



Pb-free
HEAT

STANLEY

UW5805S

Φ5 Flush Mount Type White LED

Features

| | |
|--------------------------|---|
| Package | Φ5 Flush Mount Type. Water clear resin |
| Product features | <ul style="list-style-type: none">• Outer Dimension Φ5 Flush Mount Type.• Operation temperature range Storage Temperature : -40℃~100℃ Operating Temperature : -40℃~85℃• Lead-free soldering compatible• RoHs compliant |
| Chromaticity coordinates | x = 0.31TYP., y = 0.32TYP. (Condition : I _F =20mA) |
| Spatial distribution | 35 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 | 1kV (HBM) |
| Packing | Bulk : 200pcs(MIN.) |

Recommended Applications

Amusement Equipment, Electric Household Appliances, Other General Applications



UW5805S

Φ5 Flush Mount Type White LED

Color and Luminous Intensity

(T_a=25°C)

| Part No. | Material | Emitted Color | Lens Color | Luminous Intensity | | |
|----------|----------|---------------|-------------|----------------------|-------|----------------|
| | | | | I _v (mcd) | | |
| | | | | MIN. | TYP. | I _F |
| UW5805S | InGaN | White | Water Clear | 1,000 | 2,000 | 20 |

Absolute Maximum Ratings

(T_a=25℃)

| Item | Symbol | Absolute Maximum Ratings | Unit |
|---|------------------|--------------------------|------|
| Power Dissipation | P _d | 107 | mW |
| Forward Current | I _F | 25 | mA |
| Pulse Forward Current ※1 | I _{FRM} | 60 | mA |
| Derating (T _a =25℃ or higher) | ΔI_F | 0.33 | 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 \leq 1ms., Duty \leq 1/20.

Electro-Optical Characteristics

(T_a=25℃)

| Item | Condition | Symbol | Characteristics | | Unit |
|--------------------------|----------------------|-------------------|-----------------|------|---------------|
| | | | | | |
| Forward Voltage | I _F =20mA | V _F | TYP. | 3.7 | V |
| | | | MAX. | 4.2 | |
| Reverse Current | V _R =5V | I _R | MAX. | 100 | μA |
| Half Intensity Angle | I _F =20mA | 2θ 1/2 | TYP. | 35 | deg. |
| Chromaticity Coordinates | I _F =20mA | x | TYP. | 0.31 | - |
| | | y | TYP. | 0.32 | - |

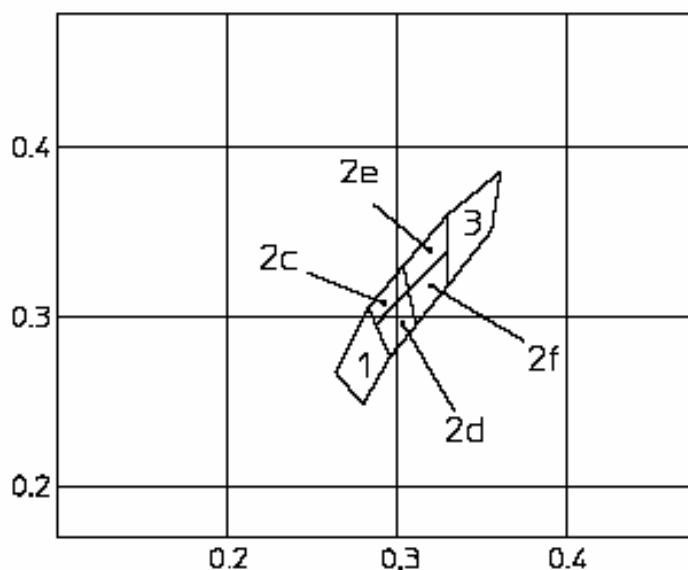
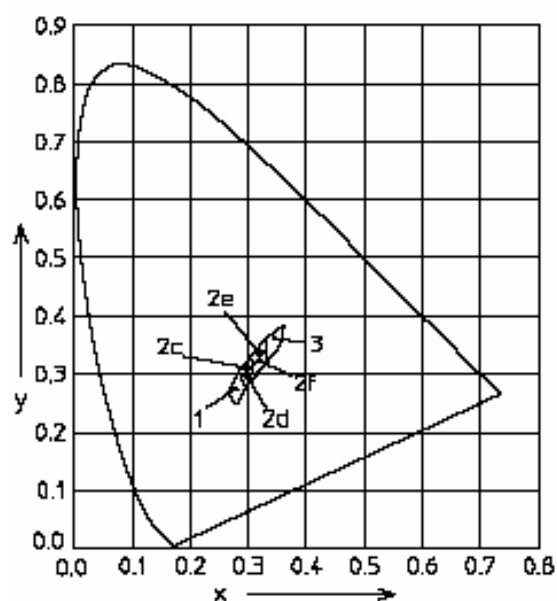
Luminous Intensity Rank

(T_a=25℃)

| Rank | I _v (mcd) | | Condition |
|------|----------------------|-------|----------------------|
| | MIN. | MAX. | |
| A | 1,000 | 2,000 | I _F =20mA |
| B | 1,400 | 2,800 | |
| C | 2,000 | 4,000 | |
| D | 2,800 | 5,600 | |
| E | 4,000 | 8,000 | |
| F | 5,600 | - | |

※ Please contact our sales staff concerning rank designation.

Sorting Chart for Chromaticity Coordinates



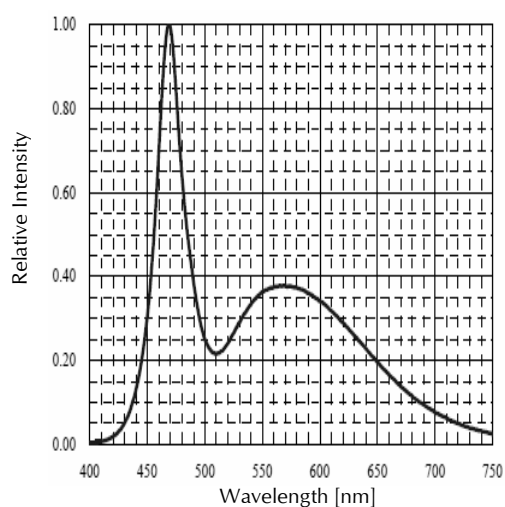
| | LEFT DOWN point | | LEFT UP point | | RIGHT UP point | | RIGHT UP point | | Conditions |
|------|-----------------|-------|---------------|-------|----------------|-------|----------------|-------|---------------------|
| Rank | x | y | x | y | x | y | x | y | |
| 1 | 0.280 | 0.248 | 0.264 | 0.267 | 0.283 | 0.305 | 0.296 | 0.276 | $I_F = 20\text{mA}$ |
| 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.

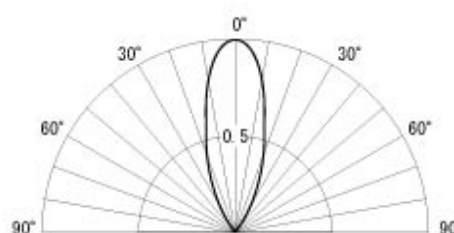
Technical Data

Spectral Distribution
Relative Intensity vs. Wavelength
Condition : $T_a = 25^\circ\text{C}$, $I_F = 20\text{mA}$

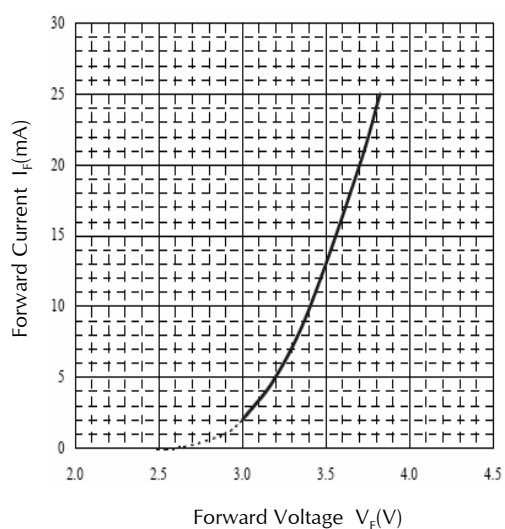


Spatial Distribution Example

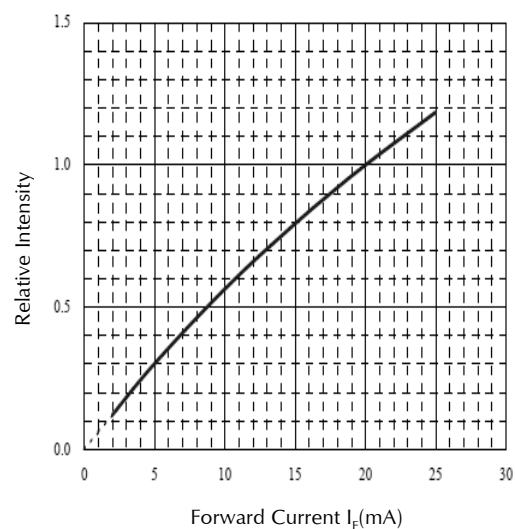
Condition : $T_a = 25^\circ\text{C}$, $I_F = 20\text{mA}$



Forward Voltage vs. Forward Current
Condition : $T_a = 25^\circ\text{C}$



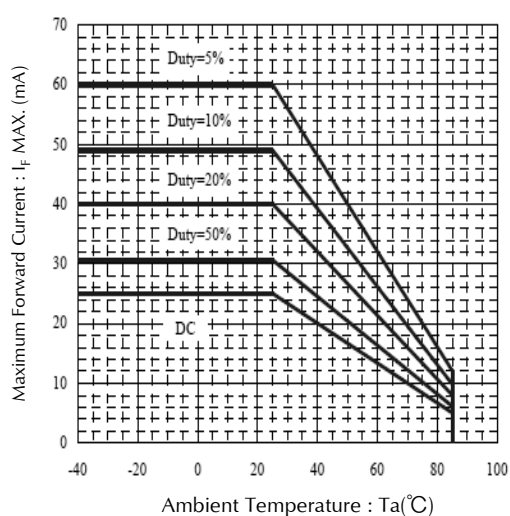
Forward Current vs. Relative Intensity
Condition : $T_a = 25^\circ\text{C}$



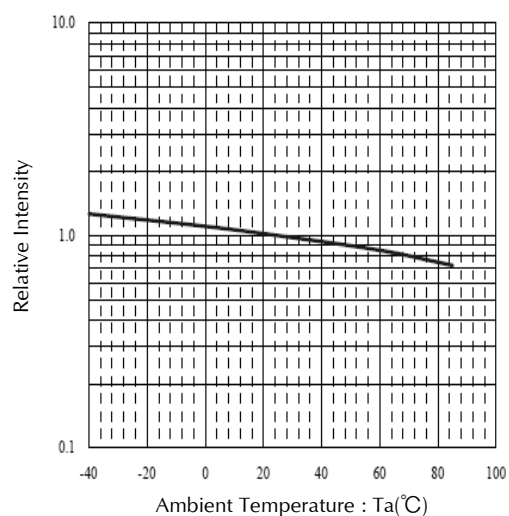
Technical Data

Derating

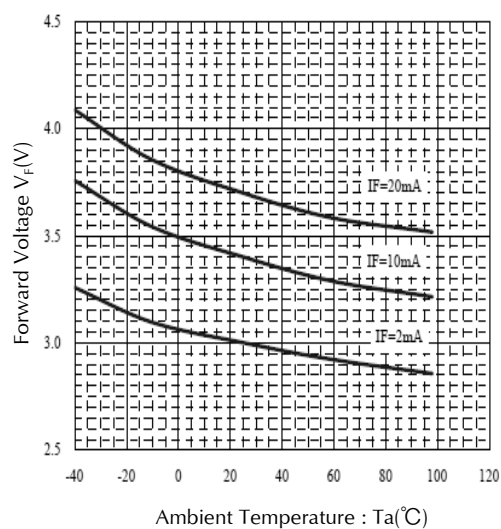
Ambient Temperature vs. Maximum Forward Current
Repetition Frequency : $f \geq 50\text{Hz}$



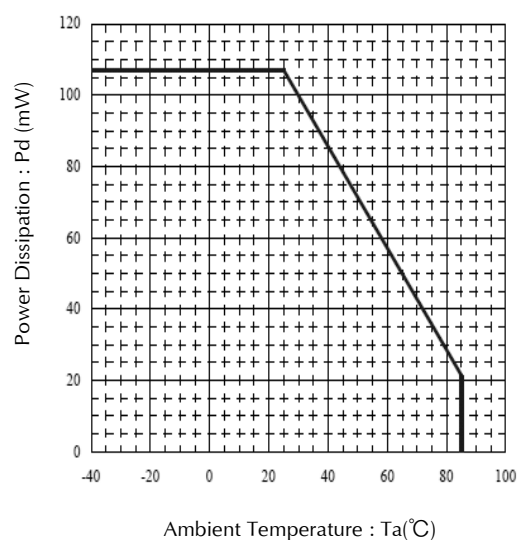
Ambient Temperature vs. Relative Intensity



Ambient Temperature vs. Forward Voltage

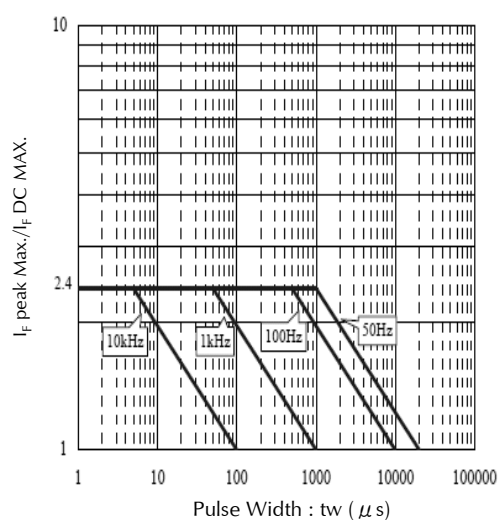


Power Dissipation vs. Ambient Temperature

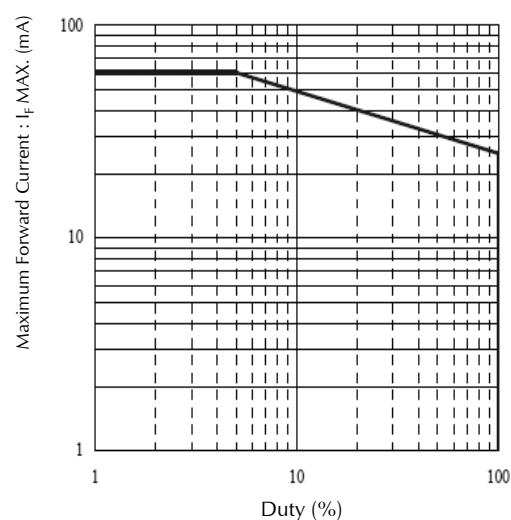


Technical Data

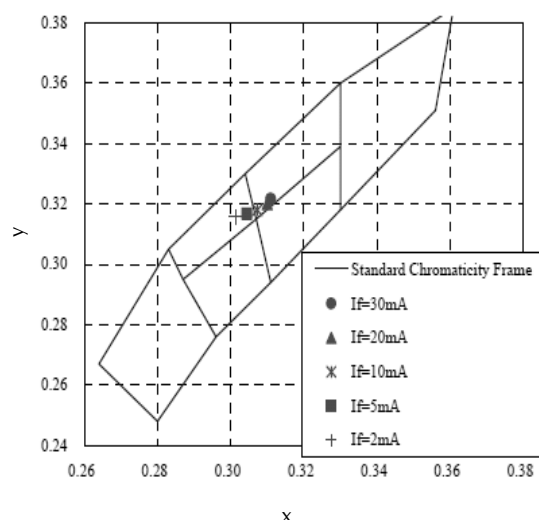
Pulse Width vs. Maximum Tolerable Peak Current
Condition : $T_a = 25^\circ\text{C}$



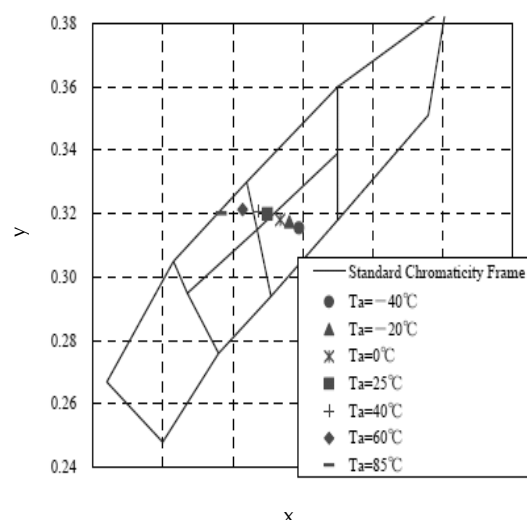
Dynamic Drive Rating
Duty cycle vs. Maximum Forward Current



Forward Current vs. Chromaticity (typ. value)
Condition : $T_a = 25^\circ\text{C}$



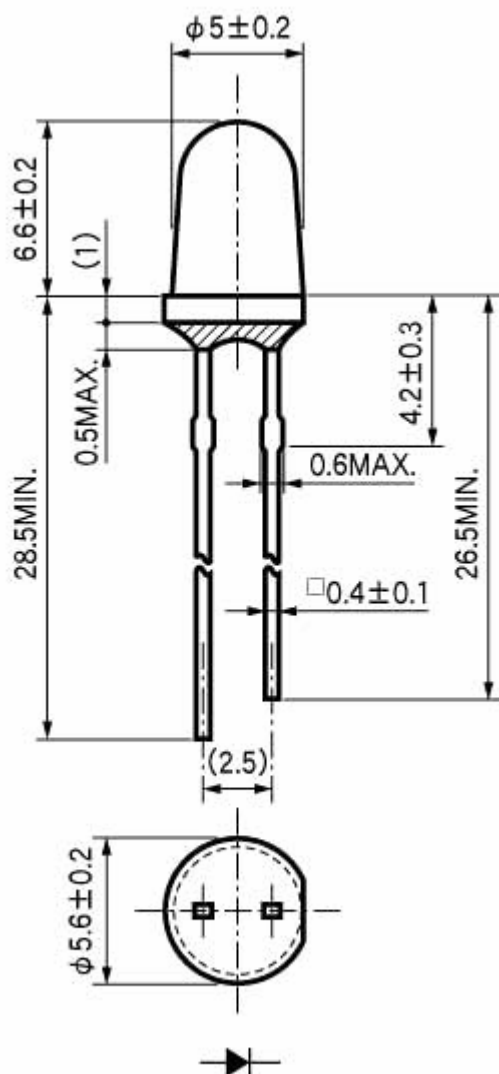
Ambient Temperature vs. Chromaticity (typ. value)
Condition : $I_F = 20\text{mA}$



Package Dimensions

(Unit: mm)

Weight: (0.28)g



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) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~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 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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