



**Pb-free  
HEAT**



# KR5805S

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

## Features

|                         |                                                                                                                                                                                                                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Package                 | $\phi$ 5 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 : -30°C~100°C<br/>Operating Temperature : -30°C~85°C</li><li>• Lead-free soldering compatible</li><li>• RoHS compliant</li></ul> |
| Dominant wavelength     | 647 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 2kV(HBM)                                                                                                                                                                                                                                                                           |
| Packing                 | Bulk : 200pcs(MIN.)                                                                                                                                                                                                                                                                          |

## Recommended Applications

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



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## Color and Luminous Intensity

(Ta=25°C)

| Part No. | Material | Emitted Color | Lens Color  |       | Dominant Wavelength<br>$\lambda_d$ (nm) |                | Luminous Intensity<br>Iv (mcd) |      |                |
|----------|----------|---------------|-------------|-------|-----------------------------------------|----------------|--------------------------------|------|----------------|
|          |          |               |             |       | TYP.                                    | I <sub>F</sub> | MIN.                           | TYP. | I <sub>F</sub> |
| KR5805S  | GaAlAs   | Red           | Water Clear | Clear | 647                                     | 20             | 200                            | 300  | 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 ※1        | $I_{FRM}$    | 300                      | mA    |
| Derating<br>(Ta=25°C or higher) | $\Delta I_F$ | 0.67                     | mA/°C |
| Reverse Voltage                 | $V_R$        | 4                        | V     |
| Operating Temperature           | $T_{opr}$    | -30~+85                  | °C    |
| Storage Temperature             | $T_{stg}$    | -30~+100                 | °C    |

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

# Electro-Optical Characteristics

(Ta=25°C)

| Item                     | Conditions           | Symbol         | Characteristics |     | Unit |
|--------------------------|----------------------|----------------|-----------------|-----|------|
|                          |                      |                |                 |     |      |
| Forward Voltage          | I <sub>F</sub> =20mA | V <sub>F</sub> | TYP.            | 1.8 | V    |
|                          |                      |                | MAX.            | 2.5 |      |
| Reverse Current          | V <sub>R</sub> =4V   | I <sub>R</sub> | MAX.            | 100 | μ A  |
| Peak Wavelength          | I <sub>F</sub> =20mA | λ <sub>p</sub> | TYP.            | 660 | nm   |
| Dominant Wavelength      | I <sub>F</sub> =20mA | λ <sub>d</sub> | TYP.            | 647 | nm   |
| Spectral Line Half Width | I <sub>F</sub> =20mA | Δ λ            | TYP.            | 25  | nm   |
| Half Intensity Angle     | I <sub>F</sub> =20mA | 2 θ 1/2        | TYP.            | 40  | deg. |

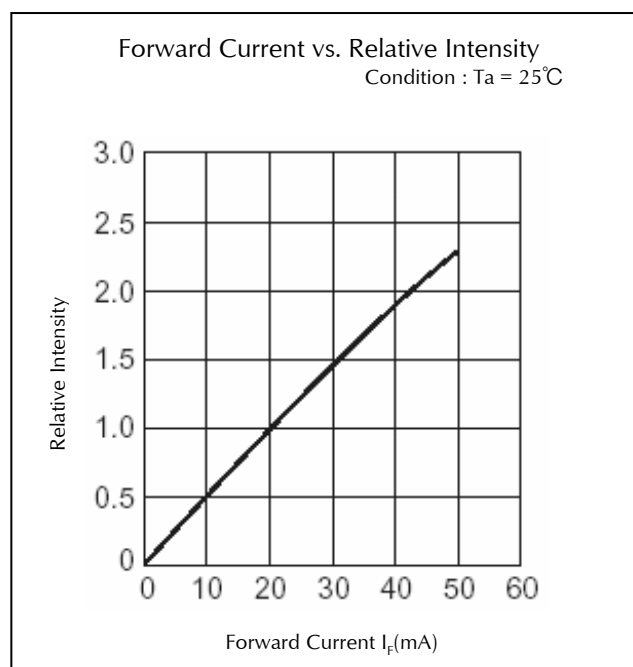
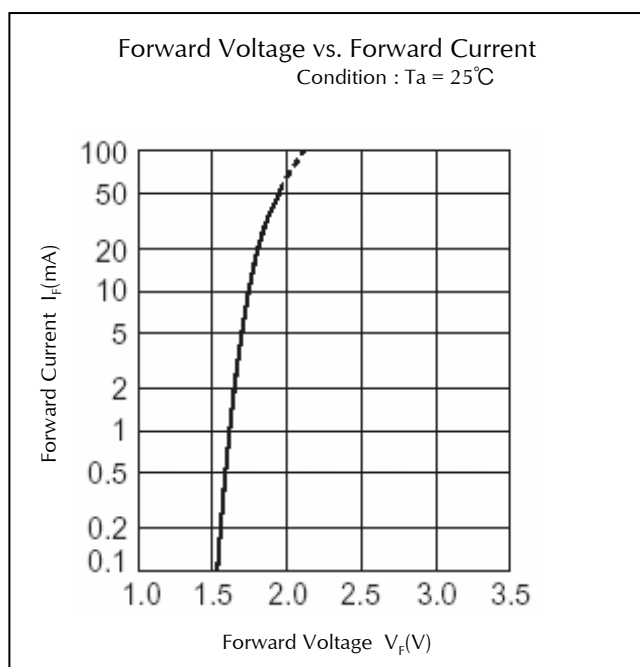
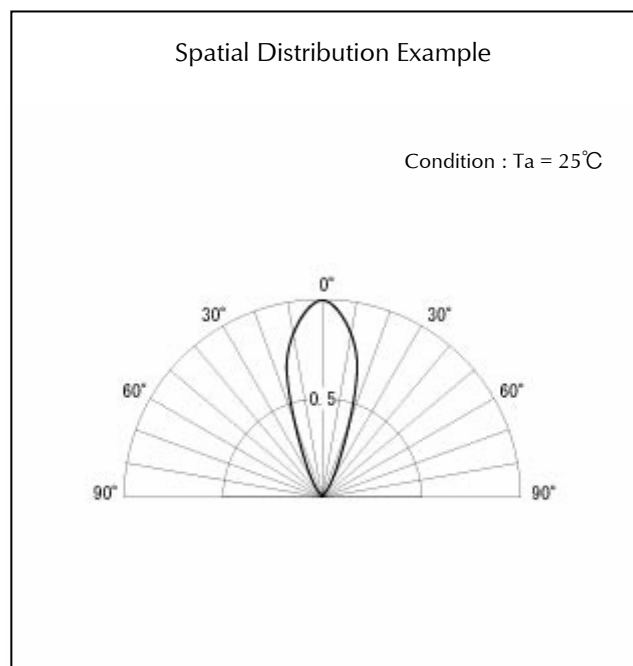
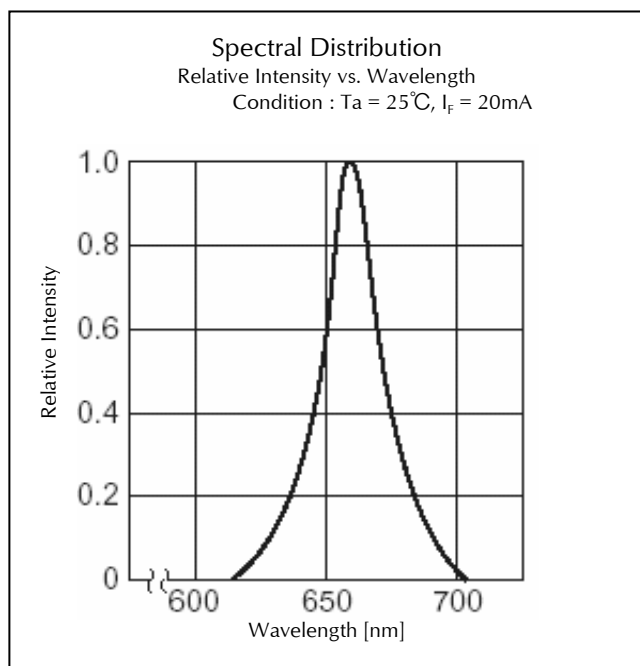
# Luminous Intensity Rank

(Ta=25°C)

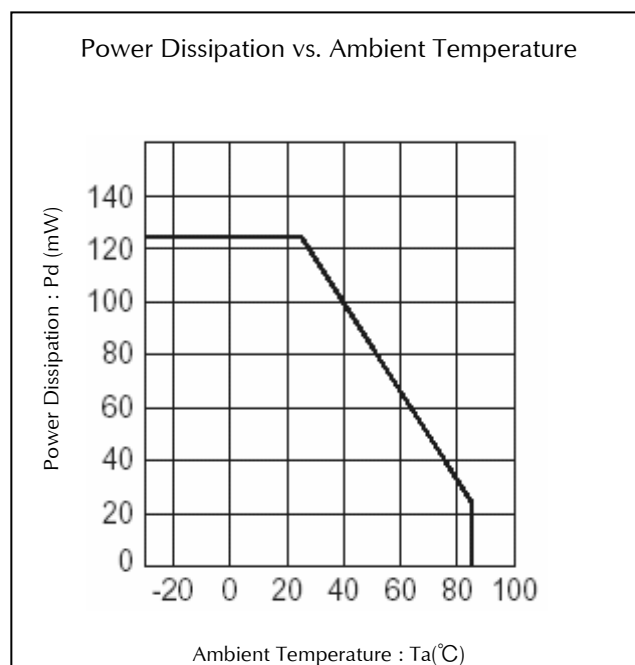
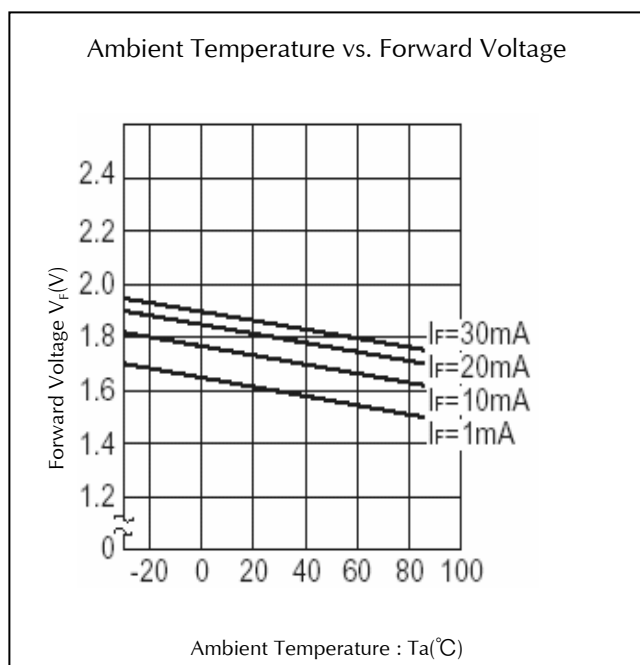
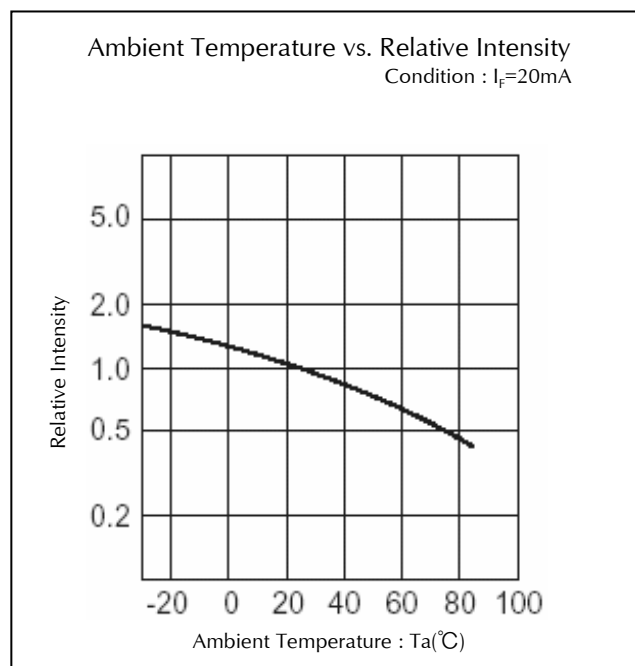
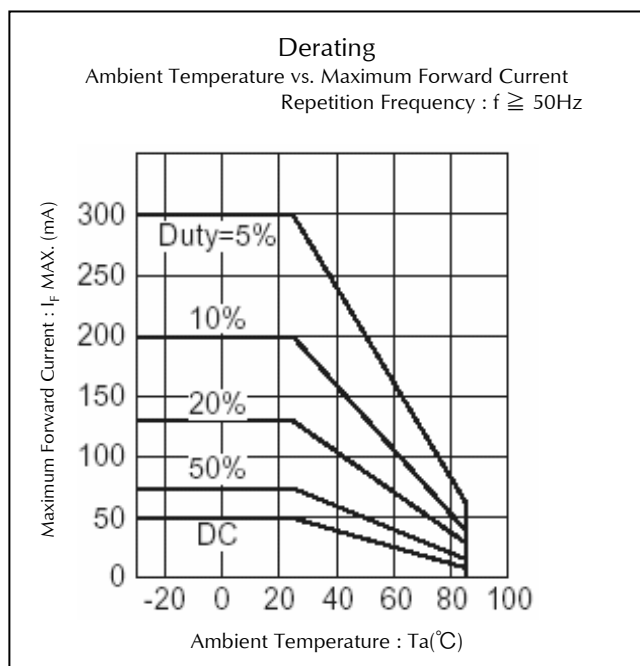
| Rank | I <sub>v</sub> (mcd) |       | Condition             |
|------|----------------------|-------|-----------------------|
|      | MIN.                 | MAX.  |                       |
| A    | 200                  | 400   | I <sub>F</sub> = 20mA |
| B    | 280                  | 560   |                       |
| C    | 400                  | 800   |                       |
| D    | 560                  | 1,120 |                       |
| E    | 800                  | -     |                       |

Please contact our sales staff concerning rank designation.

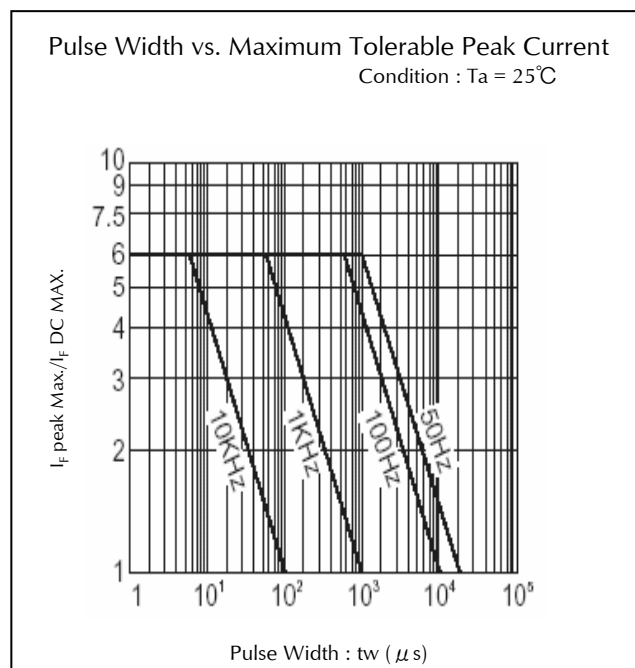
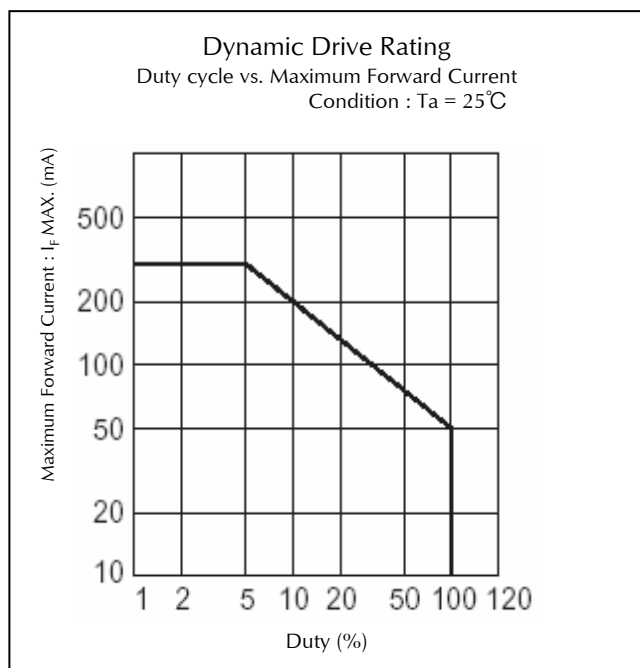
## Technical Data



## Technical Data

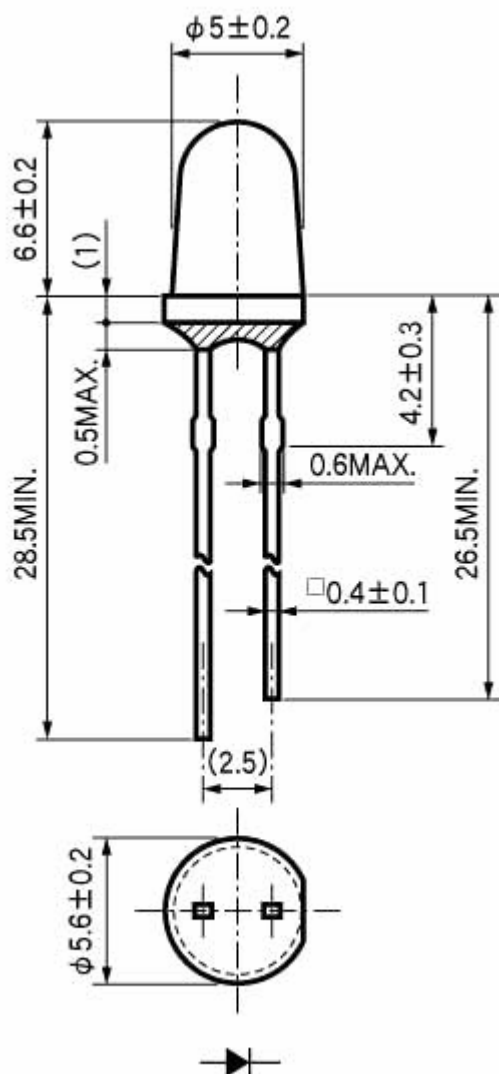


## Technical Data



## Package Dimensions

(Unit: mm)



## TTW (Through The Wave) soldering Conditions

|                   |        |        |
|-------------------|--------|--------|
| Pre-heating       | 100 °C | (MAX.) |
| Solder Bath Temp. | 265°C  | (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°C   | (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     | EIAJ ED-4701/100(101) | Ta = 25°C, If = Maximum Rated Current                                                                                                             | 1,000 h  | 0/25    |
| Resistance to Soldering Heat  | EIAJ ED-4701/300(302) | 260±5°C, 1.6mm from package base                                                                                                                  | 10s      | 0/25    |
| Temperature Cycling           | EIAJ ED-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   | EIAJ ED-4701/100(103) | Ta = 60±2°C, RH = 90±5%                                                                                                                           | 1,000 h  | 0/25    |
| High Temp. Storage Life       | EIAJ ED-4701/200(201) | Ta = Maximum Rated Storage Temperature                                                                                                            | 1,000 h  | 0/25    |
| Low Temp. Storage Life        | EIAJ ED-4701/200(202) | Ta = Minimum Rated Storage Temperature                                                                                                            | 1,000 h  | 0/25    |
| Lead Tension                  | EIAJ ED-4701/400(401) | 10N, 1time (□0.4 and Flat Package : 5N)                                                                                                           | 10s      | 0/10    |
| Vibration, Variable Frequency | EIAJ ED-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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