



QLSP05WCWW



■ Product Outline:

This high output reflector type 2835S LEDs are available in Dual white color (cold white and Warm white) to suit customer's application. These 0.5W LEDs are equipped with heat sink to enhance operating performance. With special binning technology, these LEDs are ideal for architecture lighting and special lighting needs.

■ Features:

- High brightness output @ 20mA
- Max. current @ 60mA
- Package Dimension = 3.8mmX2.8mmX0.65mm
- RoHS compliant
- Custom Bin available upon special request

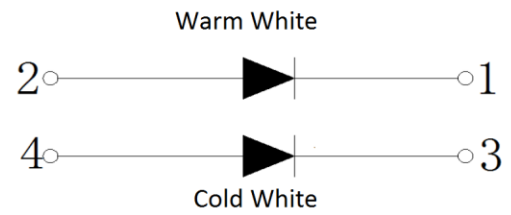
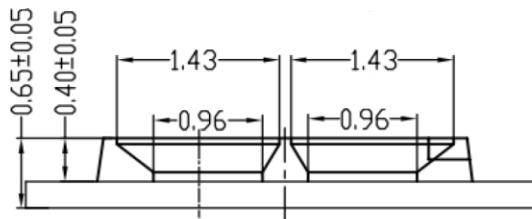
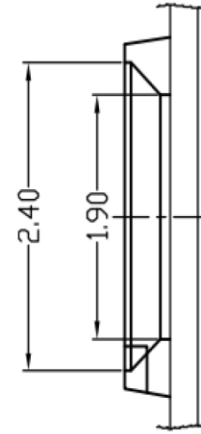
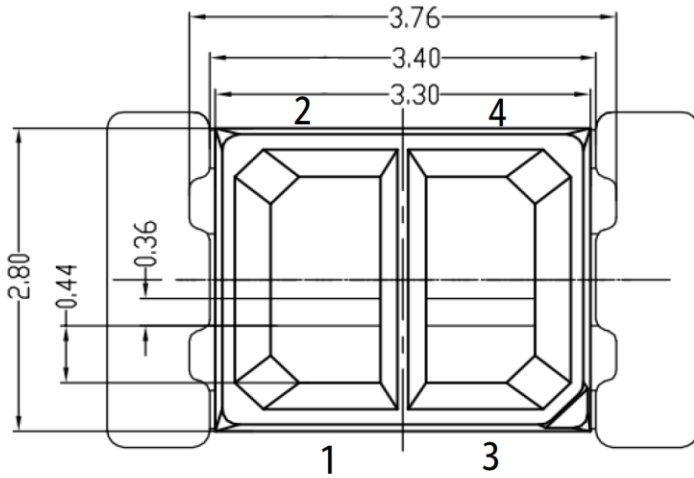
■ Application:

- Architecture Lighting
- Tube Lighting
- Interior Lighting
- General Lighting

Compliance and Certification:

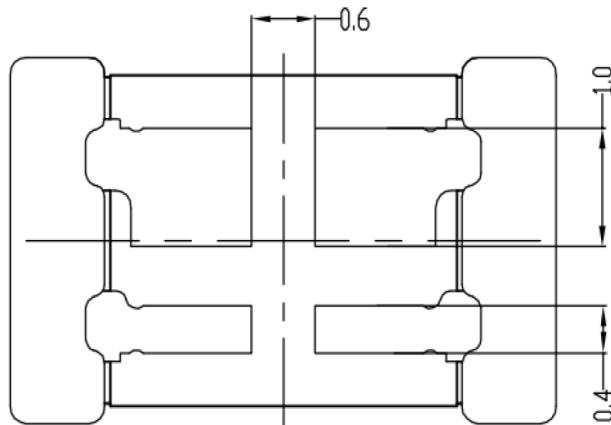


**■ Mechanical Property:
(Dimension)**



Unit: mm

Recommended Solder footprint:



■ Electrical / Optical Characteristic

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|-----------------|----------------------|------|------|------|------|
| Forward voltage ⁽¹⁾ | V _f | I _f =20mA | 2.8 | - | 3.4 | V |
| Color Rendering Index ⁽²⁾ | R _a | | 70 | - | - | - |
| View angle | θ | | - | 120 | - | Deg |
| Thermal Resistance ⁽³⁾ | R _{th} | | - | 25 | - | °C/W |

(1) The forward voltage tolerance is ± 0.1V

(2) The Color Rendering Index tolerance is ± 2

■ Performance at Commonly Used Drive Currents

| Product | Color | Color range (CCT) | Drive Current ¹ (mA) | Typical V _f T _{sp} = 25°C (V) | Viewing Angle (Degree) | Typical Pulsed Flux ² T _{sp} = 25°C (lm) |
|------------|------------|-------------------|---------------------------------|---|------------------------|--|
| QLSP05WCWW | Warm white | 2800-3200 | 20 | 3.2 | 120 | 23 |
| QLSP05WCWW | Cold white | 6000-6500 | 20 | 3.2 | 120 | 23 |

■ Absolute Maximum Rating

(T=25 °C)

| Part # | P _d (mW) | I _F (mA) | I _{FP} (mA)* | V _R (V) | T _{OP} (°C) | T _{ST} (°C) | T _{SOL} (°C)** |
|-----------|---------------------|---------------------|-----------------------|--------------------|----------------------|----------------------|-------------------------|
| QLS05WCWW | 200 | 60 | 100 | 5 | -40 – 85 | -40 - 85 | 260 |

*Duty 1/10 @ 10Khz

** IR Reflow for no more than 10 sec @ 250 °C



■ Binning

Luminous Flux Bin:

| lm rank (lm) @ 20mA | | | |
|---------------------|------|------|------|
| Code name | Low | High | Unit |
| QJ | 20 | 22.5 | lm |
| QK | 22.5 | 25 | |
| QL | 25 | 28 | |
| | | | |
| | | | |

The luminous flux tolerance is $\pm 10\%$

Forward Voltage (V_F) Bin:

| VF rank @ 20mA | | | |
|----------------|-----|------|------|
| Code name | Low | High | Unit |
| | | | V |
| | | | |
| 2 | 3 | 3.1 | |
| 3 | 3.1 | 3.2 | |
| 4 | 3.2 | 3.3 | |
| 5 | 3.3 | 3.4 | |
| 6 | 3.0 | 3.4 | |

The forward voltage tolerance is $\pm 0.1V$

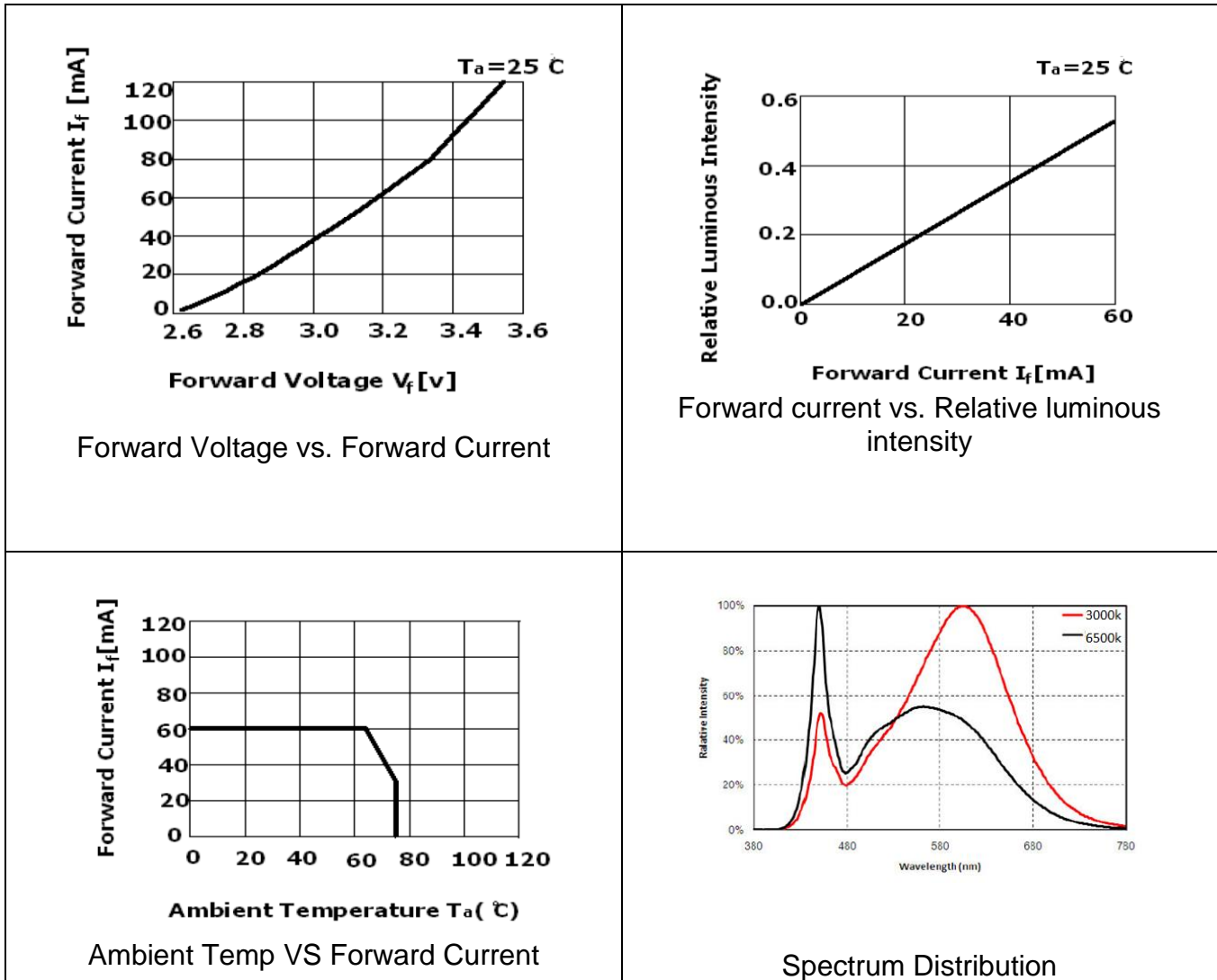


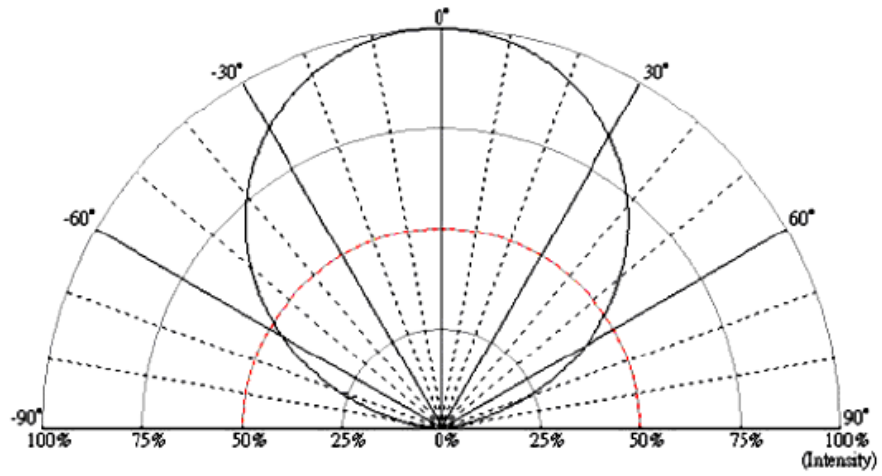
Color Bin (CCT) :

| Im rank (Im) @ 20mA | | | |
|---------------------|------|------|------|
| Code name | Low | High | Unit |
| WW | 2800 | 3200 | CCT |
| WC | 6000 | 6500 | |
| | | | |
| | | | |
| | | | |



■ Characteristic Curves





Radiation Pattern



■ Reliability test:

| No | Item | Condition | Time/Cycle | Sample size |
|----|--|--|------------|-------------|
| 1 | Steady State Operating Life of Room Temperature | 25°C Operating | 1000 Hrs | 20 pcs |
| 2 | Steady State Operating Life of Low Temperature -40°C | -40°C Operating | 1000 Hrs | 20 pcs |
| 3 | Steady State Operating Life of Low Temperature 60°C | 60°C Operating | 1000 Hrs | 20 pcs |
| 4 | Steady State Operating Life of Low Temperature 85°C | 85°C Operating | 1000 Hrs | 20 pcs |
| 5 | Low temperature storage -40°C | -40°C Storage | 1000 Hrs | 20 pcs |
| 6 | High temperature storage 100°C | 100°C Storage | 1000 Hrs | 20 pcs |
| 7 | Steady State Operating Life of High Humidity Heat 60°C/90% | 60°C/90% Operating | 1000 Hrs | 20 pcs |
| 8 | Steady State Pulse Operating Life Condition | 25°C/10Hz duty=1/10 Operating | 200 Cycle | 20 pcs |
| 9 | Resistance to soldering heat on PCB (JEDEC MSL3) | pre-store@60°C, 60%RH for 52hrs Tslid max.=260 10sec | 3 Times | 20 pcs |
| 10 | Heat Cycle Test (JEDEC MRC) | 25°C~65°C~-10°C, 90%RH, 24hr/1cycle | 10 Cycle | 20 pcs |
| 11 | Thermal shock | -40°C/ 20minr~ 5minr~100°C /20min | 200 Cycle | 20 pcs |

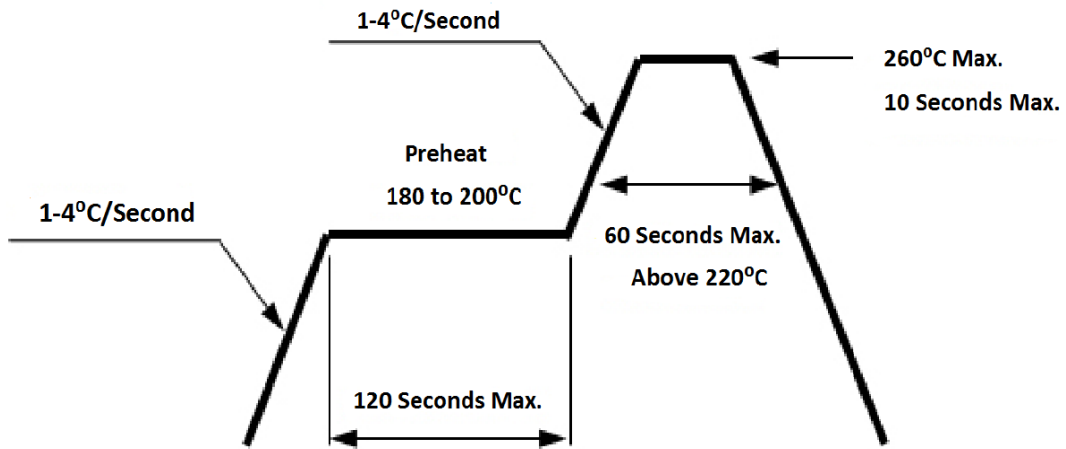
■ Judgment Criteria:

| Item | Symbol | Test Condition | Judgment Criteria |
|-----------------|--------|----------------|--------------------|
| Forward Voltage | Vf | 150 mA | $\Delta Vf < 10\%$ |
| Luminous Flux | Iv | 150 mA | $\Delta Iv < 30\%$ |

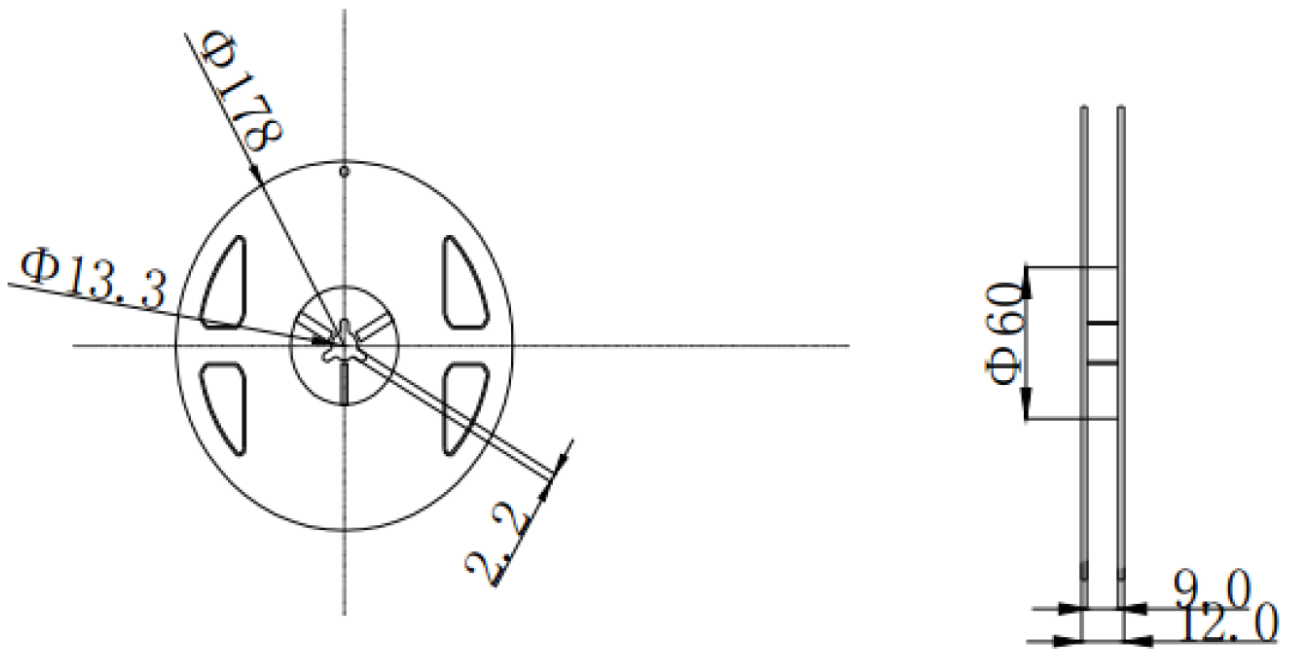
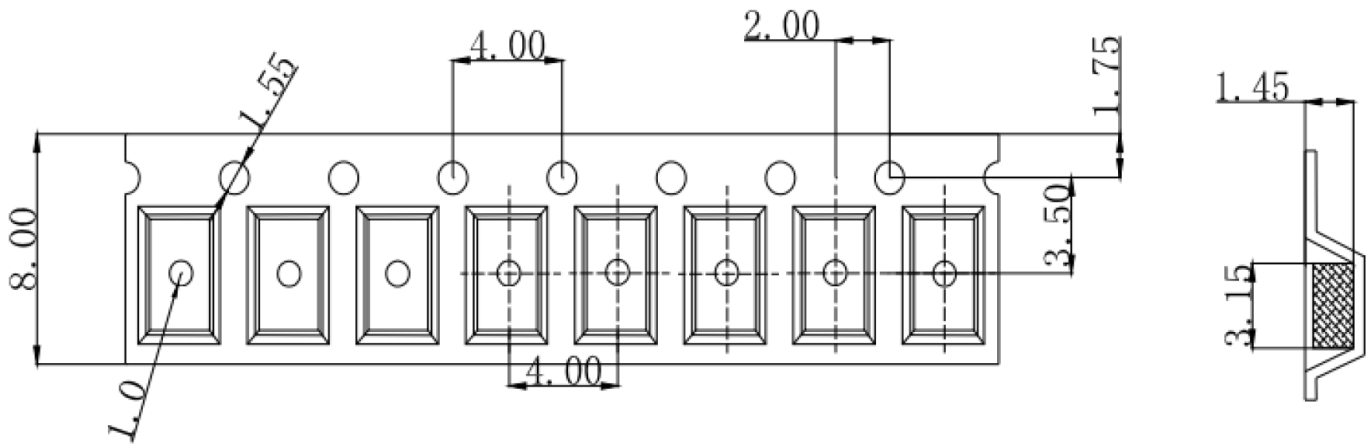


■ Solder Profile:

-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):





■ Taping & Packing




Unit : mm




Labeling

Quantity: XXXX



QueLighting P/N: XXXXXX



Lot number: XXXXX

Iv Bin: XX
Color Bin: XX
Vf Bin: XX

Date Code: XXXX

Ordering Information:

| Part # | Multiple Quantities | Quantity per Reel |
|------------|---------------------|-------------------|
| QLSP05WCWW | | 4000 pcs |
| | | |
| | | |
| | | |
| | | |



Revision History:

| Revision Date: | Changes: | Version #: |
|----------------|-----------------|------------|
| 08-10-2020 | Initial release | 1.0 |
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