



Pb-free
HEAT



GSW5803B

5 Flush Mount Type White LED

Features

| | |
|--------------------------|--|
| Package | 5 Flush Mount Type. Water clear resin |
| Product features | <ul style="list-style-type: none"> • Outer Dimension 5 Flush Mount Type. • Low power consumption type (recommended operating conditions: $I_F=5mA$) • Operation temperature range Storage Temperature Operating Temperature • Lead-free soldering compatible • RoHs compliant |
| Chromaticity coordinates | $x = 0.31TYP.$, $y = 0.32TYP.$ |
| Spatial distribution | 40 deg. |
| Die materials | InGaN |
| Rank grouping parameter | Sorted by luminous intensity rank and chromaticity rank |
| Soldering methods | TTW (Through The Wave) soldering and manual soldering |
| ESD-withstand voltage | Up to 1kV (HBM) |
| Packing | Bulk : 200pcs(MIN.) |

Recommended Applications

Amusement Equipment, OA/FA, Other General Applications

Color and Luminous Intensity

(Ta=25)

| Part No. | Material | Emitted Color | Lens Color | Luminous Intensity | | |
|-----------------|--------------|---------------|-------------|--------------------|--------------|---------------------|
| | | | | Iv (mcd) | | |
| | | | | MIN. | TYP. | I _F (mA) |
| GSW5803B | InGaN | White | Water Clear | 1,200 | 2,400 | 5 |

Absolute Maximum Ratings

(Ta=25)

| Item | Symbol | Absolute Maximum Ratings | Unit |
|------------------------------------|------------------|--------------------------|------|
| Power Dissipation | P _d | 36 | mW |
| Forward Current | I _F | 10 | mA |
| Pulse Forward Current ¹ | I _{FRM} | 20 | mA |
| Derating (Ta=25 or higher) | I _F | 0.130 | mA/ |
| | I _{FRM} | 0.267 | mA/ |
| Reverse Voltage | V _R | 5 | V |
| Operating Temperature | T _{opr} | -40 ~ +85 | |
| Storage Temperature | T _{stg} | -40 ~ +100 | |

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

Electro-Optical Characteristics

(Ta=25)

| Item | Condition | Symbol | Characteristics | | Unit |
|--------------------------|---------------------|-------------------|-----------------|------|------|
| | | | TYP. | MAX. | |
| Forward Voltage | I _F =5mA | V _F | TYP. | 2.9 | V |
| | | | MAX. | 3.3 | |
| Reverse Current | V _R =5V | I _R | MAX. | 100 | μA |
| Chromaticity Coordinates | I _F =5mA | x | TYP. | 0.31 | - |
| | | y | TYP. | 0.32 | - |
| Half Intensity Angle | I _F =5mA | 2θ _{1/2} | TYP. | 40 | deg. |

Luminous Intensity Rank

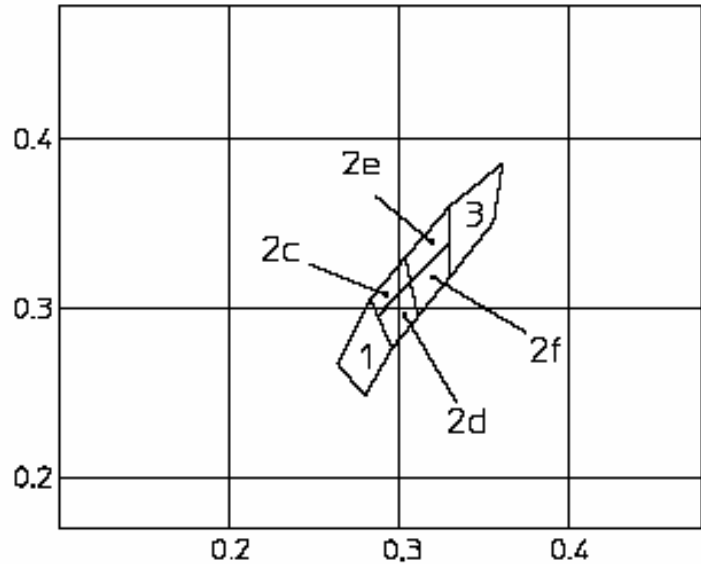
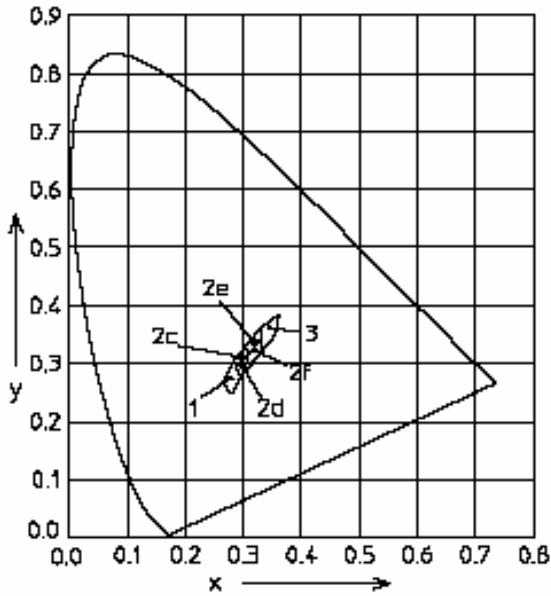
(Ta=25)

| Rank | I _v (mcd) | | Condition |
|------|----------------------|------|----------------------|
| | MIN. | MAX. | |
| A | | | I _F = 5mA |
| B | | | |
| C | to be prepared | | |
| D | | | |
| E | | | |

Please contact our sales staff concerning rank designation.

Sorting Chart for Chromaticity Coordinates

(Ta=25)

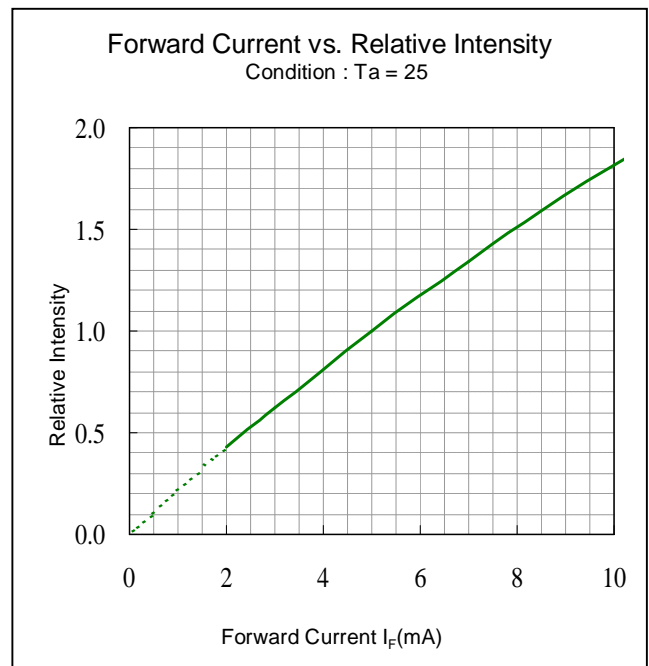
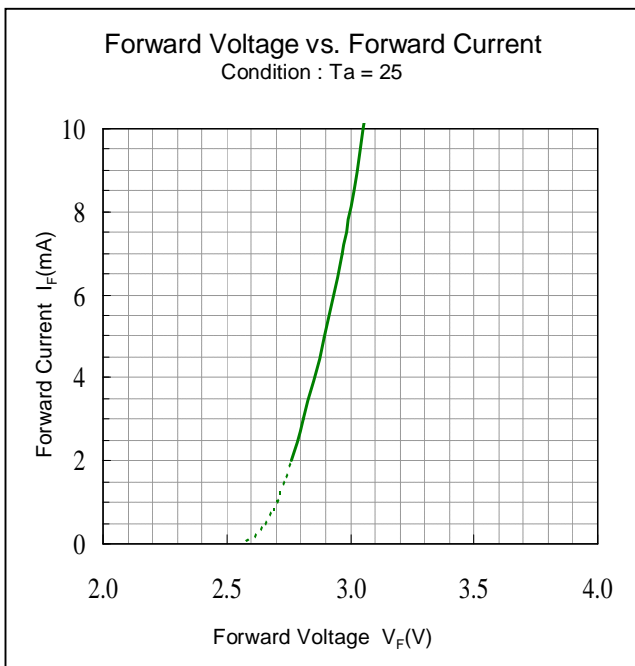
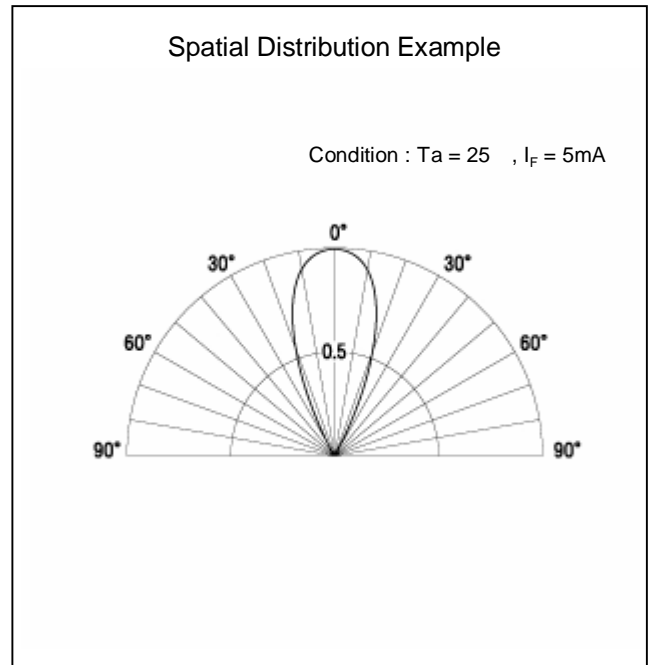
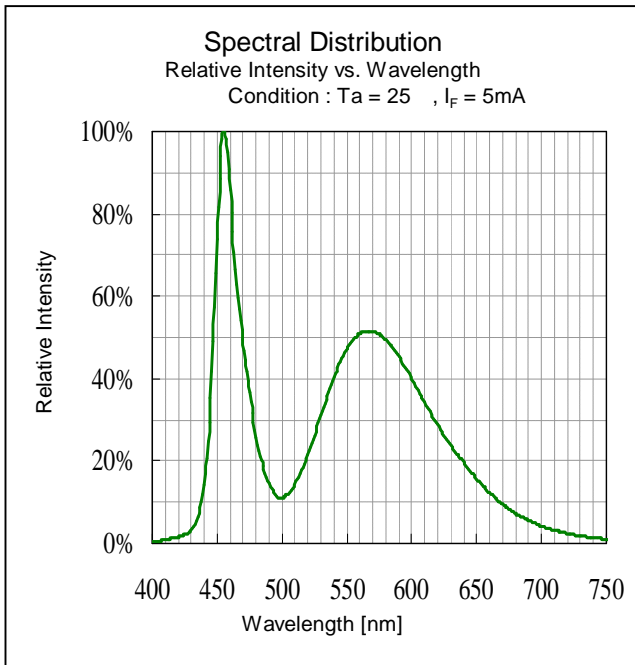


| Rank | LEFT DOWN point | | LEFT UP point | | RIGHT UP point | | RIGHT UP point | | Conditions |
|------|-----------------|-------|---------------|-------|----------------|-------|----------------|-------|---------------------|
| | x | y | x | y | x | y | x | y | |
| 1 | 0.280 | 0.248 | 0.264 | 0.267 | 0.283 | 0.305 | 0.296 | 0.276 | I _F =5mA |
| 2c | 0.287 | 0.295 | 0.283 | 0.305 | 0.304 | 0.330 | 0.307 | 0.315 | |
| 2d | 0.296 | 0.276 | 0.287 | 0.295 | 0.307 | 0.315 | 0.311 | 0.294 | |
| 2e | 0.307 | 0.315 | 0.304 | 0.330 | 0.330 | 0.360 | 0.330 | 0.339 | |
| 2f | 0.311 | 0.294 | 0.307 | 0.315 | 0.330 | 0.339 | 0.330 | 0.318 | |
| 3 | 0.330 | 0.318 | 0.330 | 0.360 | 0.361 | 0.385 | 0.356 | 0.351 | |

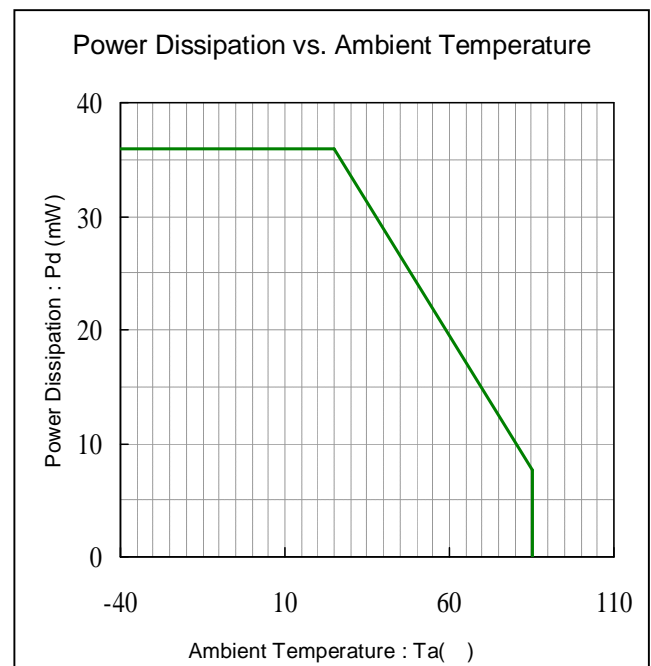
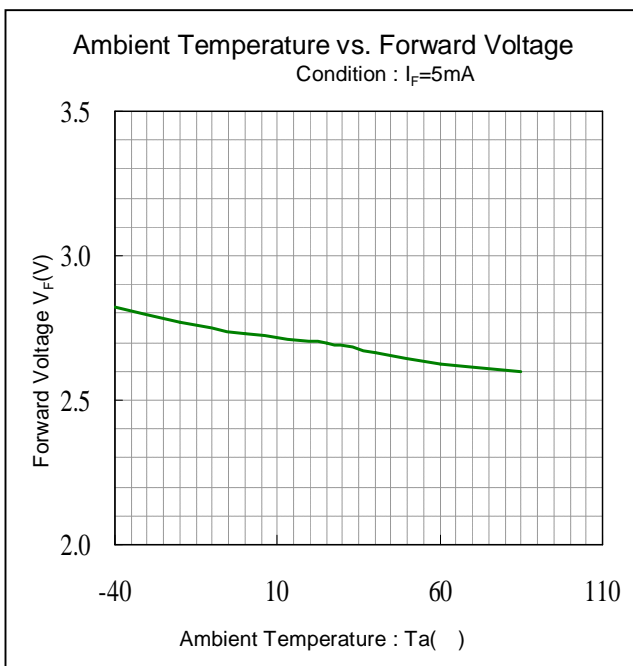
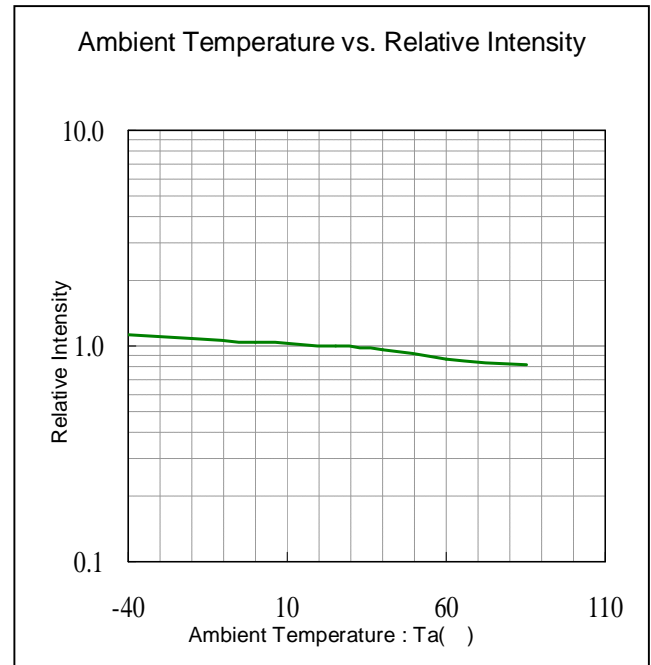
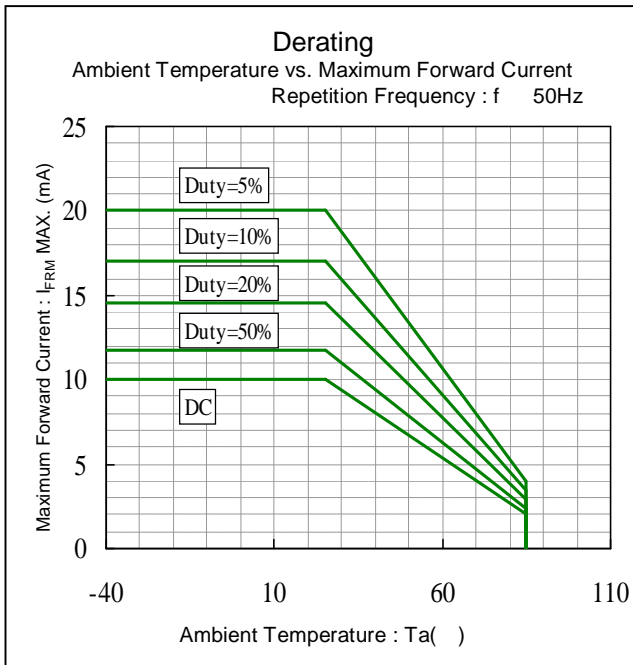
Chromaticity Coordinates Tolerance Each Rank : +/-0.02

Please contact our sales staff concerning rank designation.

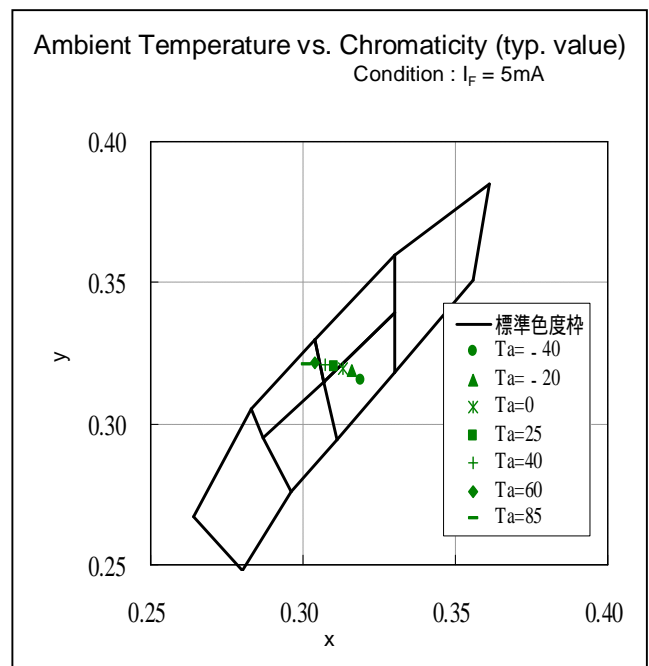
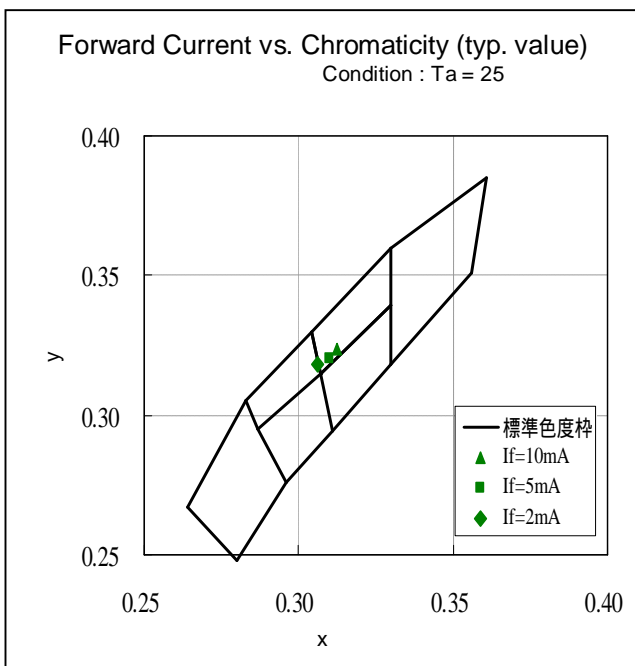
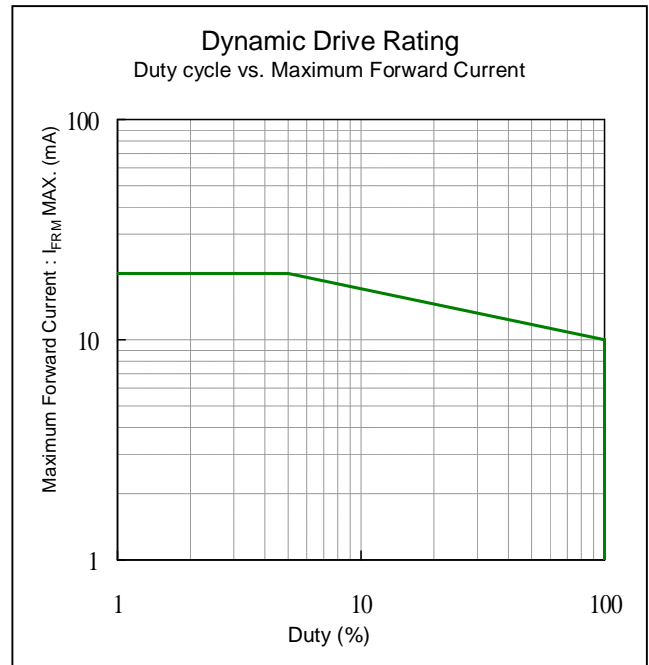
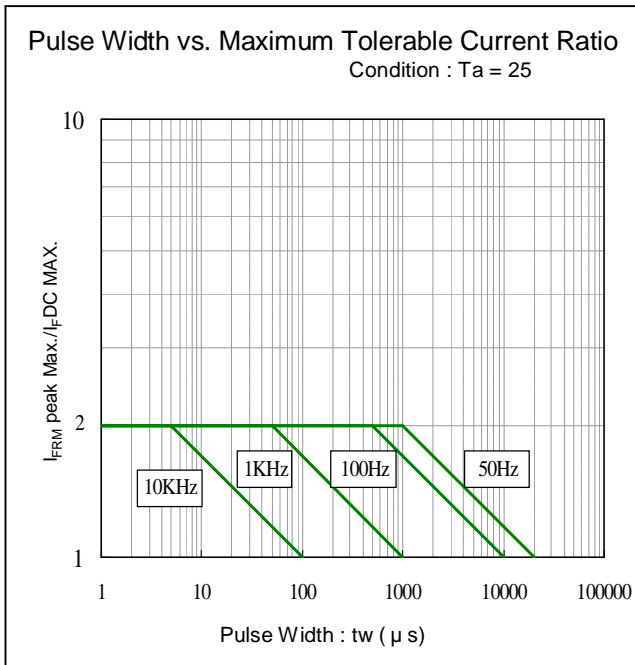
Technical Data



Technical Data



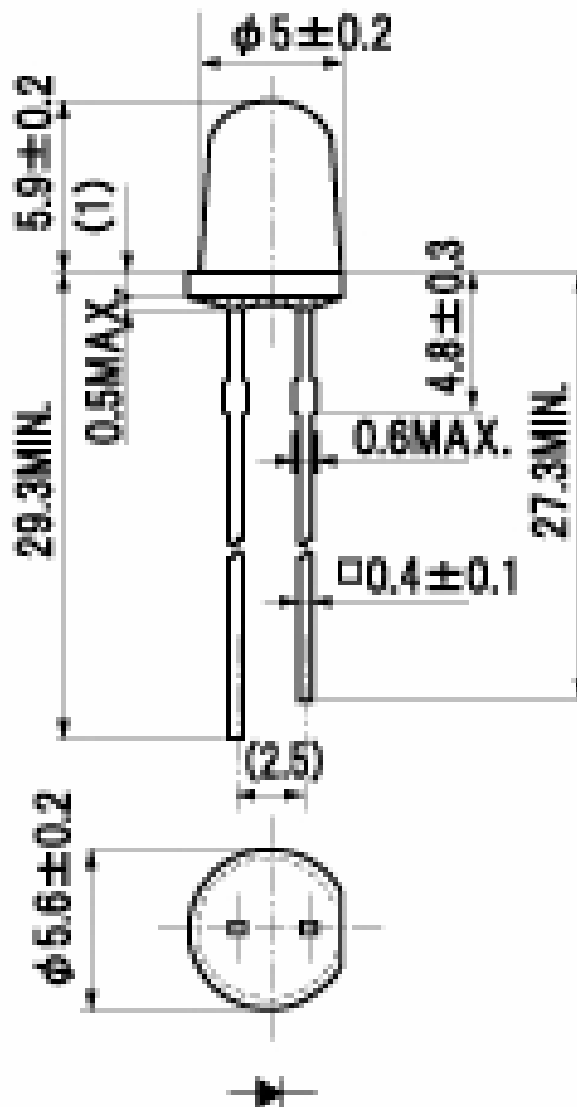
Technical Data



Package Dimensions

(Unit: mm)

Weight: (0.34)g



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 | EAJED-4701/100(101) | Ta = 25 , If = Maximum Rated Current | 1,000 h | 0/25 |
| Resistance to Soldering Heat | EAJED-4701/300(302) | 260 ± 5 , 1.6mm from package base | 10s | 0/25 |
| Temperature Cycling | EAJED-4701/100(105) | Minimum Rated Storage Temperature(30min) ~ Normal Temperature(15min) ~ Maximum Rated Storage Temperature(30min) ~ Normal Temperature(15min) | 5 cycles | 0/25 |
| Wet High Temp. Storage Life | EAJED-4701/100(103) | Ta = 60 ± 2 , RH = 90 ± 5% | 1,000 h | 0/25 |
| High Temp. Storage Life | EAJED-4701/200(201) | Ta = Maximum Rated Storage Temperature | 1,000 h | 0/25 |
| Low Temp. Storage Life | EAJED-4701/200(202) | Ta = Minimum Rated Storage Temperature | 1,000 h | 0/25 |
| Lead Tension | EAJED-4701/400(401) | 10N, 1time (0.4 and Flat Package : 5N) | 10s | 0/10 |
| Vibration, Variable Frequency | EAJED-4701/400(403) | 98.1m/s ² (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 Luminous Intensity | Testing Min. Value < Spec. Min. Value x 0.5 |
| Forward Voltage | V _F | If Value of each product Forward Voltage | Testing Max. Value > Spec. Max. Value x 1.2 |
| Reverse Current | I _R | V _R = Maximum Rated Reverse Voltage V | Testing Max. Value > Spec. Max. Value x 2.5 |
| Cosmetic Appearance | - | - | Occurrence of notable decoloration, deformation and cracking |

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