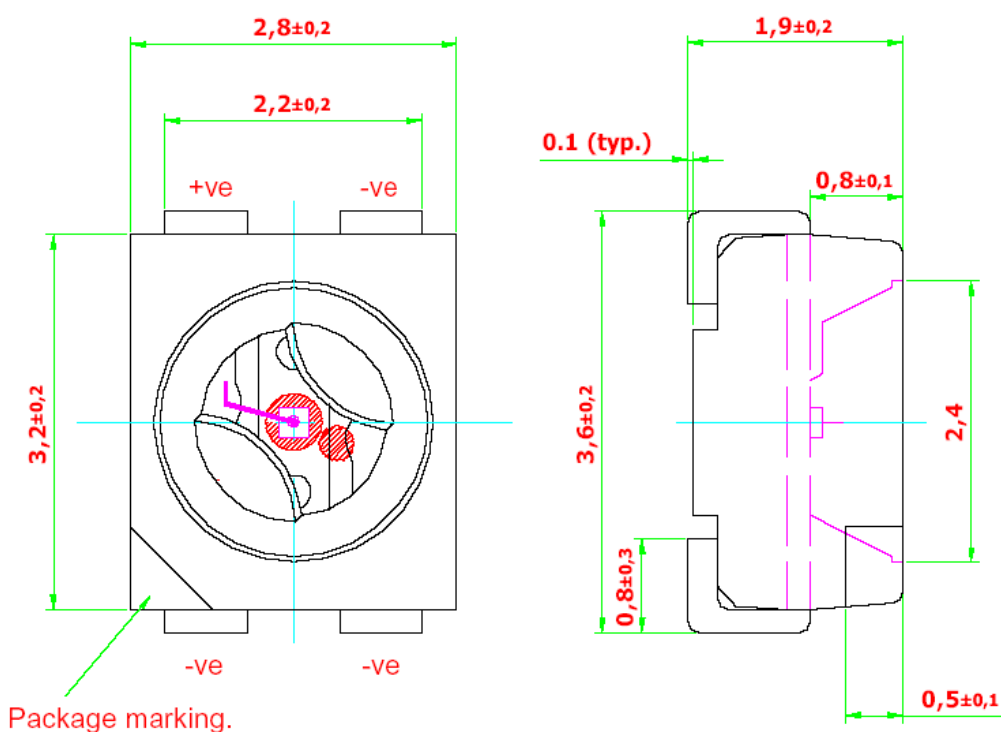




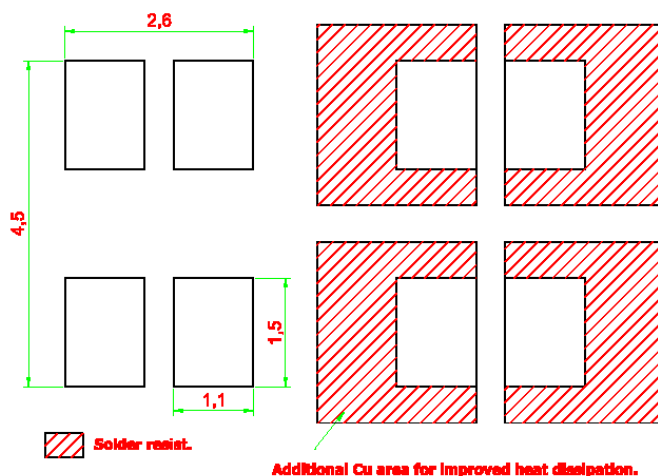
● **Feature:**

1. High brightness surface mount LED.
2. 120° viewing angle.
3. Small package outline (LxWxH) of 2.8 x 3.2 x 1.8 mm.
4. Qualified according to JEDEC moisture sensitivity Level 2.
5. Compatible to both IR reflow soldering and TTW soldering.

● **Package Dimension:**



Recommended Solder Pad



**● Optical Characteristics:**

| Part Number                                                                                                                       | Chip Technology<br>Color    | Viewing<br>Angle | Luminous Intensity @ If @ 30mA<br>Iv ( mcd ) |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------|----------------------------------------------|
| <b>BL-PWB-SJS-C20</b> <ul style="list-style-type: none"><li>• BIN Q2</li><li>• BIN R1</li><li>• BIN R2</li></ul>                  | InGaN /<br><br>Blue, 470 nm | <b>120</b>       | <b>90.0 ... 180.0</b>                        |
|                                                                                                                                   |                             |                  | 90.0 ... 112.5                               |
|                                                                                                                                   |                             |                  | 112.5 ... 140.0                              |
|                                                                                                                                   |                             |                  | 140.0 ... 180.0                              |
| <b>BL-PWB-SJS-C10</b> <ul style="list-style-type: none"><li>• BIN R1</li><li>• BIN R2</li><li>• BIN S1</li></ul>                  |                             |                  | <b>112.5 ... 224.0</b>                       |
|                                                                                                                                   |                             |                  | 112.5 ... 140.0                              |
|                                                                                                                                   |                             |                  | 140.0 ... 180.0                              |
|                                                                                                                                   |                             |                  | 180.0 ... 224.0                              |
| <b>BL-PWB-UJS-C10</b> <ul style="list-style-type: none"><li>• BIN R2</li><li>• BIN S1</li><li>• BIN S2</li></ul>                  |                             |                  | <b>140.0 ... 285.0</b>                       |
|                                                                                                                                   |                             |                  | 140.0 ... 180.0                              |
|                                                                                                                                   |                             |                  | 180.0 ... 224.0                              |
|                                                                                                                                   |                             |                  | 224.0 ... 285.0                              |
| <b>BL-PWC-CJS-C10</b> <ul style="list-style-type: none"><li>• BIN S1</li><li>• BIN S2</li><li>• BIN T1</li><li>• BIN T2</li></ul> | InGaN /<br><br>Cyan, 505nm  | <b>120</b>       | <b>180.0 ... 450.0</b>                       |
|                                                                                                                                   |                             |                  | 180.0 ... 224.0                              |
|                                                                                                                                   |                             |                  | 224.0 ... 285.0                              |
|                                                                                                                                   |                             |                  | 285.0 ... 355.0                              |
|                                                                                                                                   |                             |                  | 355.0 ... 450.0                              |
| <b>BL-PWC-SJS-C10</b> <ul style="list-style-type: none"><li>• BIN T1</li><li>• BIN T2</li><li>• BIN U1</li><li>• BIN U2</li></ul> |                             |                  | <b>285.0 ... 715.0</b>                       |
|                                                                                                                                   |                             |                  | 285.0 ... 355.0                              |
|                                                                                                                                   |                             |                  | 355.0 ... 450.0                              |
|                                                                                                                                   |                             |                  | 450.0 ... 560.0                              |
|                                                                                                                                   |                             |                  | 560.0 ... 715.0                              |
| <b>BL-PWC-SJS-C20</b> <ul style="list-style-type: none"><li>• BIN U1</li><li>• BIN U2</li><li>• BIN V1</li><li>• BIN V2</li></ul> |                             |                  | <b>450.0 ... 1125.0</b>                      |
|                                                                                                                                   |                             |                  | 450.0 ... 560.0                              |
|                                                                                                                                   |                             |                  | 560.0 ... 715.0                              |
|                                                                                                                                   |                             |                  | 715.0 ... 900.0                              |
|                                                                                                                                   |                             |                  | 900.0 ... 1125.0                             |
| <b>BL-PWC-UJS-C10</b> <ul style="list-style-type: none"><li>• BIN U1</li><li>• BIN U2</li><li>• BIN V1</li><li>• BIN V2</li></ul> |                             |                  | <b>450.0 ... 1125.0</b>                      |
|                                                                                                                                   |                             |                  | 450.0 ... 560.0                              |
|                                                                                                                                   |                             |                  | 560.0 ... 715.0                              |
|                                                                                                                                   |                             |                  | 715.0 ... 900.0                              |
|                                                                                                                                   |                             |                  | 900.0 ... 1125.0                             |

**● Optical Characteristics:**

| Part Number                                                                                                                       | Chip Technology<br>Color          | Viewing<br>Angle | Luminous Intensity @ If @ 30mA<br>Iv ( mcd )                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------|----------------------------------------------------------------------------------------------------------|
| <b>BL-PWT-CJS-C10</b> <ul style="list-style-type: none"><li>• BIN S1</li><li>• BIN S2</li><li>• BIN T1</li><li>• BIN T2</li></ul> | InGaN /<br><br>True Green, 525nm  | <b>120</b>       | <b>180.0 ... 450.0</b><br><br>180.0 ... 224.0<br>224.0 ... 285.0<br>285.0 ... 355.0<br>355.0 ... 450.0   |
| <b>BL-PWT-SJS-C10</b> <ul style="list-style-type: none"><li>• BIN T1</li><li>• BIN T2</li><li>• BIN U1</li><li>• BIN U2</li></ul> |                                   |                  | <b>285.0 ... 715.0</b><br><br>285.0 ... 355.0<br>355.0 ... 450.0<br>450.0 ... 560.0<br>560.0 ... 715.0   |
| <b>BL-PWT-SJS-C20</b> <ul style="list-style-type: none"><li>• BIN U1</li><li>• BIN U2</li><li>• BIN V1</li><li>• BIN V2</li></ul> |                                   |                  | <b>450.0 ... 1125.0</b><br><br>450.0 ... 560.0<br>560.0 ... 715.0<br>715.0 ... 900.0<br>900.0 ... 1125.0 |
| <b>BL-PWT-UJS-C10</b> <ul style="list-style-type: none"><li>• BIN U1</li><li>• BIN U2</li><li>• BIN V1</li><li>• BIN V2</li></ul> |                                   |                  | <b>450.0 ... 1125.0</b><br><br>450.0 ... 560.0<br>560.0 ... 715.0<br>715.0 ... 900.0<br>900.0 ... 1125.0 |
| <b>BL-PWW-SJD-C10</b> <ul style="list-style-type: none"><li>• BIN T1</li><li>• BIN T2</li><li>• BIN U1</li><li>• BIN U2</li></ul> | InGaN /<br><br>White (0.31, 0.31) | <b>120</b>       | <b>285.0 ... 715.0</b><br><br>285.0 ... 355.0<br>355.0 ... 450.0<br>450.0 ... 560.0<br>560.0 ... 715.0   |
| <b>BL-PWW-UJD-C10</b> <ul style="list-style-type: none"><li>• BIN U1</li><li>• BIN U2</li><li>• BIN V1</li><li>• BIN V2</li></ul> |                                   |                  | <b>450.0 ... 1125.0</b><br><br>450.0 ... 560.0<br>560.0 ... 715.0<br>715.0 ... 900.0<br>900.0 ... 1125.0 |

Note:

1. Other luminous intensity groups are also available upon request.
2. Luminous intensity is measured with an accuracy of  $\pm 11\%$ .
3. Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.
4. *InGaN wavelength is very sensitive to drive current. Operating at lower current is not recommended and may yield unpredictable performance Current pulsing should be used for dimming purposes.*
5. An optional Vf binning is also available upon request. Binning scheme is as per following table.

**● Absolute Maximum Ratings:**

| Parameter                                                       | Maximum Value | Unit |
|-----------------------------------------------------------------|---------------|------|
| DC forward current.                                             | 30            | mA   |
| Peak pulse current; ( $t_p \leq 10 \mu s$ , Duty cycle = 0.005) | 200           | mA   |
| Reverse voltage; $I_r$ (max) = $10 \mu A$ .                     | 5             | V    |
| LED junction temperature.                                       | 125           | °C   |
| Operating temperature.                                          | -40 ... +100  | °C   |
| Storage temperature.                                            | -40 ... +100  | °C   |
| Power dissipation ( at room temperature )                       | 135           | mW   |

**● Vf Binning:**

| Vf Bin @ 30mA | Forward voltage (V)       |
|---------------|---------------------------|
| Standard      | 3.9 (typical), 4.55 (max) |
| 30            | 3.35 ... 3.65             |
| 31            | 3.65 ... 3.95             |
| 32            | 3.95 ... 4.25             |
| 33            | 4.25 ... 4.55             |

Forward voltage, Vf is measured with an accuracy of  $\pm 0.1$  V.

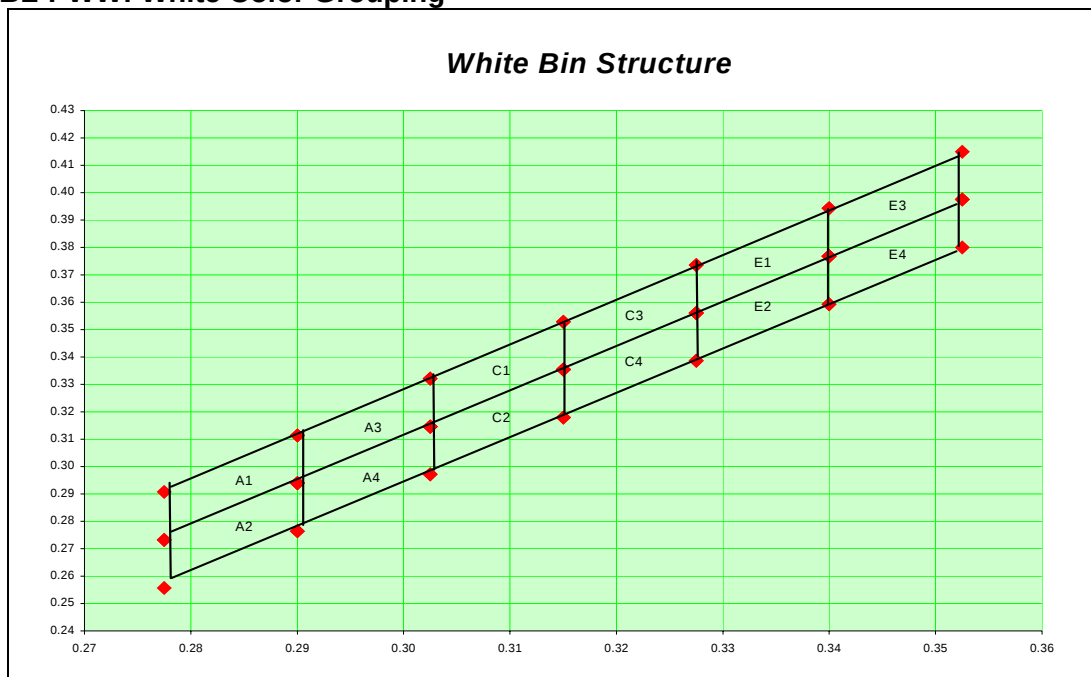
**● Wavelength Grouping:**

| Color              | Group | Wavelength (nm) @ 30mA |
|--------------------|-------|------------------------|
| BL-PWB; Blue       | Full  | 464 - 476              |
|                    | W     | 464 - 468              |
|                    | X     | 468 - 472              |
|                    | Y     | 472 - 476              |
|                    | Z     | 476 - 480              |
| BL-PWC; Cyan       | Full  | 499 - 511              |
|                    | W     | 499 - 503              |
|                    | X     | 503 - 507              |
|                    | Y     | 507 - 511              |
| BL-PWT; True Green | Full  | 520 - 536              |
|                    | W     | 520 - 524              |
|                    | X     | 524 - 528              |
|                    | Y     | 528 - 532              |
|                    | Z     | 532 - 536              |

Wavelength is measured with an accuracy of  $\pm 1$  nm.



### ● BL-PWW: White Color Grouping



Chromaticity coordinate groups are measured with an accuracy of  $\pm 0.01$ .

| Bin | W  |        |        |        |        | Bin | X  |        |        |        |        |
|-----|----|--------|--------|--------|--------|-----|----|--------|--------|--------|--------|
| A1  | Cx | 0.2775 | 0.2900 | 0.2900 | 0.2775 | E1  | Cx | 0.3275 | 0.3400 | 0.3400 | 0.3275 |
|     | Cy | 0.2732 | 0.2939 | 0.3114 | 0.2907 |     | Cy | 0.3561 | 0.3768 | 0.3943 | 0.3736 |
| A2  | Cx | 0.2775 | 0.2900 | 0.2900 | 0.2775 | E2  | Cx | 0.3275 | 0.3400 | 0.3400 | 0.3275 |
|     | Cy | 0.2557 | 0.2764 | 0.2939 | 0.2732 |     | Cy | 0.3386 | 0.3593 | 0.3768 | 0.3561 |
| A3  | Cx | 0.2900 | 0.3025 | 0.3025 | 0.2900 | E3  | Cx | 0.3400 | 0.3525 | 0.3525 | 0.3400 |
|     | Cy | 0.2939 | 0.3146 | 0.3321 | 0.3114 |     | Cy | 0.3768 | 0.3975 | 0.4150 | 0.3943 |
| A4  | Cx | 0.2900 | 0.3025 | 0.3025 | 0.2900 | E4  | Cx | 0.3400 | 0.3525 | 0.3525 | 0.3400 |
|     | Cy | 0.2764 | 0.2971 | 0.3146 | 0.2939 |     | Cy | 0.3593 | 0.3800 | 0.3975 | 0.3768 |
| C1  | Cx | 0.3025 | 0.3150 | 0.3150 | 0.3025 |     |    |        |        |        |        |
|     | Cy | 0.3146 | 0.3354 | 0.3529 | 0.3321 |     |    |        |        |        |        |
| C2  | Cx | 0.3025 | 0.3150 | 0.3150 | 0.3025 |     |    |        |        |        |        |
|     | Cy | 0.2971 | 0.3179 | 0.3354 | 0.3146 |     |    |        |        |        |        |
| C3  | Cx | 0.3150 | 0.3275 | 0.3275 | 0.3150 |     |    |        |        |        |        |
|     | Cy | 0.3354 | 0.3561 | 0.3736 | 0.3529 |     |    |        |        |        |        |
| C4  | Cx | 0.3150 | 0.3275 | 0.3275 | 0.3150 |     |    |        |        |        |        |
|     | Cy | 0.3179 | 0.3386 | 0.3561 | 0.3354 |     |    |        |        |        |        |



### ● Typical electro-optical characteristics curves:

Fig.1 Relative luminous intensity vs. forward current.

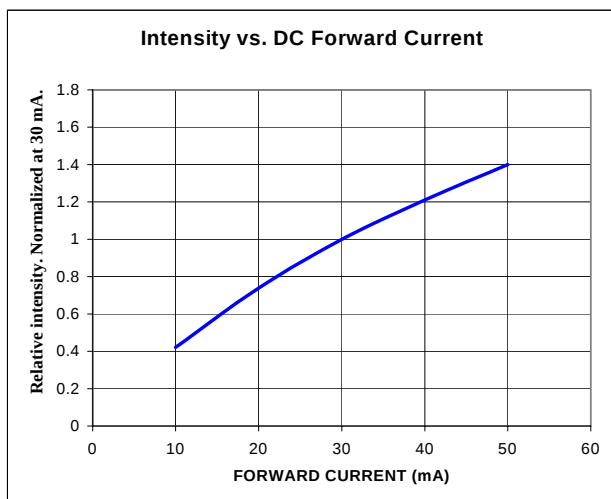


Fig.2 Forward current vs. forward voltage.

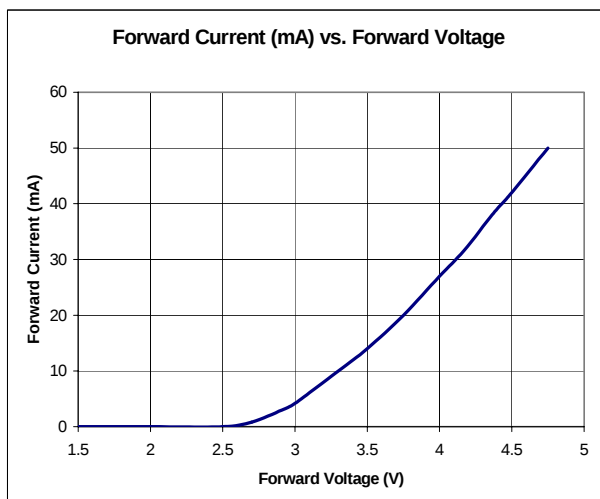


Fig.3 Radiation pattern.

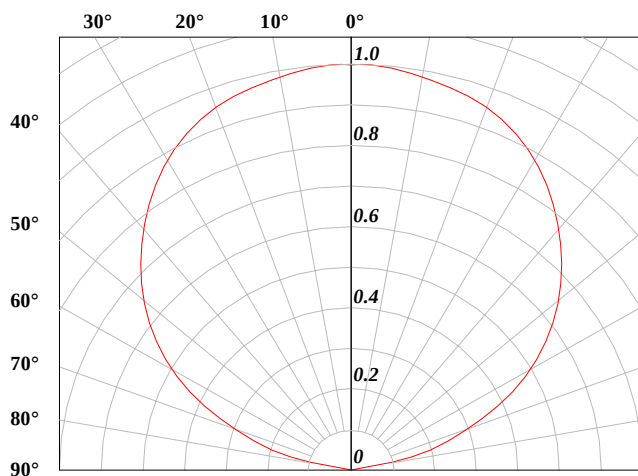


Fig.4 Maximum forward current vs. temperature.

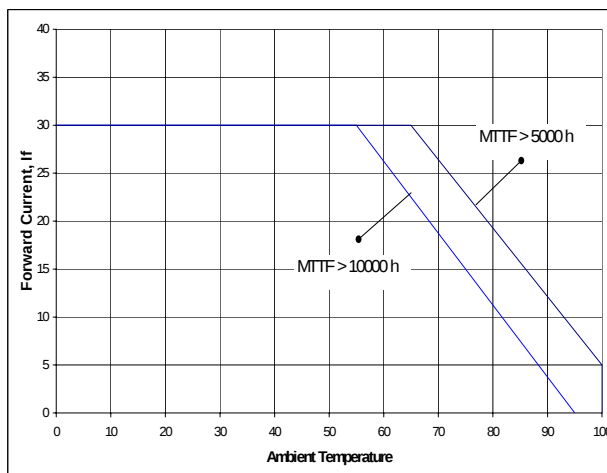


Fig.5 Relative Intensity vs Wavelength

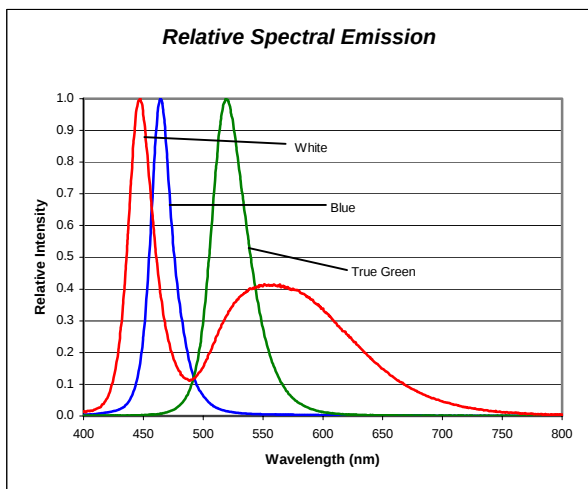
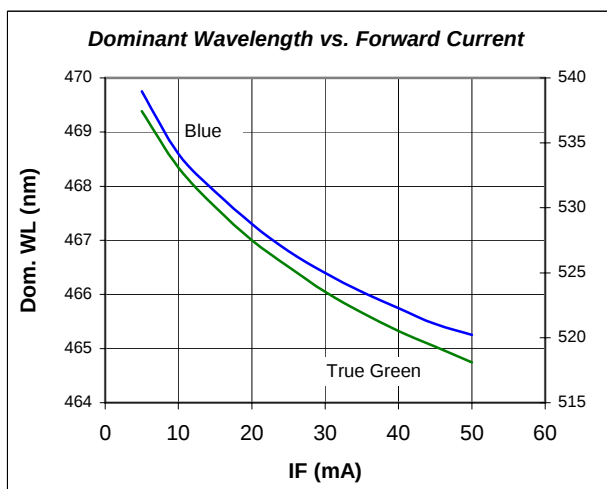


Fig.6 Dominant Wavelength vs Forward Current



**Classification Reflow Profile (JEDEC J-STD-020B)**

The graph illustrates the temperature profile for a classification reflow process. The Y-axis represents Temperature in degrees Celsius (°C), ranging from 25 to 275. The X-axis represents Time in seconds (sec), ranging from 0 to 200. The profile is defined by the following parameters:

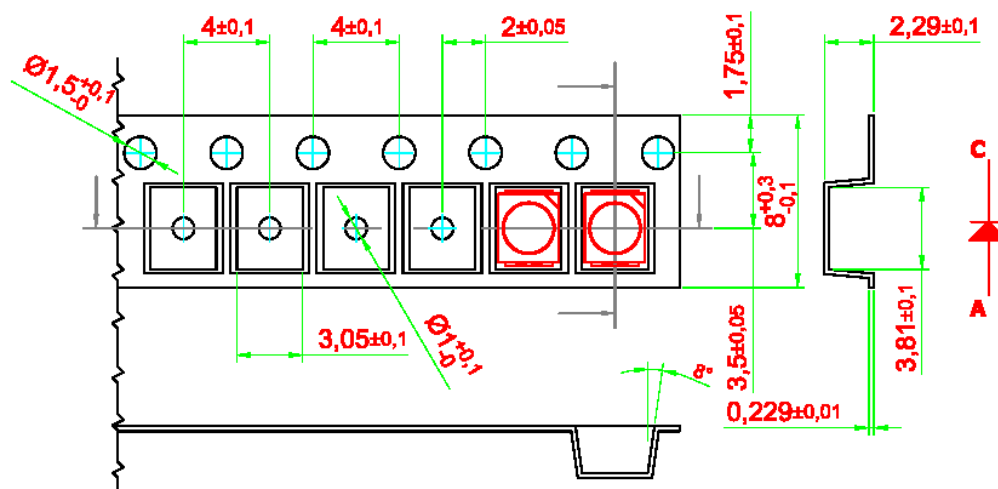
- Preheat:** 60-120s, 360s max.
- Ramp-up:** 3 °C/sec max.
- Soak:** 183 °C, 60-150s.
- Peak:** 235-240°C, 10-30s.
- Ramp-down:** 6 °C/sec max.



● Taping And Orientation:

Reels come in quantity of 2000 units.

Reel diameter is 180 mm.



200 mm min. for Ø180 reel.

480 mm min. for Ø180 reel.

200 mm min. for Ø330 reel.

960 mm min. for Ø330 reel.

