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Opto Plus LED Corp.
0.56" SMD Type LED Display
OPS-D5611W-STT(R)-1.5-G(B)W
OPS-D5612W-STT(R)-1.5-G(B)W

● **EDIT HISTORY**

Version A: Mar. 24, 2025

Preliminary Spec.

Confidential Document



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OPS-D5612W-STT(R)-1.5-G(B)W

● FEATURES

- 0.56 inch (14.22 mm) digit height.
- Super thin SMD type.
- Low current operation.
- RoHS Compliant, Pb Free.

● DESCRIPTION

The device are 0.56 inch (14.22 mm) height dual digit 7-segment displays.

The device is Opto Plus LED Corp standard LED Display.

This device utilizes Super Bright White LED chip which are made from InGaN on a Transparent GaN, substrate.

The device has face and segment option, please refer to **PRODUCT APPEARANCE**.

● DEVICE

| PART NO. | DESCRIPTION |
|-----------------------|---|
| OPS-D5612W-STT-1.5-GW | Common Anode Gray face White segment Top mount |
| OPS-D5611W-STT-1.5-GW | Common Cathode Gray face White segment Top mount |
| OPS-D5612W-STT-1.5-BW | Common Anode Black face White segment Top mount |
| OPS-D5611W-STT-1.5-BW | Common Cathode Black face White segment Top mount |
| OPS-D5612W-STR-1.5-GW | Common Anode Gray face White segment Reverse mount |
| OPS-D5611W-STR-1.5-GW | Common Cathode Gray face White segment Reverse mount |
| OPS-D5612W-STR-1.5-BW | Common Anode Black face White segment Reverse mount |
| OPS-D5611W-STR-1.5-BW | Common Cathode Black face White segment Reverse mount |

RoHS Compliance



Pb Free.



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Disclaimer:
Subject to change without notice



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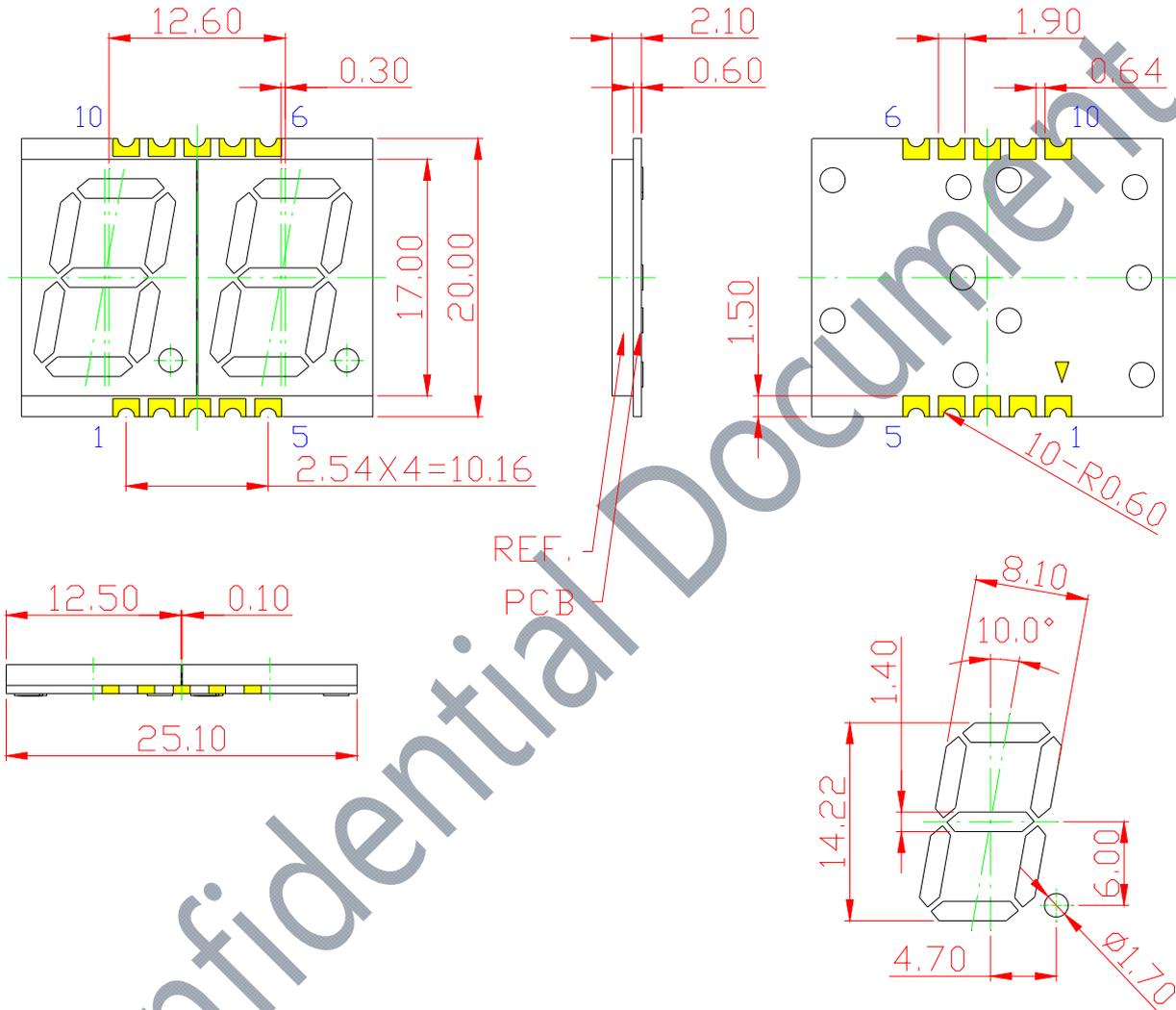
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MECHANICAL DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are ± 0.25 mm unless otherwise noted.



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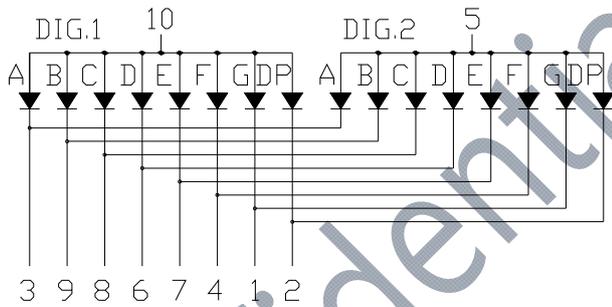
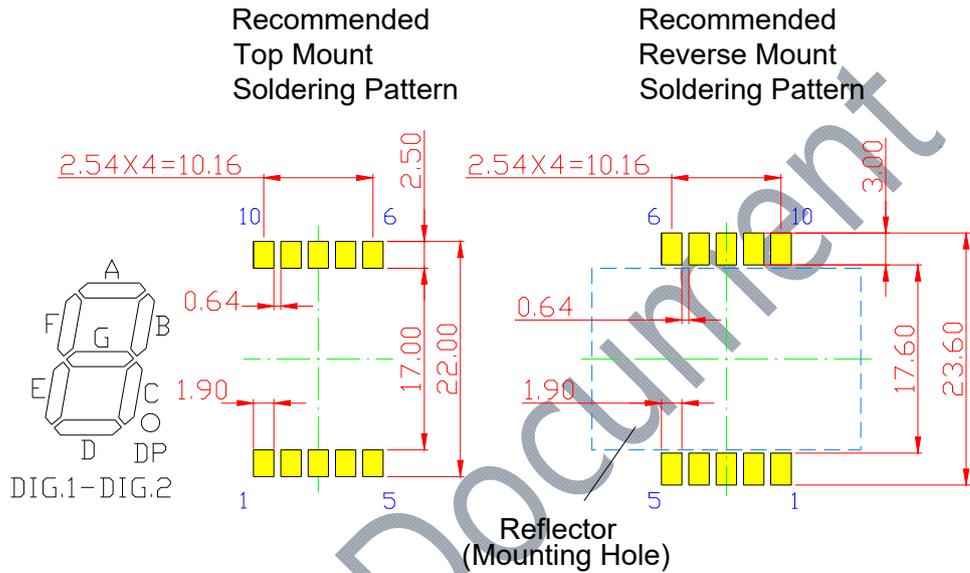
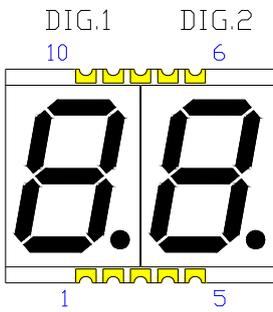
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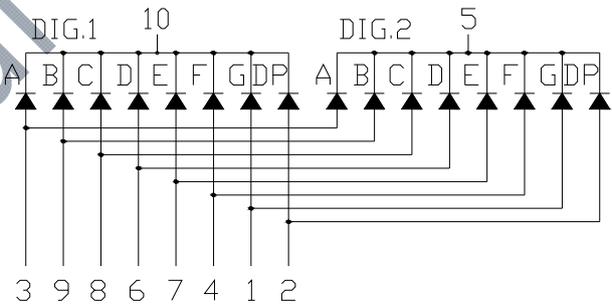
OPS-D5612W-STT(R)-1.5-G(B)W

● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Turn On Color

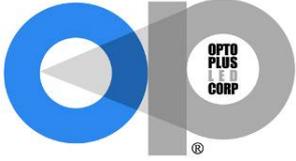


OPS-D5612W-STT(R)-1.5-G(B)W
(Common Anode)



OPS-D5611W-STT(R)-1.5-G(B)W
(Common Cathode)

※EMITTED COLOR : SUPER BRIGHT WHITE



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● **PRODUCT APPEARANCE**

The most common reflector color and segment color are show in below diagram.

| -GW | -BW |
|---|--|
| | |
| ※ REFLECTOR COLOR: Gray ※ SEGMENT COLOR: White | ※ REFLECTOR COLOR: Black ※ SEGMENT COLOR: White |

Opto Plus can customize reflector and segment colors by customer's request. If you have these request please visit www.opledtw.com or contact sales@opledtw.com for more

Standard Product Customization information.

Part NO. related to reflector and segment colors show as table below.

| PART NO. | DESCRIPTION |
|-----------------------|---|
| OPS-D5612W-STT-1.5-GW | Common Anode Gray face White segment Top mount |
| OPS-D5611W-STT-1.5-GW | Common Cathode Gray face White segment Top mount |
| OPS-D5612W-STT-1.5-BW | Common Anode Black face White segment Top mount |
| OPS-D5611W-STT-1.5-BW | Common Cathode Black face White segment Top mount |
| OPS-D5612W-STR-1.5-GW | Common Anode Gray face White segment Reverse mount |
| OPS-D5611W-STR-1.5-GW | Common Cathode Gray face White segment Reverse mount |
| OPS-D5612W-STR-1.5-BW | Common Anode Black face White segment Reverse mount |
| OPS-D5611W-STR-1.5-BW | Common Cathode Black face White segment Reverse mount |



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● **W: SUPER BRIGHT WHITE (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25° (Per SMD Chip)

| Parameter | Symbol | Maximum Rating | Unit |
|-----------------------|-----------------|----------------|------|
| Power Dissipation | P _D | 33 | mW |
| Forward Current | I _F | 10 | mA |
| Pulse Forward Current | I _{FP} | 60 | mA |
| Operating temperature | T _{OP} | -40 to + 85 | °C |
| Storage temperature | T _{ST} | -40 to + 100 | °C |

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C (Per SMD Chip)

| Characteristic | Symbol | Condition | Min. | Type | Max. | Unit |
|-------------------------|----------------|---------------------|-------|-------|------|------|
| Forward Voltage | V _F | I _F =5mA | - | 2.9 | 3.2 | V |
| Reverse Current | I _R | V _R =5V | - | - | 10 | μA |
| Luminous Intensity | I _v | I _F =5mA | 112.5 | 200 | 285 | mcd |
| Chromaticity Coordinate | | X | - | 0.285 | - | |
| | | Y | - | 0.275 | | |



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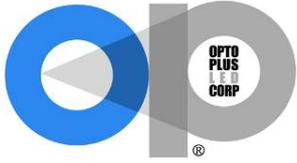
● **LUMINOUS INTENSITY (IV) BIN:**

| Super Bright White | 1 | 2 | 3 |
|---------------------------|-------------------|-------------------|-------------------|
| Reference BIN (Chip) | (R11) 112.5-126.0 | (R12) 126.0-140.0 | (R21) 140.0-160.0 |

| Super Bright White | 4 | 5 | 6 |
|---------------------------|-------------------|-------------------|-------------------|
| Reference BIN (Chip) | (R22) 160.0-180.0 | (S11) 180.0-202.0 | (S12) 202.0-226.0 |

| Super Bright White | 7 | 8 |
|---------------------------|-------------------|-------------------|
| Reference BIN (Chip) | (S21) 226.0-255.5 | (S22) 255.5-285.0 |

Note: It maintains a tolerance of $\pm 10\%$ on Luminous Intensity.



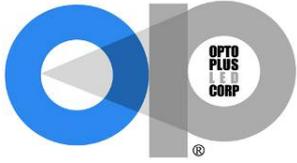
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● **COLOR BIN:**

| Color | AA2 | | BB1 | | BB2 | |
|-------|--------|--------|--------|--------|--------|--------|
| TW | 0.2700 | 0.2400 | 0.2800 | 0.2500 | 0.2900 | 0.2600 |
| | 0.2700 | 0.2500 | 0.2800 | 0.2600 | 0.2900 | 0.2700 |
| | 0.2800 | 0.2600 | 0.2900 | 0.2700 | 0.3000 | 0.2800 |
| | 0.2800 | 0.2500 | 0.2900 | 0.2600 | 0.3000 | 0.2700 |
| | CC2 | | DD1 | | DD2 | |
| | 0.2700 | 0.2500 | 0.2800 | 0.2600 | 0.2900 | 0.2700 |
| | 0.2700 | 0.2600 | 0.2800 | 0.2700 | 0.2900 | 0.2800 |
| | 0.2800 | 0.2700 | 0.2900 | 0.2800 | 0.3000 | 0.2900 |
| | 0.2800 | 0.2600 | 0.2900 | 0.2700 | 0.3000 | 0.2800 |
| | EE2 | | FF1 | | FF2 | |
| | 0.2700 | 0.2600 | 0.2800 | 0.2700 | 0.2900 | 0.2800 |
| | 0.2700 | 0.2700 | 0.2800 | 0.2800 | 0.2900 | 0.2900 |
| | 0.2800 | 0.2800 | 0.2900 | 0.2900 | 0.3000 | 0.3000 |
| | 0.2800 | 0.2700 | 0.2900 | 0.2800 | 0.3000 | 0.2900 |
| | GG2 | | HH1 | | HH2 | |
| | 0.2700 | 0.2700 | 0.2800 | 0.2800 | 0.2900 | 0.2900 |
| | 0.2700 | 0.2800 | 0.2800 | 0.2900 | 0.2900 | 0.3000 |
| | 0.2800 | 0.2900 | 0.2900 | 0.3000 | 0.3000 | 0.3100 |
| | 0.2800 | 0.2800 | 0.2900 | 0.2900 | 0.3000 | 0.3000 |

Note: It maintains a tolerance of X,Y ±0.007.



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● **AVAILABLE BIN / HUE TABLE**

| | | | | | |
|------|------|------|------|------|------|
| 1AA2 | 1BB1 | 1BB2 | 1CC2 | 1DD1 | 1DD2 |
| 1EE2 | 1FF1 | 1FF2 | 1GG2 | 1HH1 | 1HH2 |
| 2AA2 | 2BB1 | 2BB2 | 2CC2 | 2DD1 | 2DD2 |
| 2EE2 | 2FF1 | 2FF2 | 2GG2 | 2HH1 | 2HH2 |
| 3AA2 | 3BB1 | 3BB2 | 3CC2 | 3DD1 | 3DD2 |
| 3EE2 | 3FF1 | 3FF2 | 3GG2 | 3HH1 | 3HH2 |
| 4AA2 | 4BB1 | 4BB2 | 4CC2 | 4DD1 | 4DD2 |
| 4EE2 | 4FF1 | 4FF2 | 4GG2 | 4HH1 | 4HH2 |
| 5AA2 | 5BB1 | 5BB2 | 5CC2 | 5DD1 | 5DD2 |
| 5EE2 | 5FF1 | 5FF2 | 5GG2 | 5HH1 | 5HH2 |
| 6AA2 | 6BB1 | 6BB2 | 6CC2 | 6DD1 | 6DD2 |
| 6EE2 | 6FF1 | 6FF2 | 6GG2 | 6HH1 | 6HH2 |
| 7AA2 | 7BB1 | 7BB2 | 7CC2 | 7DD1 | 7DD2 |
| 7EE2 | 7FF1 | 7FF2 | 7GG2 | 7HH1 | 7HH2 |
| 8AA2 | 8BB1 | 8BB2 | 8CC2 | 8DD1 | 8DD2 |
| 8EE2 | 8FF1 | 8FF2 | 8GG2 | 8HH1 | 8HH2 |

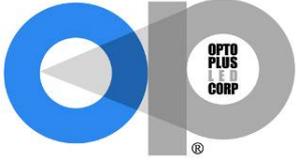


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● **CHROMATICITY COORDINATE:**





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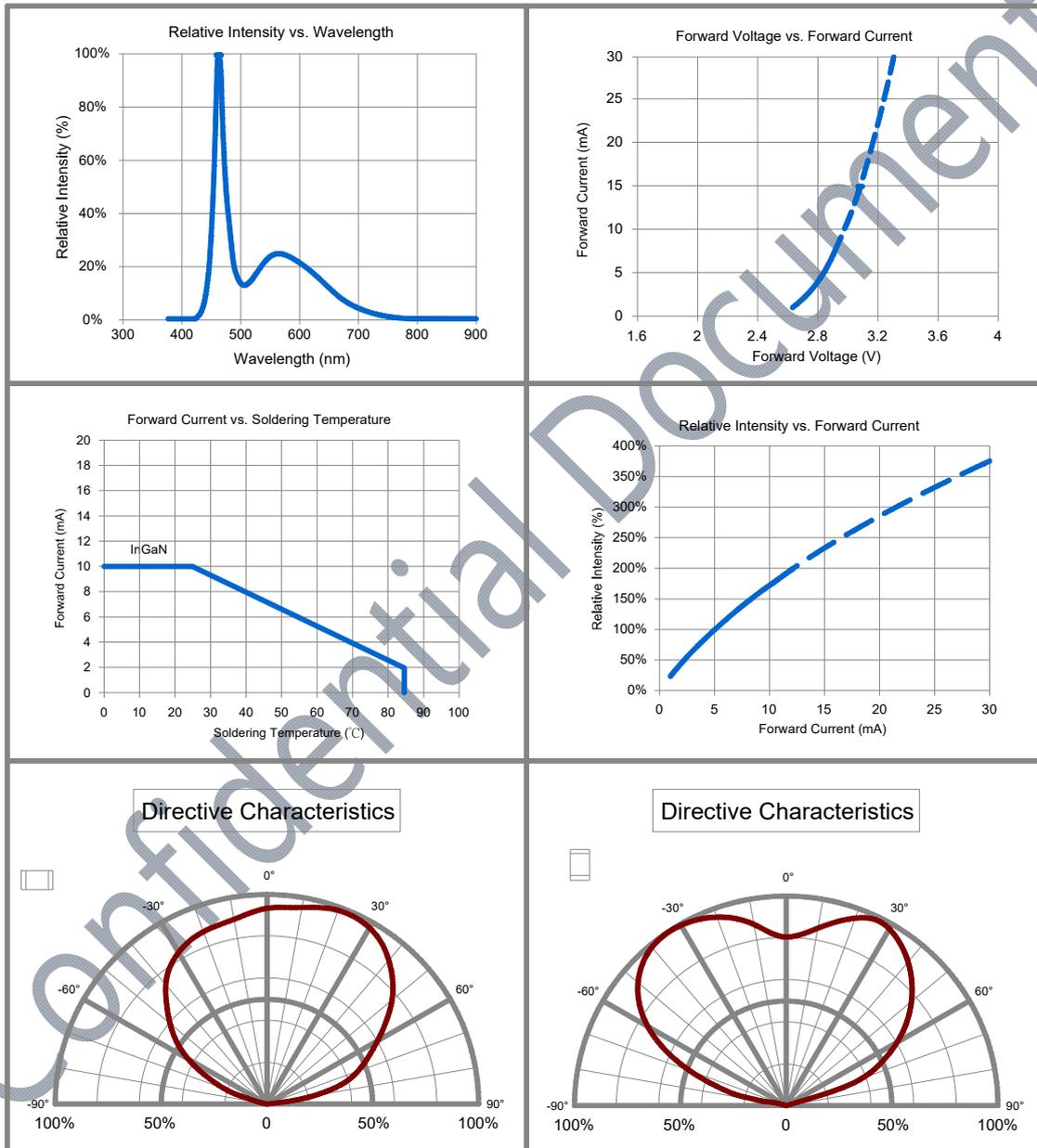
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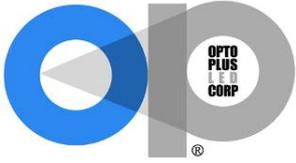
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OPS-D5612W-STT(R)-1.5-G(B)W

● W: SUPER BRIGHT WHITE (InGaN/GaN) CURVE

Typical Electro-optical Characteristic Curves
(25 °C Free Air Temperature Unless Otherwise Specified)





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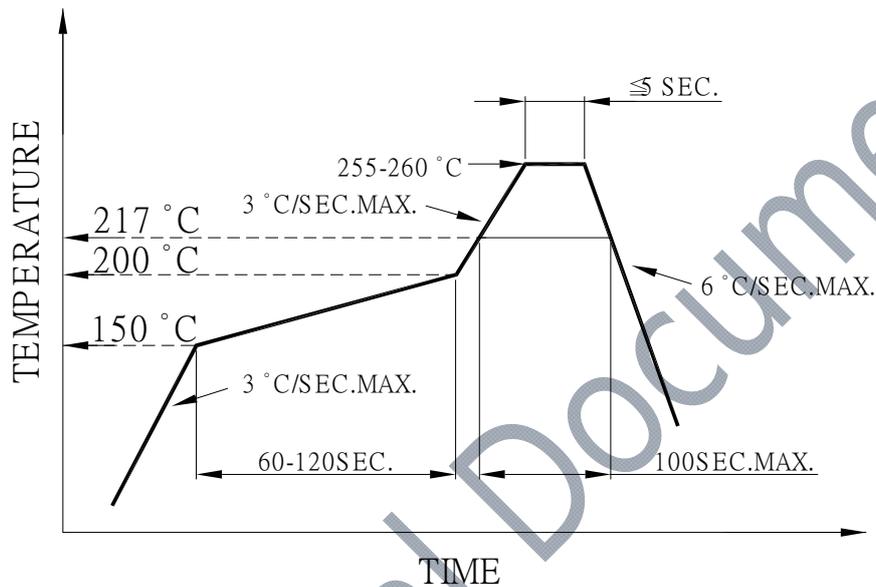
OPS-D5611W-STT(R)-1.5-G(B)W

OPS-D5612W-STT(R)-1.5-G(B)W

● SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



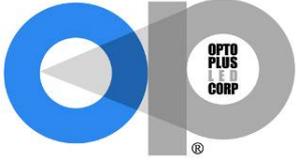
- We recommend the reflow temperature 245°C (+/- 5°C).
The maximum soldering temperature should be limited to 260°C.
- Number of reflow process shall be 2 times or less.

● SOLDERING IRON

Basic spec is ≤ 4 sec when 260°C. If temperature is higher, time should be shorter (+10°C → 1 sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230°C.

● REWORK

- Customer must finish rework within 3 sec. under 350°C.
- The head of soldering iron cannot touch copper foil.



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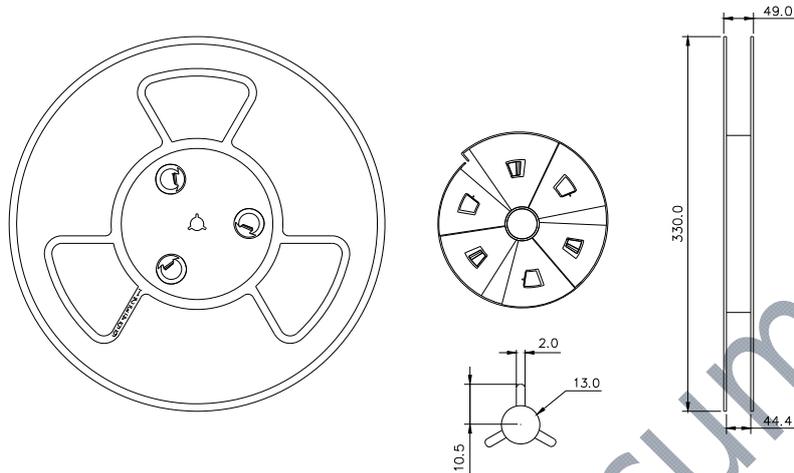
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● REEL DIMENSIONS



● PACKING & LABEL SPECIFICATIONS

| OPS-D5612(1)XX-STT-1.5-BW Top Mount | OPS-D5612(1)XX-STR-1.5-BW Reverse Mount | OPS-D5612(1)XX-STT-1.5-BW OPS-D5612(1)XX-STR-1.5-BW |
|--|--|--|
| <p style="text-align: center;">Circle</p> <p style="text-align: center;">700PCS / 1REEL</p> <p style="text-align: center;">Ellipse</p> | <p style="text-align: center;">Circle</p> <p style="text-align: center;">700PCS / 1REEL</p> <p style="text-align: center;">Ellipse</p> | <p style="text-align: center;">1REEL / 1 SILVER ESD BAG 450X430 mm</p> <p style="text-align: center;">OUTSIDE LABEL</p> <p style="text-align: center;">5REEL / 1BOX 3500PCS / 1BOX BOX SIZE: 430X390X300 mm</p> |

● STORAGE CONDITION

In factory original sealed bag package

| | |
|-----------------------|--------------------|
| TEMPERATURE CONDITION | HUMIDITY CONDITION |
| 5°C ~ 30°C | Below 60%RH |

After opened and not in factory original sealed bag package

| | | |
|-----------------------|--------------------|----------------------------------|
| TEMPERATURE CONDITION | HUMIDITY CONDITION | STORAGE TIME |
| 5°C ~ 30°C | Below 60%RH | Within 4 weeks (MSL as level 2a) |