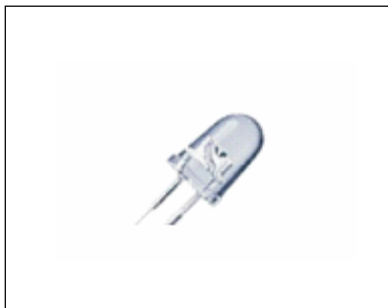




# WR5805S

Single Color  $\phi$  5 Flush Mount Round Shape Type

## Features

|                         |                                                                                                                                                                                                                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Package                 | $\phi$ 5 Flush Mount Round shape type, Water Clear epoxy                                                                                                                                                                                                                                 |
| Product features        | <ul style="list-style-type: none"><li>• Outer Dimension <math>\phi</math> 5 Round shape type</li><li>• Operation temperature range.<br/>Storage Temperature : -40 ~ 100<br/>Operating Temperature : -40 ~ 85</li><li>• Lead-free soldering compatible</li><li>• RoHS compliant</li></ul> |
| Dominant wavelength     | 637 nm                                                                                                                                                                                                                                                                                   |
| Half Intensity Angle    | 40 deg.                                                                                                                                                                                                                                                                                  |
| Die materials           | GaAlAs                                                                                                                                                                                                                                                                                   |
| Rank grouping parameter | Sorted by luminous intensity per rank taping                                                                                                                                                                                                                                             |
| Soldering methods       | TTW (Through The Wave) soldering and manual soldering                                                                                                                                                                                                                                    |
| ESD                     | More than 1kV(HBM)                                                                                                                                                                                                                                                                       |
| Packing                 | Bulk : 200pcs(MIN.)                                                                                                                                                                                                                                                                      |

## Recommended Applications

Amusement Equipment, Electric Household Appliances, OA/FA, Other General Applications



## WR5805S

Single Color  $\phi 5$  Flush Mount Round Shape Type

### Color and Luminous Intensity

(Ta=25 °C)

| Part No. | Material | Emitted Color | Lens Color  |       | Dominant Wavelength |            | Luminous Intensity |      |            |
|----------|----------|---------------|-------------|-------|---------------------|------------|--------------------|------|------------|
|          |          |               |             |       | $\lambda_d$ (nm)    |            | $I_v$ (mcd)        |      |            |
|          |          |               |             |       | TYP.                | $I_F$ (mA) | MIN.               | TYP. | $I_F$ (mA) |
| WR5805S  | GaAlAs   | Red           | Water Clear | Clear | 637                 | 20         | 200                | 400  | 20         |

### Absolute Maximum Ratings

(Ta=25 °C)

| Item                               | Symbol    | Absolute Maximum Ratings | Unit  |
|------------------------------------|-----------|--------------------------|-------|
| Power Dissipation                  | $P_d$     | 125                      | mW    |
| Forward Current                    | $I_F$     | 50                       | mA    |
| Pulse Forward Current <sup>1</sup> | $I_{FRM}$ | 200                      | mA    |
| Derating (Ta=25 °C or higher)      | $I_F$     | 0.67                     | mA/°C |
| Reverse Voltage                    | $V_R$     | 5                        | V     |
| Operating Temperature              | $T_{opr}$ | -40~+85                  | °C    |
| Storage Temperature                | $T_{stg}$ | -40~+100                 | °C    |

<sup>1</sup>  $I_{FRM}$  Measurement condition : Pulse Width 1ms., Duty 1/20.

## Electro-Optical Characteristics

(Ta=25 )

| Item                     | Conditions        | Symbol          | Characteristics |     | Unit          |
|--------------------------|-------------------|-----------------|-----------------|-----|---------------|
|                          |                   |                 |                 |     |               |
| Forward Voltage          | $I_F=20\text{mA}$ | $V_F$           | TYP.            | 1.9 | V             |
|                          |                   |                 | MAX.            | 2.4 |               |
| Reverse Current          | $V_R=4\text{V}$   | $I_R$           | MAX.            | 100 | $\mu\text{A}$ |
| Peak Wavelength          | $I_F=20\text{mA}$ | $\lambda_p$     | TYP.            | 655 | nm            |
| Dominant Wavelength      | $I_F=20\text{mA}$ | $\lambda_d$     | TYP.            | 637 | nm            |
| Spectral Line Half Width | $I_F=20\text{mA}$ | $\lambda$       | TYP.            | 25  | nm            |
| Half Intensity Angle     | $I_F=20\text{mA}$ | $2\theta_{1/2}$ | TYP.            | 40  | deg.          |

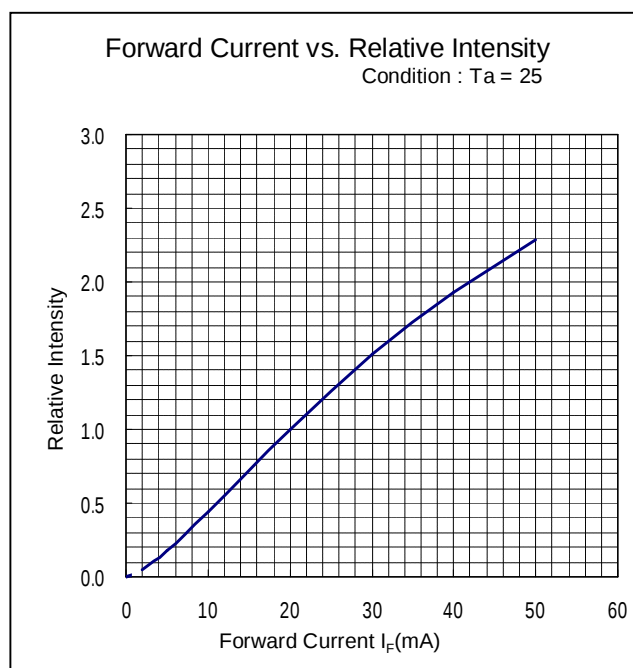
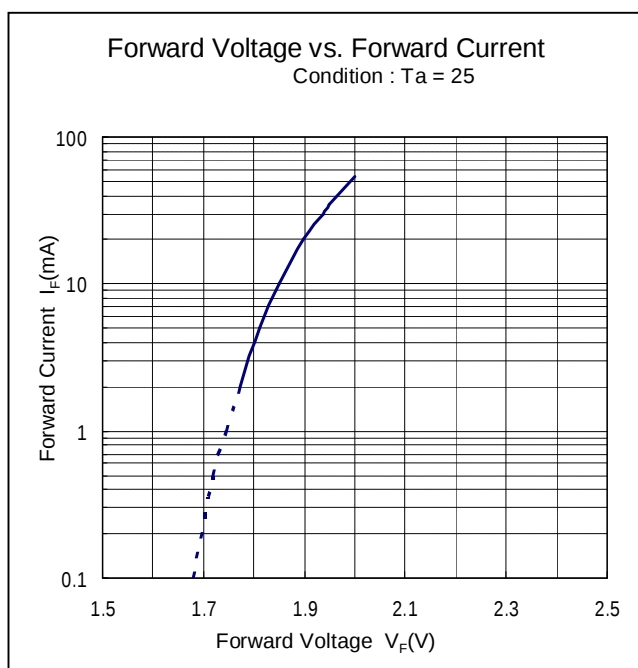
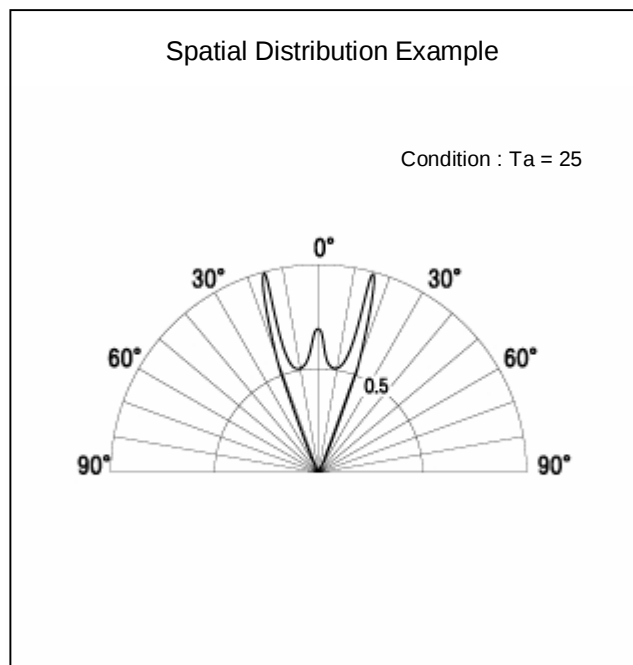
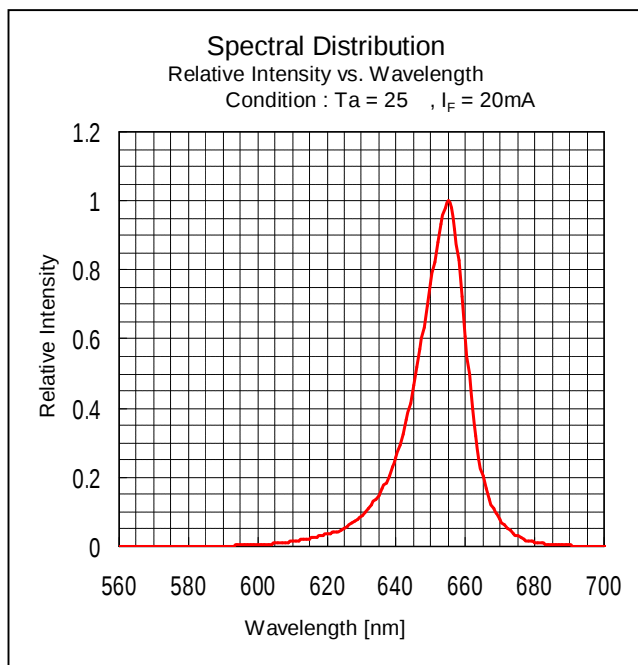
## Luminous Intensity Rank

(Ta=25 )

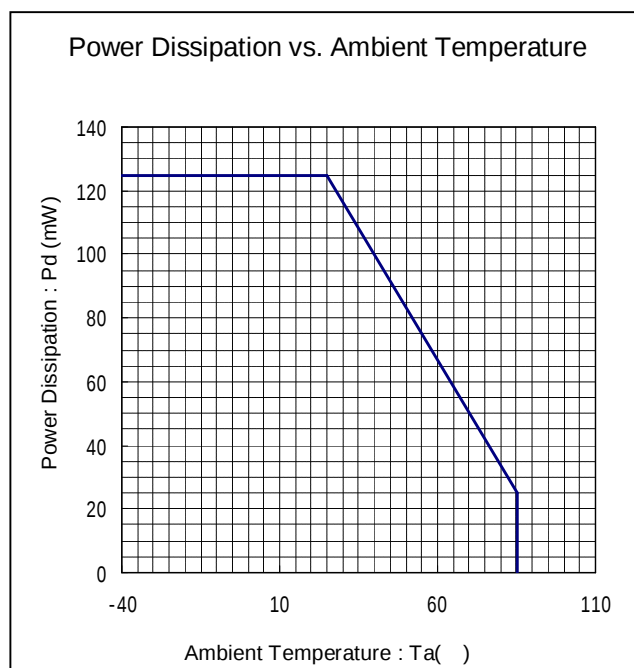
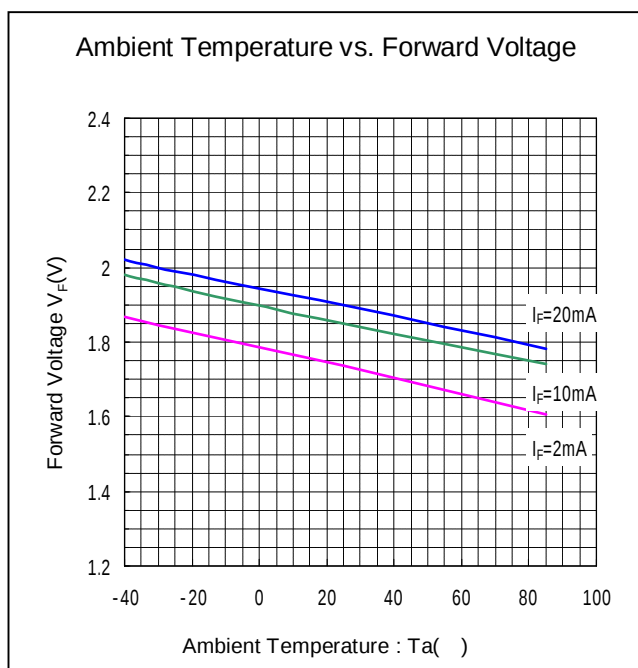
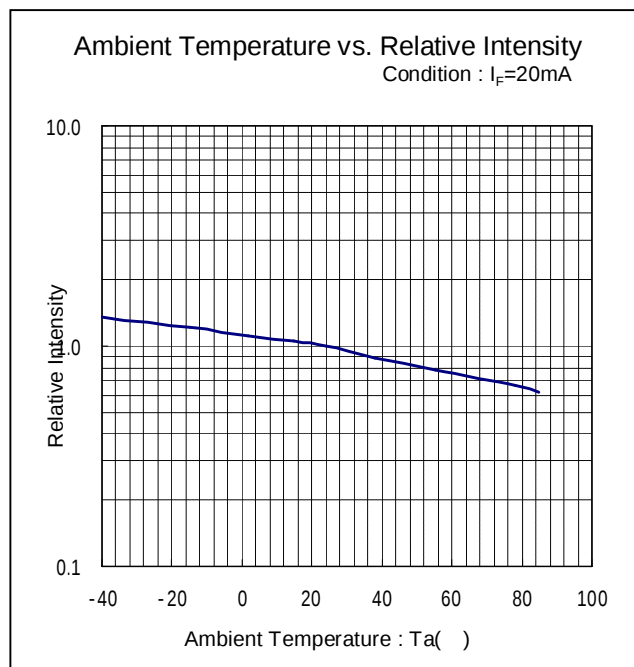
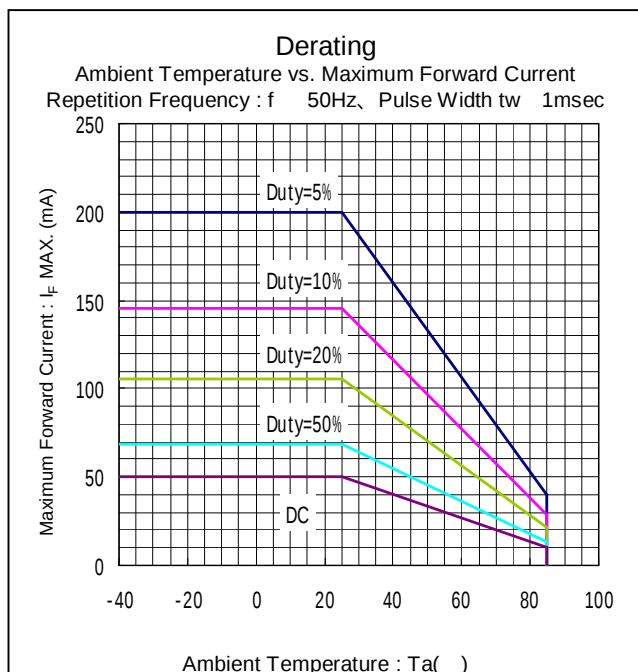
| Rank | $I_V$ ( mcd ) |      | Condition           |
|------|---------------|------|---------------------|
|      | MIN.          | MAX. |                     |
| A    | 200           | 140  | $I_F = 20\text{mA}$ |
| B    | 280           | 200  |                     |
| C    | 400           | 280  |                     |
| D    | 560           | 400  |                     |
| E    | 800           | -    |                     |

Please contact our sales staff concerning rank designation.

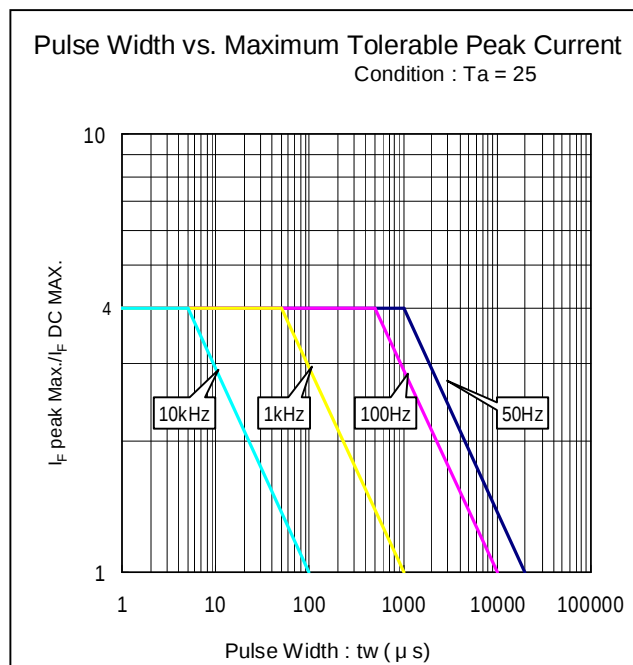
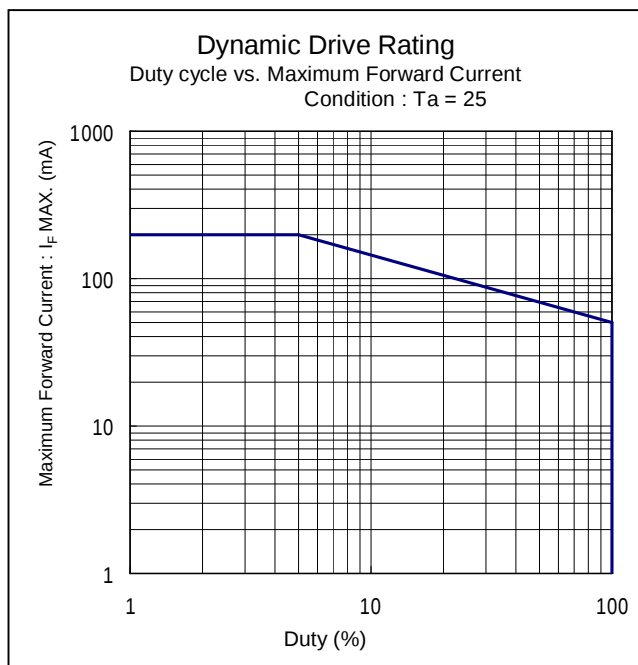
## Technical Data



## Technical Data



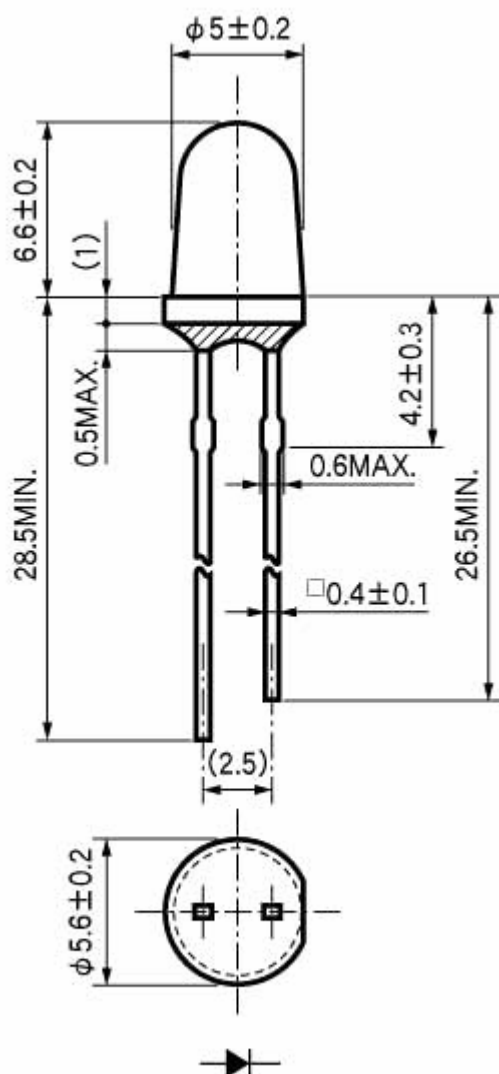
## Technical Data



## Package Dimensions

(Unit: mm)

Weight: (340)mg





## WR5805S

Single Color  $\phi 5$  Flush Mount Round Shape Type

### TTW (Through The Wave) soldering Conditions

|                   |     |        |
|-------------------|-----|--------|
| Pre-heating       | 100 | (MAX.) |
| Solder Bath Temp. | 265 | (MAX.) |
| Dipping Time      | 5 s | (MAX.) |

- 1) The dip soldering process shall be 2 times maximum.
- 2) The product shall be cooled to room temp. before the second dipping process.

The detail is described to LED and Photodetector handling precautions of home page:  
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

### Manual Soldering Conditions

|                              |         |        |
|------------------------------|---------|--------|
| Iron tip temp.               | 400     | (MAX.) |
| Soldering time and frequency | 3 s     | (MAX.) |
|                              | 2 times | (MAX.) |

The detail is described to LED and Photodetector handling precautions of home page:  
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

## Reliability Testing Result

| Reliability Testing Result    | Applicable Standard | Testing Conditions                                                                                                                                   | Duration | Failure |
|-------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|
| Room Temp. Operating Life     | BAJED-4701/100(101) | Ta = 25 , If = Maximum Rated Current                                                                                                                 | 1,000 h  | 0/25    |
| Resistance to Soldering Heat  | BAJED-4701/300(302) | 260 $\pm$ 5 , 3mm from package base                                                                                                                  | 10s      | 0/25    |
| Temperature Cycling           | BAJED-4701/100(105) | Minimum Rated Storage Temperature(30min)<br>~ Normal Temperature(15min)<br>~ Maximum Rated Storage Temperature(30min)<br>~ Normal Temperature(15min) | 5 cycles | 0/25    |
| Wet High Temp. Storage Life   | BAJED-4701/100(103) | Ta = 60 $\pm$ 2 , RH = 90 $\pm$ 5%                                                                                                                   | 1,000 h  | 0/25    |
| High Temp. Storage Life       | BAJED-4701/200(201) | Ta = Maximum Rated Storage Temperature                                                                                                               | 1,000 h  | 0/25    |
| Low Temp. Storage Life        | BAJED-4701/200(202) | Ta = Minimum Rated Storage Temperature                                                                                                               | 1,000 h  | 0/25    |
| Lead Tension                  | BAJED-4701/400(401) | 10N, 1time ( $\square$ 0.4 and Flat Package : 5N)                                                                                                    | 10s      | 0/10    |
| Vibration, Variable Frequency | BAJED-4701/400(403) | 98.1m/s <sup>2</sup> (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction                                                                          | 2 h      | 0/10    |

## Failure Criteria

| Items               | Symbols        | Conditions                                          | Failure criteria                                                |
|---------------------|----------------|-----------------------------------------------------|-----------------------------------------------------------------|
| Luminous Intensity  | Iv             | If Value of each product<br>Luminous Intensity      | Testing Min. Value < Spec. Min. Value x 0.5                     |
| Forward Voltage     | V <sub>F</sub> | If Value of each product<br>Forward Voltage         | Testing Max. Value    Spec. Max. Value x 1.2                    |
| Reverse Current     | I <sub>R</sub> | V <sub>R</sub> = Maximum Rated<br>Reverse Voltage V | Testing Max. Value    Spec. Max. Value x 2.5                    |
| Cosmetic Appearance | -              | -                                                   | Occurrence of notable decoloration,<br>deformation and cracking |

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