | <ul style="list-style-type: none"> <li>• Outer Dimension 1.6 x 1.5 x 0.4 mm( L x W x H )</li> <li>• Temperature range.<br/>Storage Temperature : -40°C~100°C<br/>Operating Temperature : -40°C~ 85°C</li> <li>• No lead package and lead-free soldering compatible</li> <li>• RoHS compliant</li> </ul> |
| Dominant wavelength     | Blue : 470nm (UB)<br>Green : 525nm (UG)<br>Yellow Green : 572nm (YPY)<br>Orange : 605nm (FA)<br>Red : 626nm (FR)                                                                                                                                                                                        |
| Half Intensity Angle    | UB/UG/YPY : $\theta_x=135$ deg., FA/FR : $\theta_x=150$ deg.<br>UB/UG/YPY/FA/FR : $\theta_y=145$ deg.                                                                                                                                                                                                   |
| Die materials           | UB,UG : InGa <sub>N</sub> , YPY,FA,FR : AlGaInP                                                                                                                                                                                                                                                         |
| Rank grouping parameter | Sorted by luminous intensity and wavelength per rank taping                                                                                                                                                                                                                                             |
| Assembly method         | Auto pick & place machine (Auto Mounter)                                                                                                                                                                                                                                                                |
| Soldering methods       | Reflow soldering and manual soldering                                                                                                                                                                                                                                                                   |
| Taping and reel         | 4,000pcs per reel in a 8mm width tape. (Standard)<br>Reel diameter: $\phi$ 180mm                                                                                                                                                                                                                        |
| ESD                     | 1kV (HBM)                                                                                                                                                                                                                                                                                               |

## Recommended Applications

Cellular Phone, Mobile Equipment



## 1314C Series

Top View Type Tri-color

### Color Variations and Luminous Intensity

(Ta=25°C)

| Part No.  | Die Name | Material | Emitted Color | Lens Color  | Dominant Wavelength<br>$\lambda d$ (nm) |       | Luminous Intensity<br>$I_v$ (mcd) |      |       |
|-----------|----------|----------|---------------|-------------|-----------------------------------------|-------|-----------------------------------|------|-------|
|           |          |          |               |             | TYP.                                    | $I_F$ | MIN.                              | TYP. | $I_F$ |
| UAGB1314C | UB       | InGaN    | Blue          | Milky White | 470                                     | 10    | 15                                | 30   | 10    |
|           | UG       | InGaN    | Green         |             | 525                                     | 10    | 60                                | 140  | 10    |
|           | FA       | AlGaInP  | Orange        |             | 605                                     | 10    | 30                                | 60   | 10    |
| URGB1314C | UB       | InGaN    | Blue          | Milky White | 470                                     | 10    | 15                                | 30   | 10    |
|           | UG       | InGaN    | Green         |             | 525                                     | 10    | 60                                | 140  | 10    |
|           | FR       | AlGaInP  | Red           |             | 626                                     | 10    | 20                                | 40   | 10    |
| URYB1314C | UB       | InGaN    | Blue          | Milky White | 470                                     | 10    | 15                                | 30   | 10    |
|           | YPY      | AlGaInP  | Yellow Green  |             | 572                                     | 10    | 9.6                               | 24   | 10    |
|           | FR       | AlGaInP  | Red           |             | 626                                     | 10    | 20                                | 40   | 10    |

※Note : The luminous intensity( $I_v$ ) and dominant wavelength( $\lambda d$ ) above are the setup values of the sorting machine.

(Tolerance :  $I_v$ ...  $\pm 10\%$ ,  $\lambda d$  ...  $\pm 2\text{nm}$ )

## Absolute Maximum Ratings

(Ta=25°C)

| Item                            | Symbol           | Absolute Maximum Ratings |      |      |      |      | Unit  |
|---------------------------------|------------------|--------------------------|------|------|------|------|-------|
|                                 |                  | UB                       | UG   | YPY  | FA   | FR   |       |
| Power Dissipation               | $P_d$            | 73                       | 73   | 62.5 | 81   | 81   | mW    |
| Forward Current                 | $I_F$            | 20                       | 20   | 25   | 30   | 30   | mA    |
| Pulse Forward Current ※1        | $I_{FRM}$        | 48                       | 48   | 60   | 100  | 100  | mA    |
| Derating<br>(Ta=25°C or higher) | $\Delta I_F$     | 0.28                     | 0.28 | 0.36 | 0.43 | 0.43 | mA/°C |
|                                 | $\Delta I_{FRM}$ | 0.69                     | 0.69 | 0.86 | 1.00 | 1.00 | mA/°C |
| Reverse Voltage                 | $V_R$            | 5                        | 5    | 5    | 5    | 5    | V     |
| Operating Temperature           | $T_{opr}$        | -40~+85                  |      |      |      |      | °C    |
| Storage Temperature             | $T_{stg}$        | -40~+100                 |      |      |      |      | °C    |

※1  $I_{FRM}$  Measurement condition : Pulse Width  $\leq 1\text{ms.}$ , Duty  $\leq 1/20$ .

※ The ratings specified above is under the condition that only one diode is lit.

50% Max. of each rating shall be applied when two diodes are lit simultaneously.

30% Max. of each rating shall be applied when all three diodes are lit simultaneously.



# 1314C Series

Top View Type Tri-color

## Electro-Optical Characteristics (UB,UG,YPY,FA,FR)

(Ta=25°C)

| Item                     |                      | Symbol         | Characteristics |           |           |           |           |           | Unit |
|--------------------------|----------------------|----------------|-----------------|-----------|-----------|-----------|-----------|-----------|------|
|                          | Conditions           |                |                 | UB        | UG        | YPY       | FA        | FR        |      |
| Forward Voltage          | I <sub>F</sub> =10mA | V <sub>F</sub> | TYP.            | 3.0       | 3.0       | 2.0       | 2.0       | 2.0       | V    |
|                          |                      |                | MAX.            | 3.5       | 3.5       | 2.4       | 2.5       | 2.5       |      |
| Reverse Current          | V <sub>R</sub> =5V   | I <sub>R</sub> | MAX.            | 100       | 100       | 100       | 100       | 100       | μ A  |
| Peak Wavelength          | I <sub>F</sub> =10mA | λ <sub>p</sub> | TYP.            | 465       | 522       | 575       | 609       | 635       | nm   |
| Dominant Wavelength      | I <sub>F</sub> =10mA | λ <sub>d</sub> | TYP.            | 470       | 525       | 572       | 605       | 626       | nm   |
| Spectral Line Half Width | I <sub>F</sub> =10mA | ∠ λ            | TYP.            | 26        | 35        | 17        | 15        | 15        | nm   |
| Half Intensity Angle     | I <sub>F</sub> =10mA | 2 θ 1/2        | TYP.            | 135( θ x) | 135( θ x) | 135( θ x) | 150( θ x) | 150( θ x) | deg. |
|                          |                      |                |                 | 145( θ y) | 145( θ y) | 145( θ y) | 145( θ y) | 145( θ y) |      |

※Note: The dominant wavelength (λ<sub>d</sub>) above is the setup value of the sorting machine.  
(Tolerance: λ<sub>d</sub> ...±2nm)



# 1314C Series

Top View Type Tri-color

## Luminous Intensity Rank

(Ta=25°C)

Intensity Tolerance each Rank : +/- 10%

| Rank | I <sub>V</sub> (mcd) |      |      |      |      |      |                      |      |      |      |      |      |                      |      |      |      |      |      |  |
|------|----------------------|------|------|------|------|------|----------------------|------|------|------|------|------|----------------------|------|------|------|------|------|--|
|      | UAGB1313C            |      |      |      |      |      | URGB1313C            |      |      |      |      |      | URYB1313C            |      |      |      |      |      |  |
|      | UB                   |      | UG   |      | FA   |      | UB                   |      | UG   |      | FR   |      | UB                   |      | YPY  |      | FR   |      |  |
|      | I <sub>F</sub> =10mA |      |      |      |      |      | I <sub>F</sub> =10mA |      |      |      |      |      | I <sub>F</sub> =10mA |      |      |      |      |      |  |
|      | MIN.                 | MAX. | MIN. | MAX. | MIN. | MAX. | MIN.                 | MAX. | MIN. | MAX. | MIN. | MAX. | MIN.                 | MAX. | MIN. | MAX. | MIN. | MAX. |  |
| A    | 15                   | 30   | 60   | 140  | 30   | 60   | 15                   | 30   | 60   | 140  | 20   | 40   | 15                   | 30   | 9.6  | 24   | 20   | 40   |  |
| B    | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      |  |
| C    | 15                   | 30   | 140  |      |      |      | 15                   | 30   | 140  |      |      |      | 15                   | 30   | 24   |      |      |      |  |
| D    | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      |  |
| E    | 15                   | 30   | 60   | 140  | 60   |      | 15                   | 30   | 60   | 140  | 40   |      | 15                   | 30   | 10   | 24   | 40   |      |  |
| F    | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      |  |
| G    | 15                   | 30   | 140  |      |      |      | 15                   | 30   | 140  |      |      |      | 15                   | 30   | 24   |      |      |      |  |
| H    | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      | 30                   |      |      |      |      |      |  |



# 1314C Series

Top View Type Tri-color

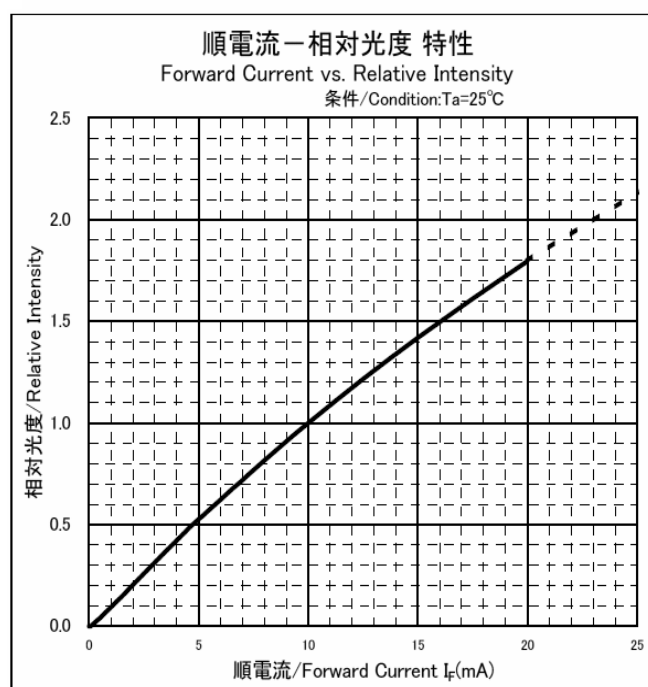
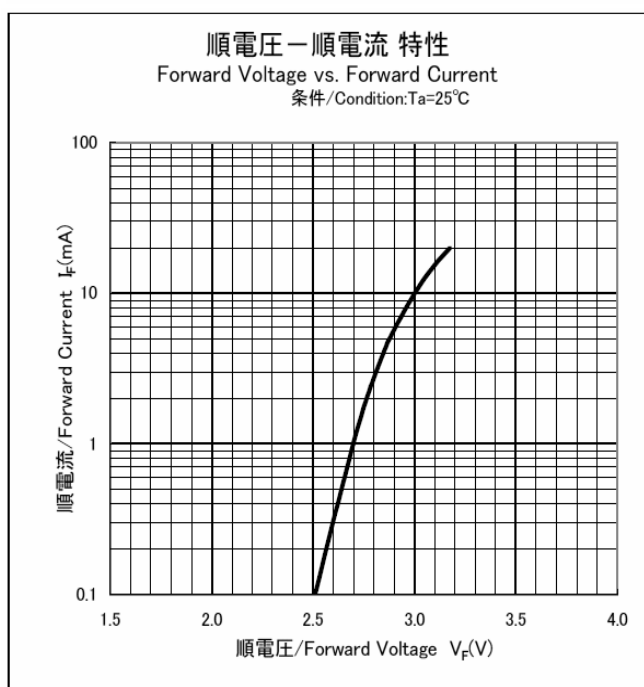
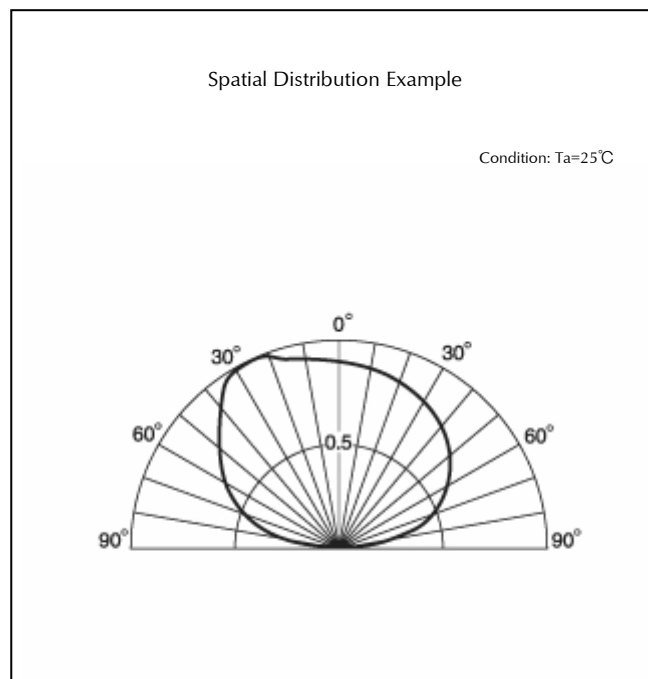
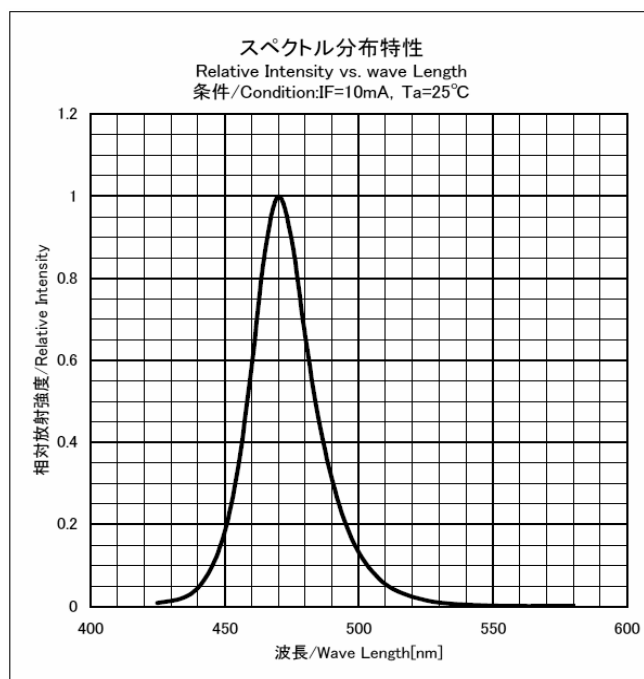
## Color Tone Groups ( $\lambda_d$ )

(Ta=25°C)

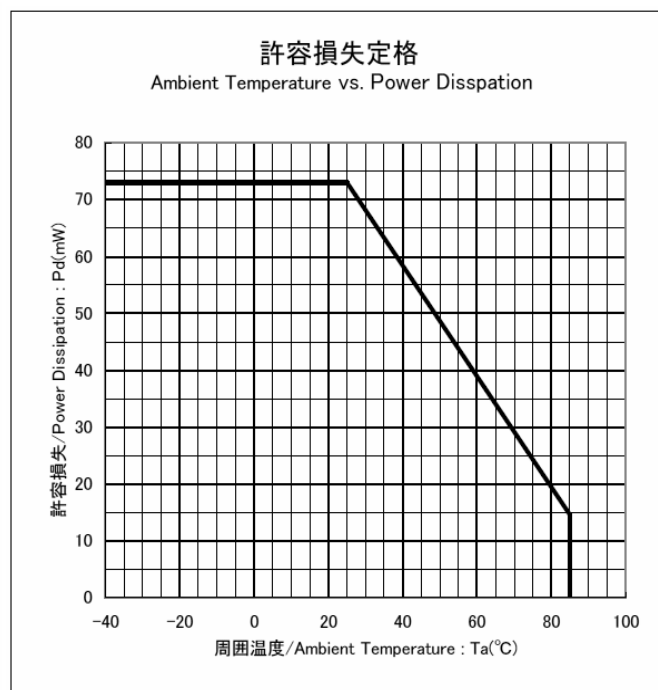
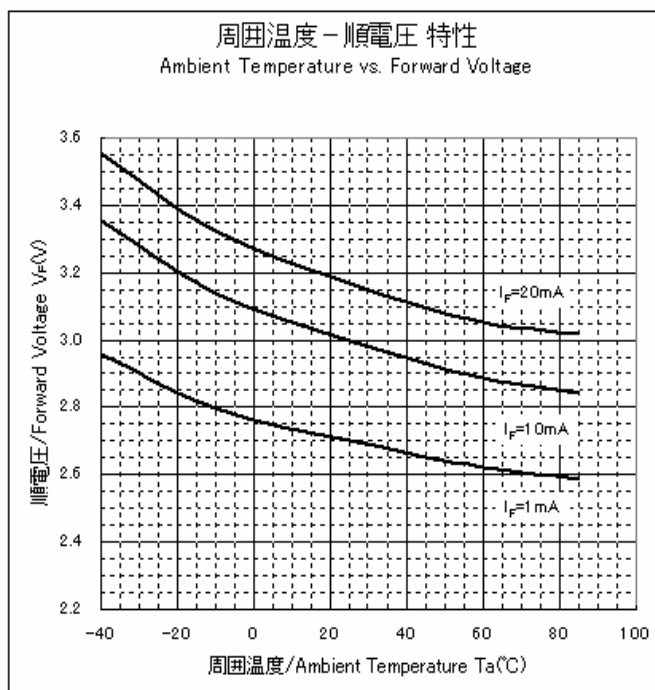
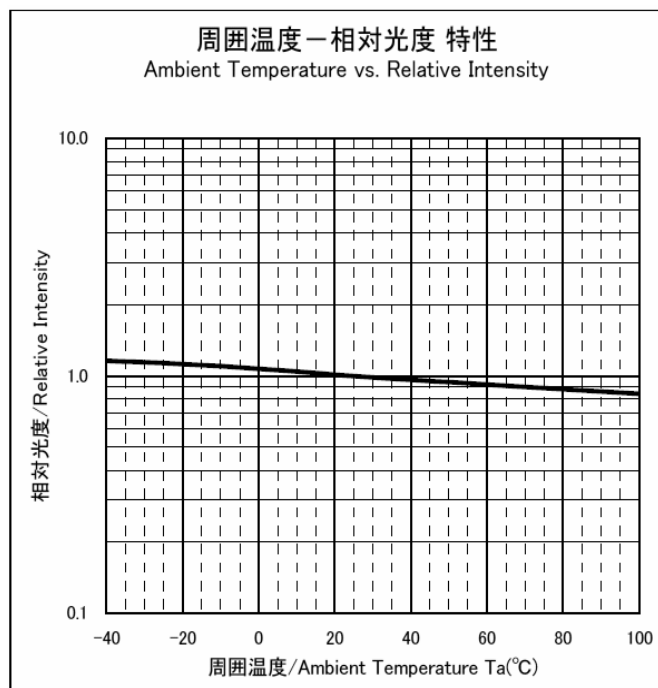
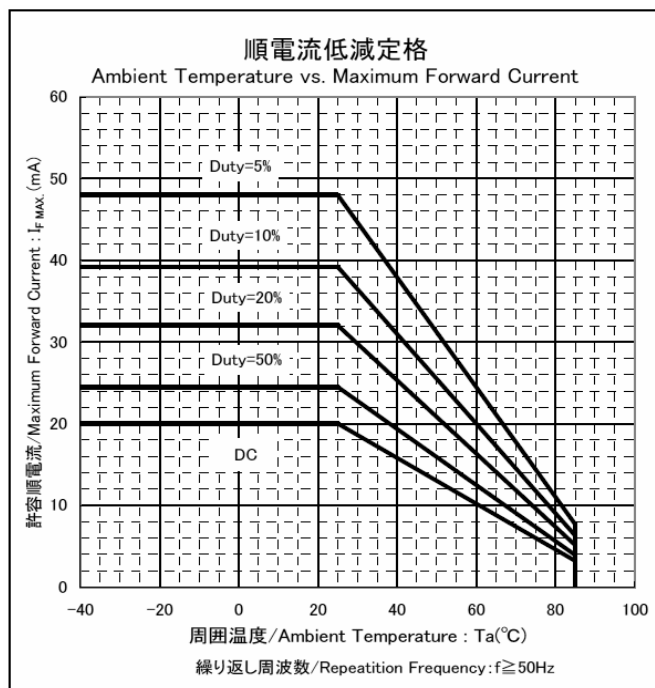
Tolerance: +/- 2nm

| Rank | Dominant Wave Length $\lambda$ d(nm) |      |      |      |      |      |                      |      |      |      |      |      |                      |      |      |      |      |      |
|------|--------------------------------------|------|------|------|------|------|----------------------|------|------|------|------|------|----------------------|------|------|------|------|------|
|      | UAGB1313C                            |      |      |      |      |      | URGB1313C            |      |      |      |      |      | URYB1313C            |      |      |      |      |      |
|      | UB                                   |      | UG   |      | FA   |      | UB                   |      | UG   |      | FR   |      | UB                   |      | YPY  |      | FR   |      |
|      | I <sub>f</sub> =10mA                 |      |      |      |      |      | I <sub>f</sub> =10mA |      |      |      |      |      | I <sub>f</sub> =10mA |      |      |      |      |      |
|      | MIN.                                 | MAX. | MIN. | MAX. | MIN. | MAX. | MIN.                 | MAX. | MIN. | MAX. | MIN. | MAX. | MIN.                 | MAX. | MIN. | MAX. | MIN. | MAX. |
| A    | 460                                  | 480  | 510  | 540  | 595  | 613  | 460                  | 480  | 510  | 540  | 615  | 635  | 460                  | 480  | 567  | 577  | 615  | 635  |

## Technical Data(UB)

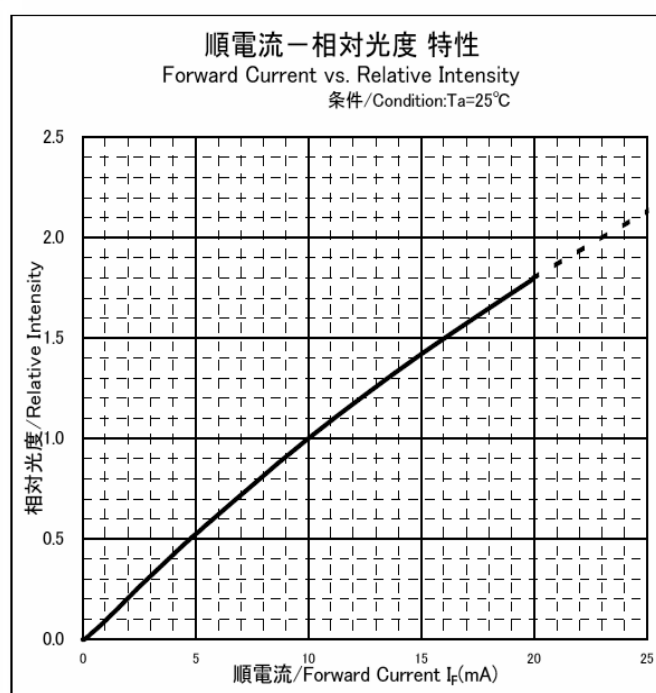
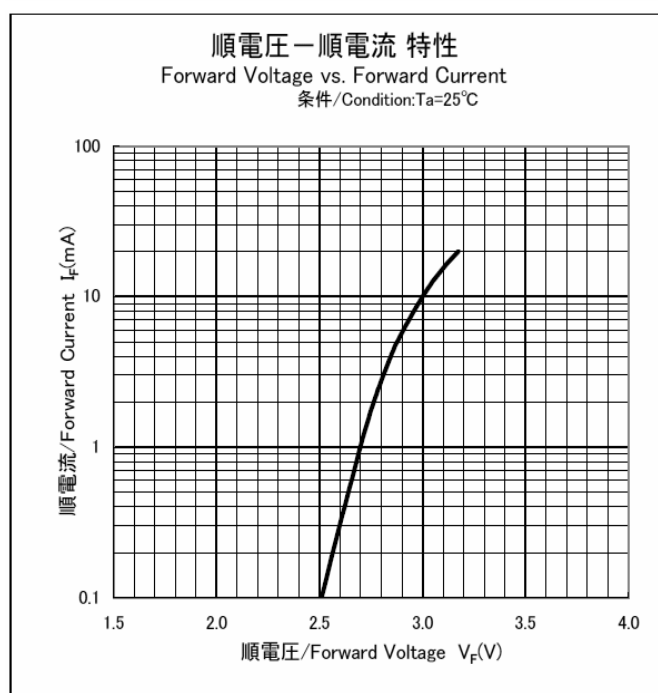
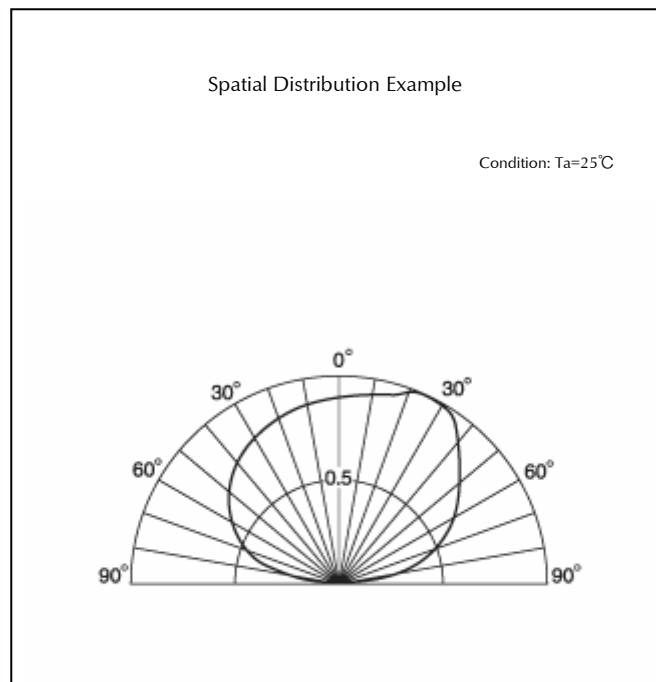
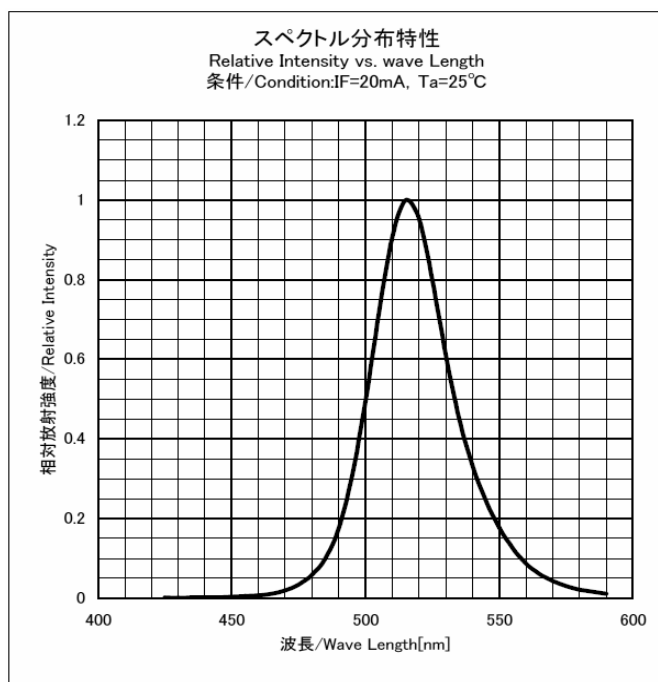


## Technical Data(UB)

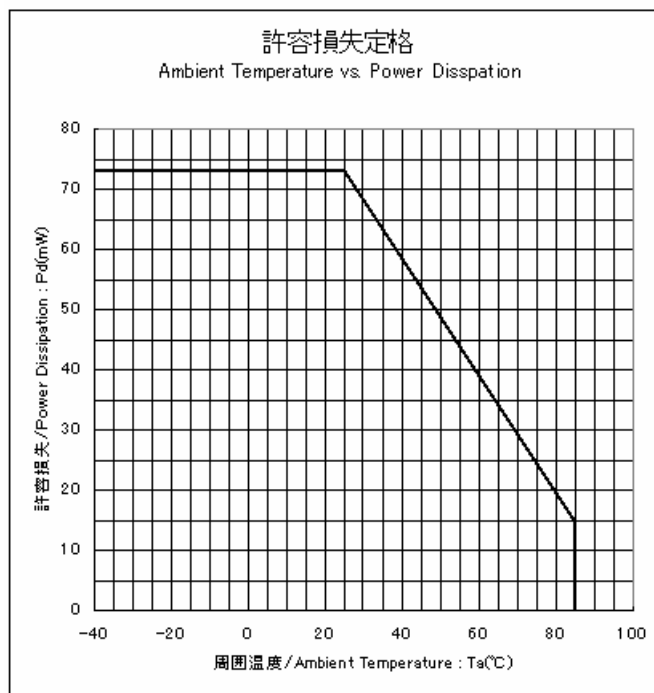
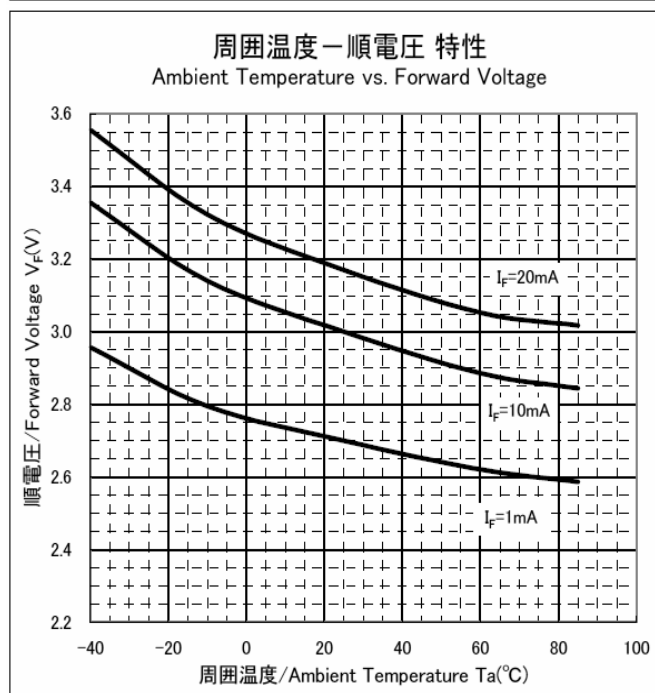
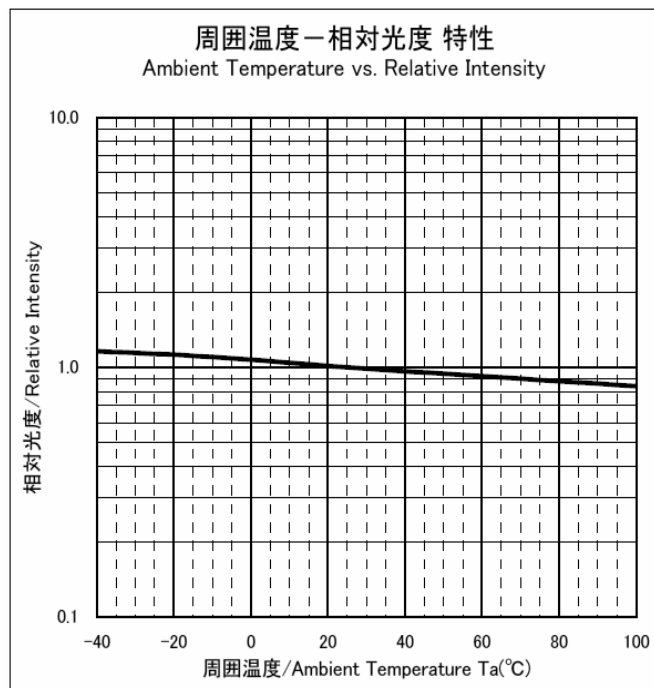
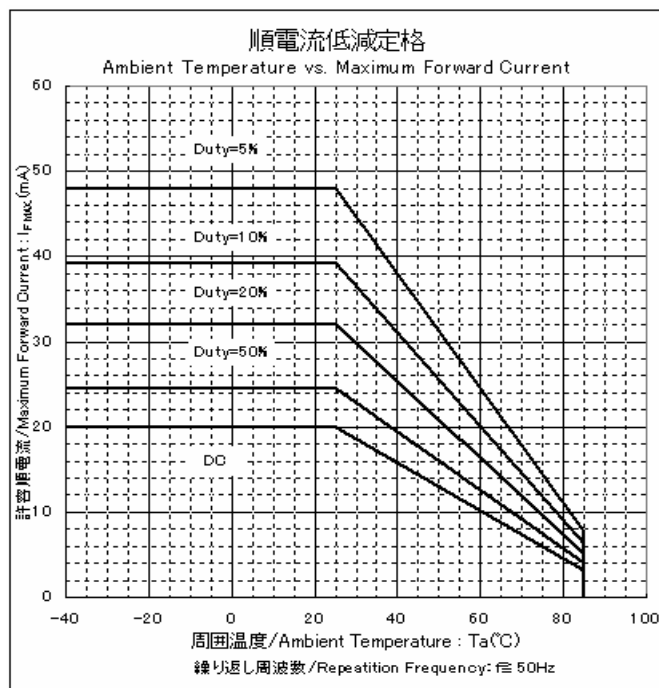




## Technical Data(UG)

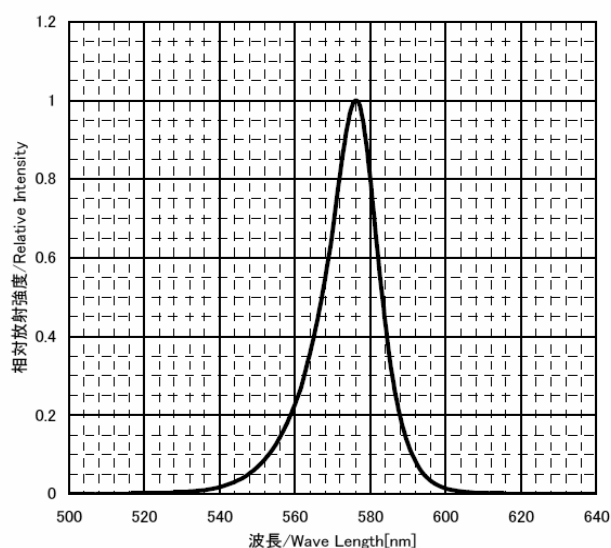


## Technical Data(UG)



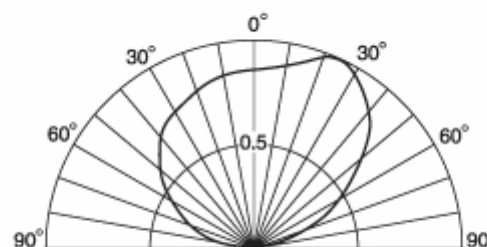
## Technical Data(YPY)

スペクトル分布特性  
Relative Intensity vs. wave Length  
条件/Condition:  $I_F=20\text{mA}$ ,  $T_a=25^\circ\text{C}$

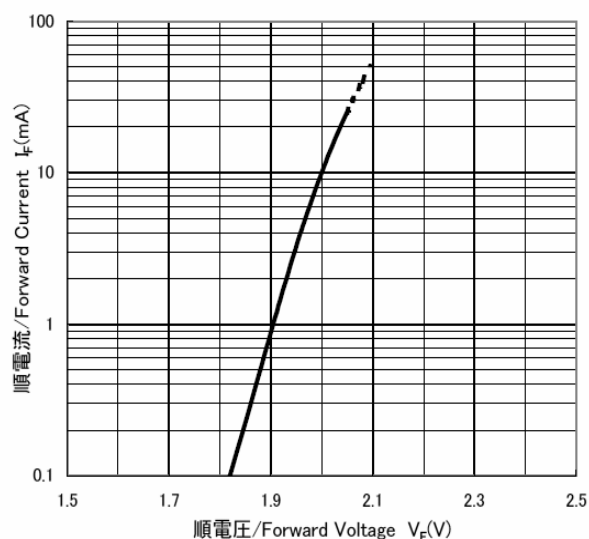


Spatial Distribution Example

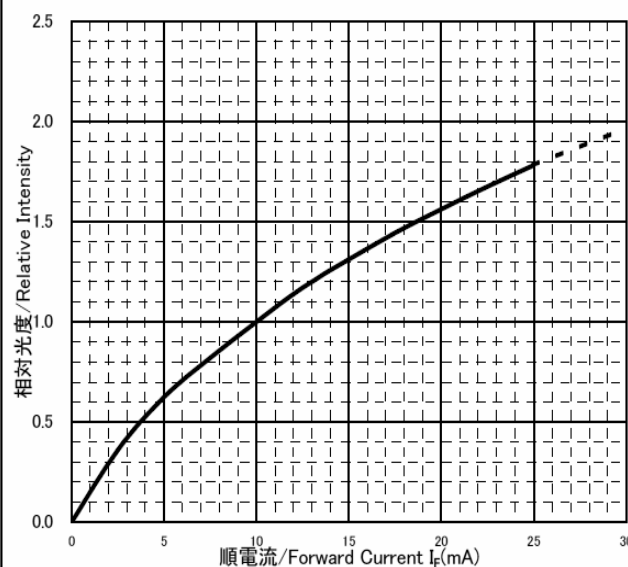
Condition:  $T_a=25^\circ\text{C}$



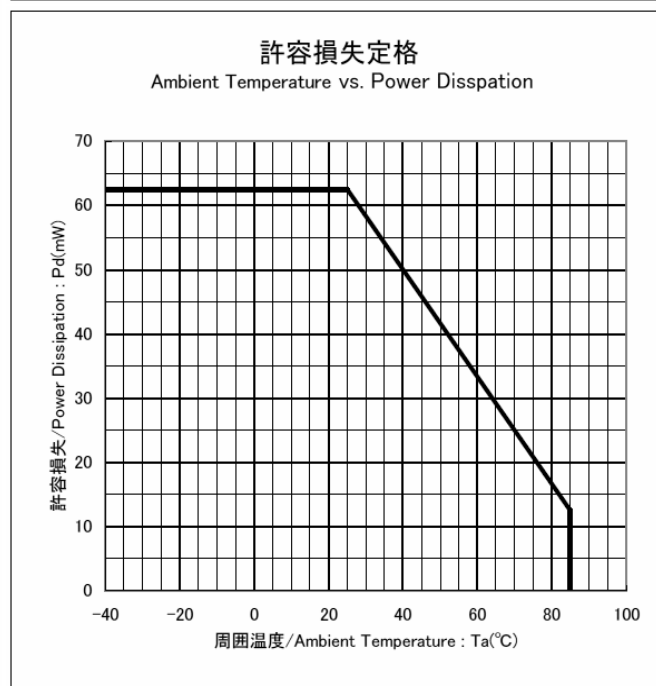
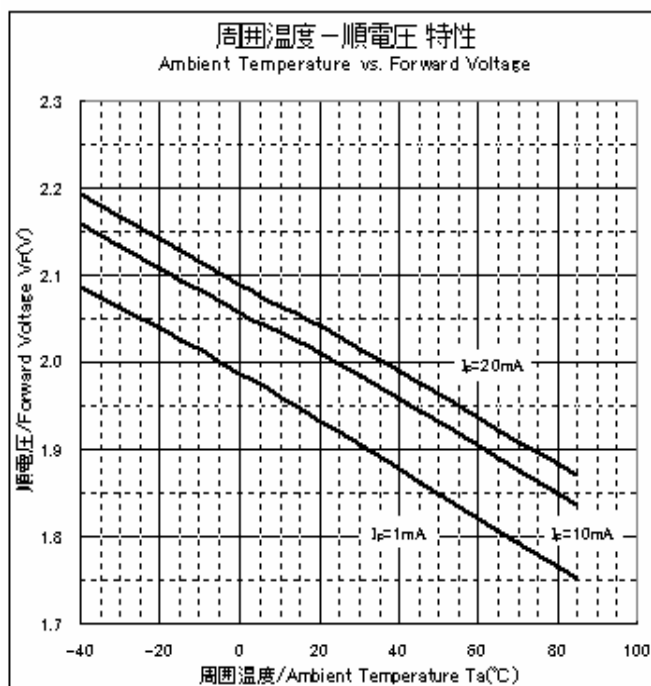
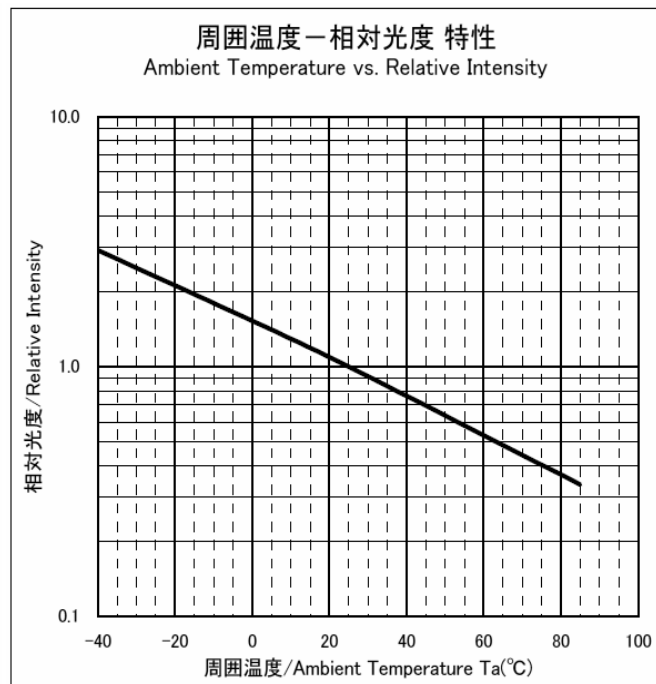
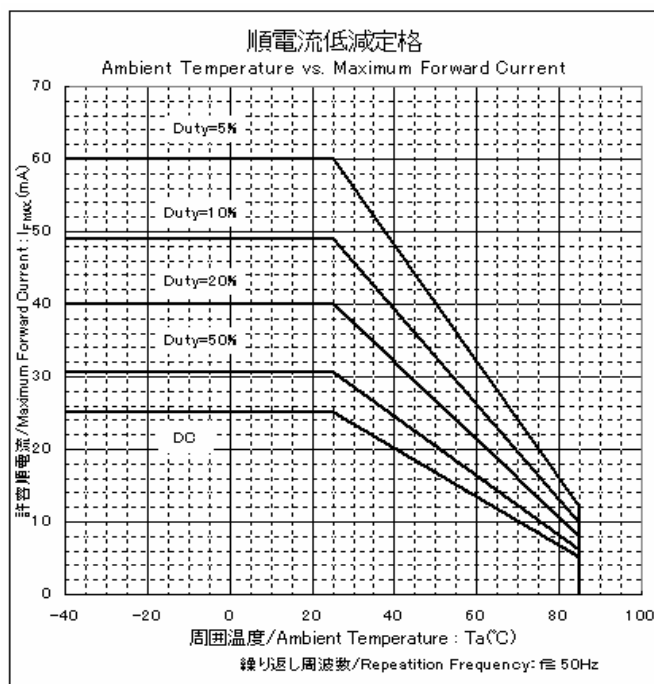
順電圧—順電流 特性  
Forward Voltage vs. Forward Current  
条件/Condition:  $T_a=25^\circ\text{C}$



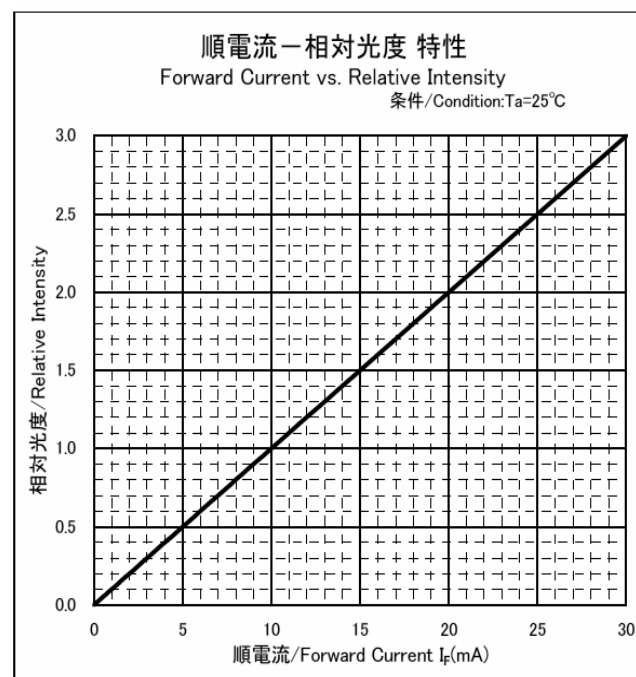
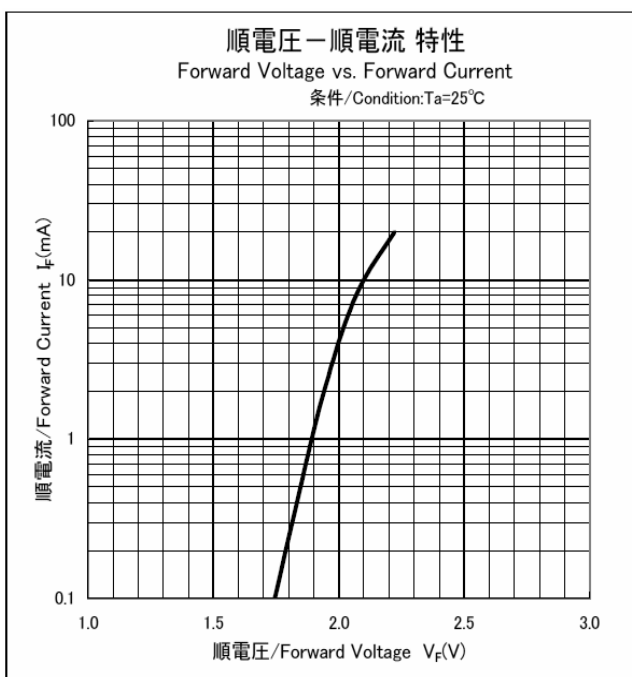
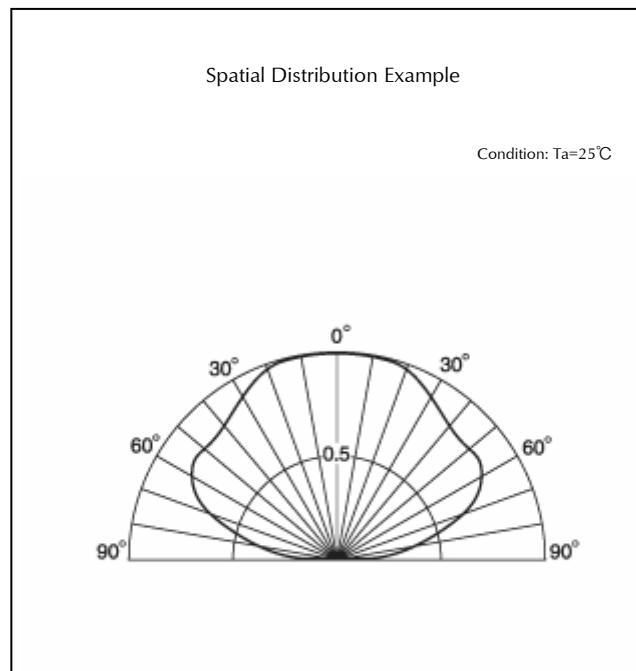
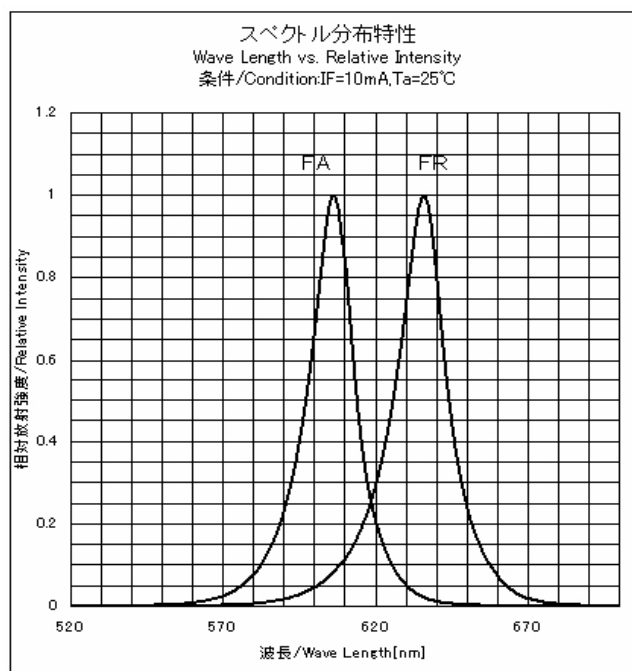
順電流—相対光度 特性  
Forward Current vs. Relative Intensity  
条件/Condition:  $T_a=25^\circ\text{C}$



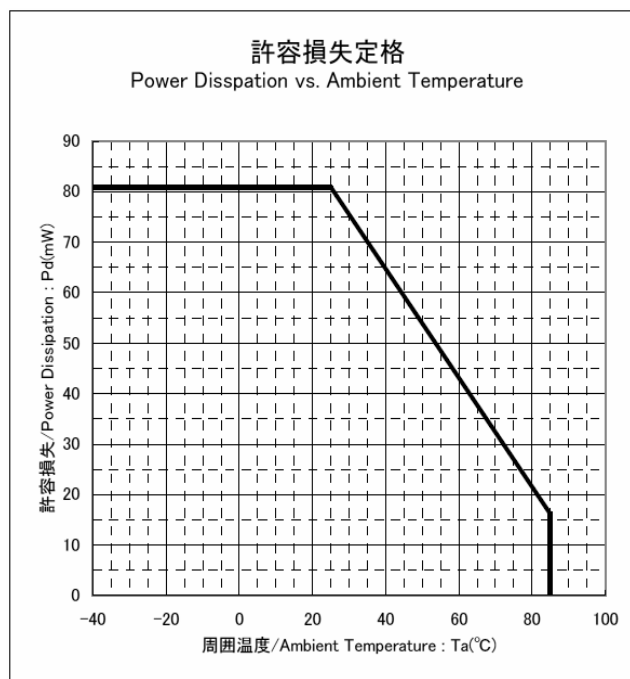
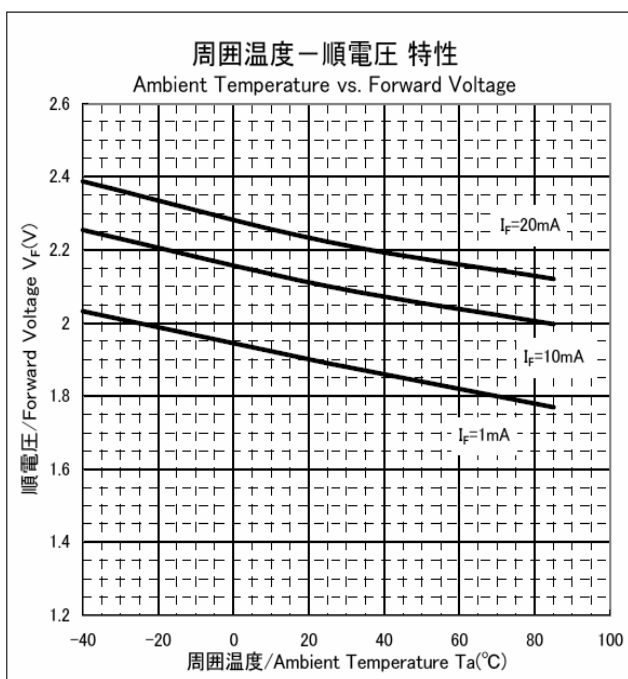
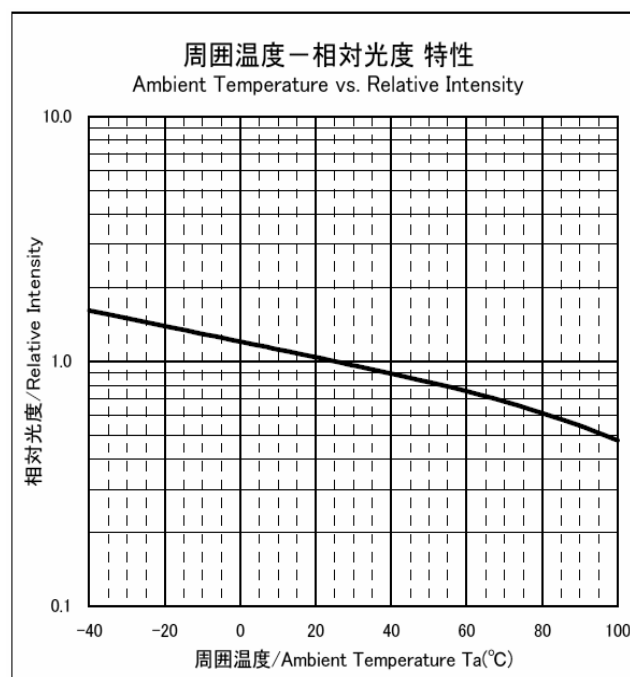
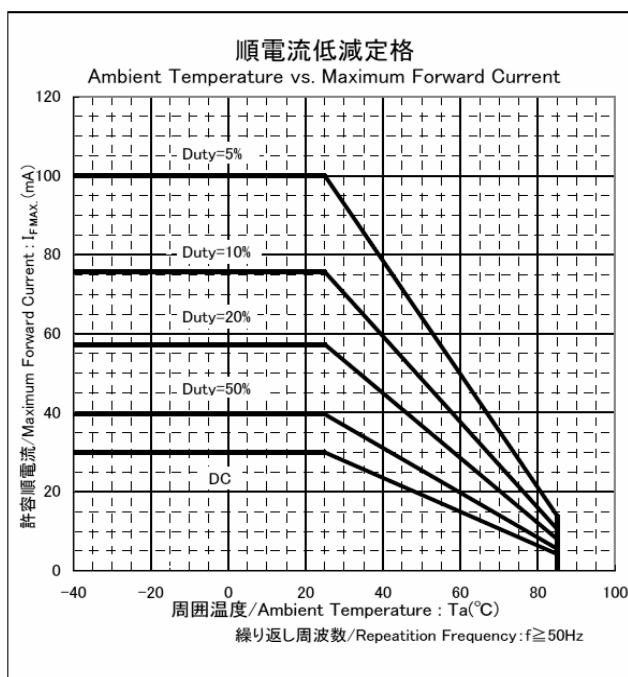
## Technical Data(YPY)



## Technical Data(FA/FR)



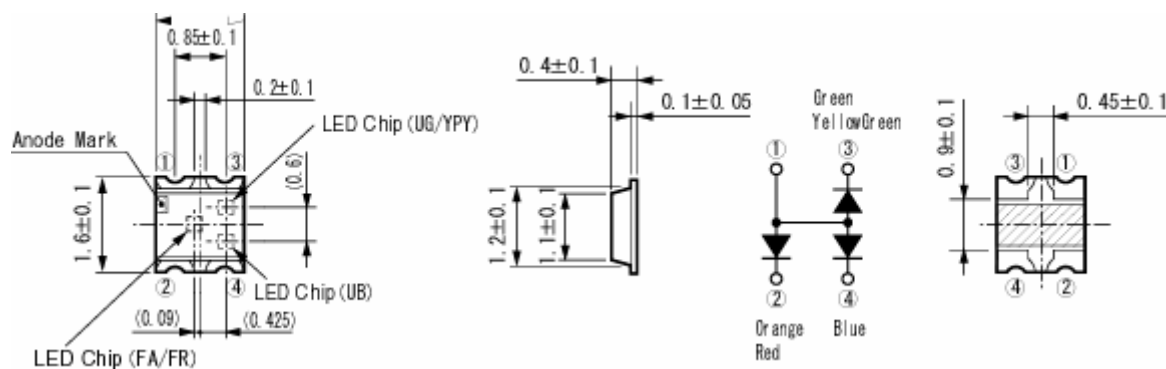
## Technical Data(FA/FR)



## Package Dimensions

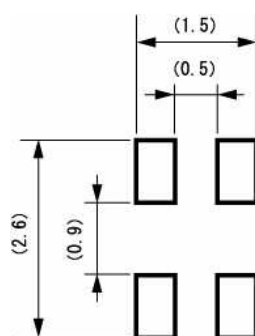
(Unit: mm)

Weight:(2.36)mg



## Recommended Soldering Pattern

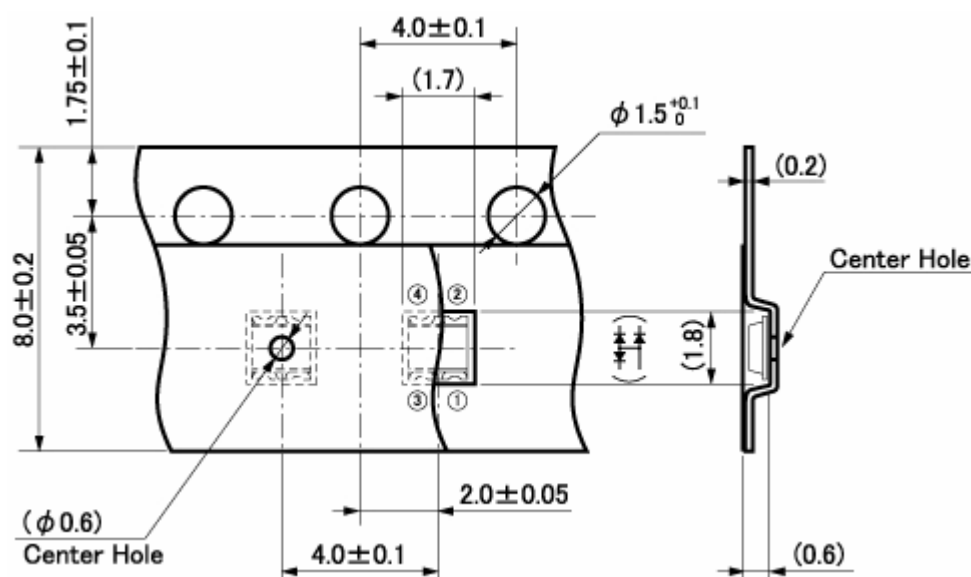
(Unit: mm)



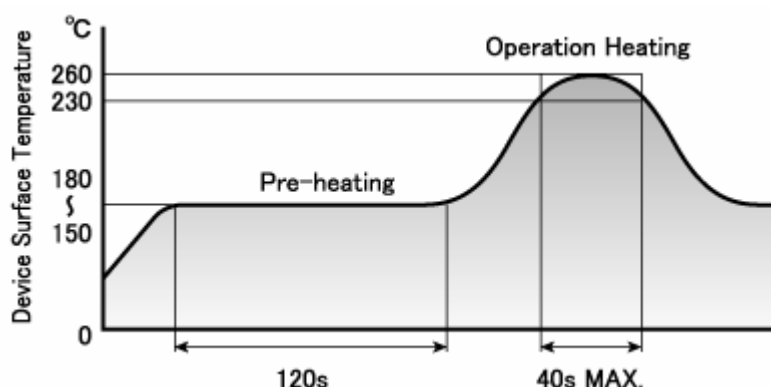
## Taping Specification

(Unit: mm)

Quantity: 4,000pcs/ reel (standard)



## Reflow Soldering Conditions



- 1) The above profile temperature gives the maximum temperature of the LED resin surface. Please set the temperature so as to avoid exceeding this range.
- 2) Total times of reflow soldering process shall be no more than 2 times. When the second reflow soldering process is performed, intervals between the first and second reflow should be short as possible (while allowing some time for the component to return to normal temperature after the first reflow) in order to prevent the LED from absorbing moisture.
- 3) Temperature fluctuation to the LED during the pre-heating process shall be minimized. (6°C maximum)

## Manual Soldering Conditions

|                              |        |        |
|------------------------------|--------|--------|
| Iron tip temp.               | 350 °C | (MAX.) |
| Soldering time and frequency | 3 s    | (MAX.) |
|                              | 1 time | (MAX.) |



**1314C Series**

Top View Type Tri-color

## Special Notice to Customers Using the Products and Technical Information Shown in This Data Sheet

- 1) The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.
- 2) For the purpose of product improvement, the specifications, characteristics and technical data described in the data sheets are subject to change without prior notice. Therefore it is recommended that the most updated specifications be used in your design.
- 3) When using the products described in the data sheets, please adhere to the maximum ratings for operating voltage, heat dissipation characteristics, and other precautions for use. We are not responsible for any damage which may occur if these specifications are exceeded.
- 4) The products described in the data sheets are made to be used in standard electronic applications such as office automation appliances, communication devices, audio visual, home appliances, and measuring instruments.
- 5) If the products in the data sheets are to be used for purposes other than the above which requires high level reliability and safety where failure and or malfunction of the product may cause death or other serious effects on the human body such as airplane, space activity, transportation, medical, nuclear), please contact our sales personnel.
- 6) In order to export the products or technologies described in this data sheet which are under the "Foreign Exchange and Foreign Trade Control Law," it is necessary to first obtain an export permit from the Japanese government.
- 7) No part of this data sheet may be reprinted or reproduced without prior written permission from Stanley Electric Co., Ltd.
- 8) The most updated edition of this data sheet can be obtained from the address below:  
<http://www.stanley-components.com>