

Domiled

Synonymous with function and performance, the Domiled series is perfectly suited for a variety of cross-industrial applications due to its small package outline, durability and superior brightness.



Features:

- > High brightness surface mount LED.
- > Based on InGaN / Sapphire technology.
- > 120° viewing angle.
- > Small package outline (LxWxH) of 3.2 x 2.8 x 1.8mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.



Applications:

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Communication: indicator and backlight in mobilephone.
- > Display: full color display video notice board.
- > Industry: white goods (eg: Oven, microwave, etc.).



Optical Characteristics at Tj=25°C

| Part Ordering Number | Viewing Angle° | Luminous Intensity @ 10mA IV (mcd) <i>Appx. 1.1</i> | | |
|----------------------|----------------|---|-------|-------|
| | | Min. | Typ. | Max. |
| DDZB-DJG-QR2-1-I1 | 120 | 71.5 | 112.5 | 180.0 |

Electrical Characteristics at Tj=25°C

| Part Number | Vf @ If = 10mA <i>Appx. 3.1</i> | | | Vr @ Ir = 10 µA <i>Appx. 6.1</i> | |
|-------------|---------------------------------|----------|----------|----------------------------------|--|
| | Min. (V) | Typ. (V) | Max. (V) | Min. (V) | |
| DDZB-DJG | 2.7 | 3.0 | 3.5 | 5 | |

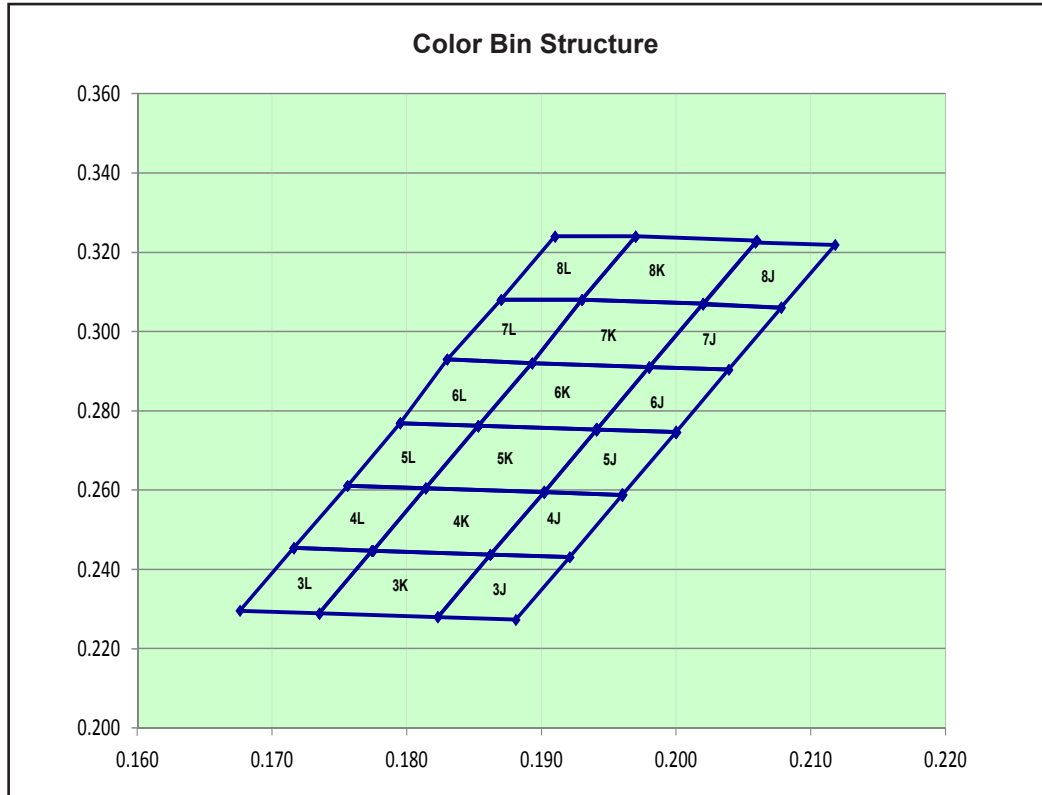
Absolute Maximum Ratings

| | Maximum Value | Unit |
|---|---------------|------|
| DC forward current | 20 | mA |
| Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.005) | 100 | mA |
| Reverse voltage <i>Appx. 6.1</i> | 5 | V |
| ESD threshold (HBM) | 2000 | V |
| LED junction temperature | 125 | °C |
| Operating temperature | -40 ... +100 | °C |
| Storage temperature | -40 ... +100 | °C |
| Power dissipation (at room temperature) | 80 | mW |
| Thermal resistance | | |
| - Junction / ambient, R _{th JA} | 340 | K/W |
| - Junction / solder point, R _{th JS} | 180 | K/W |
| (Mounting on FR4 PCB, pad size ≥ 16mm ² per pad) | | |

Characteristics

| | Symbol | Part Number | Value | Unit |
|--|-----------|-------------|----------|--------|
| Temperature coefficient of V_F (typ) $I_F = 10\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$ | TC_V | DDZB-DJG | -1.70 | mV / K |
| Temperature coefficient of I_V (typ) $I_F = 10\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$ | TC_{IV} | DDZB-DJG | -0.35 | % / K |
| Temperature coefficient of C_x (typ) $I_F = 10\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$ | TC_{Cx} | DDZB-DJG | -0.00008 | |
| Temperature coefficient of C_y (typ) $I_F = 10\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$ | TC_{Cy} | DDZB-DJG | -0.00005 | |

Color Grouping *Appx. 2.1*



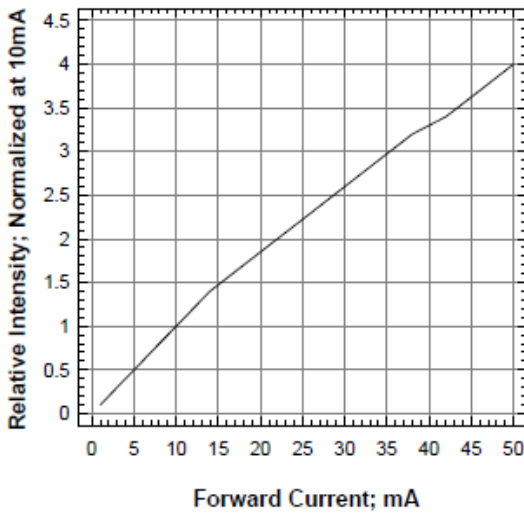
| Bin | | 1 | 2 | 3 | 4 |
|-----|----|--------|--------|--------|--------|
| 3J | Cx | 0.1862 | 0.1823 | 0.1881 | 0.1921 |
| | Cy | 0.2437 | 0.2280 | 0.2273 | 0.2431 |
| 3K | Cx | 0.1774 | 0.1735 | 0.1823 | 0.1862 |
| | Cy | 0.2447 | 0.2289 | 0.2280 | 0.2437 |
| 3L | Cx | 0.1716 | 0.1676 | 0.1735 | 0.1774 |
| | Cy | 0.2454 | 0.2296 | 0.2289 | 0.2447 |
| 4J | Cx | 0.1902 | 0.1862 | 0.1921 | 0.1960 |
| | Cy | 0.2595 | 0.2437 | 0.2431 | 0.2588 |
| 4K | Cx | 0.1814 | 0.1775 | 0.1862 | 0.1902 |
| | Cy | 0.2605 | 0.2447 | 0.2437 | 0.2595 |
| 4L | Cx | 0.1756 | 0.1716 | 0.1775 | 0.1814 |
| | Cy | 0.2611 | 0.2454 | 0.2447 | 0.2605 |
| 5J | Cx | 0.1941 | 0.1902 | 0.1960 | 0.2000 |
| | Cy | 0.2753 | 0.2595 | 0.2588 | 0.2746 |
| 5K | Cx | 0.1853 | 0.1814 | 0.1902 | 0.1941 |
| | Cy | 0.2762 | 0.2605 | 0.2595 | 0.2753 |
| 5L | Cx | 0.1795 | 0.1756 | 0.1814 | 0.1853 |
| | Cy | 0.2769 | 0.2611 | 0.2605 | 0.2762 |
| 6J | Cx | 0.1980 | 0.1941 | 0.2000 | 0.2039 |
| | Cy | 0.2910 | 0.2753 | 0.2746 | 0.2904 |
| 6K | Cx | 0.1893 | 0.1853 | 0.1941 | 0.1980 |
| | Cy | 0.2920 | 0.2762 | 0.2753 | 0.2910 |
| 6L | Cx | 0.1830 | 0.1795 | 0.1853 | 0.1893 |
| | Cy | 0.2930 | 0.2769 | 0.2762 | 0.2920 |

| Bin | | 1 | 2 | 3 | 4 |
|------------|----|----------|----------|----------|----------|
| 7J | Cx | 0.2020 | 0.1980 | 0.2039 | 0.2078 |
| | Cy | 0.3070 | 0.2910 | 0.2904 | 0.3060 |
| 7K | Cx | 0.1930 | 0.1893 | 0.1980 | 0.2020 |
| | Cy | 0.3080 | 0.2920 | 0.2910 | 0.3070 |
| 7L | Cx | 0.1870 | 0.1830 | 0.1893 | 0.1930 |
| | Cy | 0.3080 | 0.2930 | 0.2920 | 0.3080 |
| 8J | Cx | 0.2059 | 0.2020 | 0.2078 | 0.2118 |
| | Cy | 0.3225 | 0.3068 | 0.3061 | 0.3219 |
| 8K | Cx | 0.1970 | 0.1930 | 0.2020 | 0.2060 |
| | Cy | 0.3240 | 0.3080 | 0.3070 | 0.3230 |
| 8L | Cx | 0.1910 | 0.1870 | 0.1930 | 0.1970 |
| | Cy | 0.3240 | 0.3080 | 0.3080 | 0.3240 |

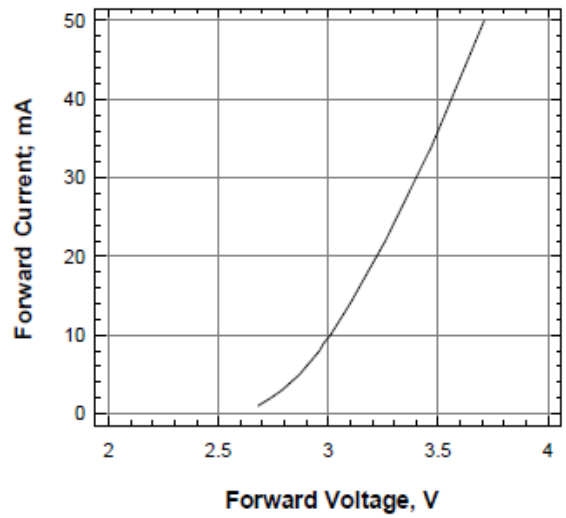
Luminous Intensity Group at Tj=25°C

| Brightness Group | Luminous Intensity <small>Appx. 1.1</small> IV (mcd) |
|------------------|---|
| Q1 | 71.5 ... 90.0 |
| Q2 | 90.0 ... 112.5 |
| R1 | 112.5 ... 140.0 |
| R2 | 140.0 ... 180.0 |

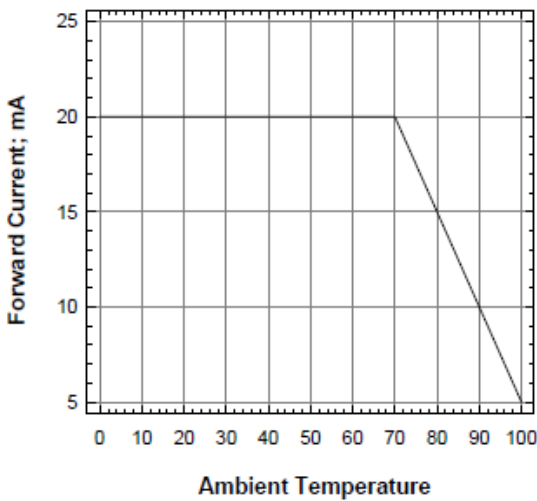
Relative Intensity Vs Forward Current



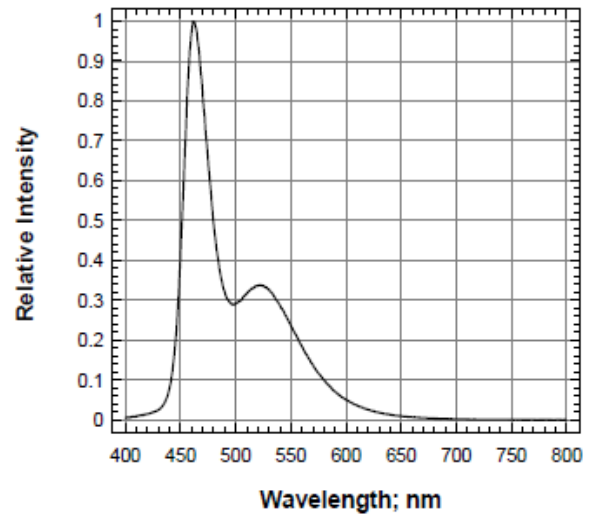
Forward Current Vs Forward Voltage



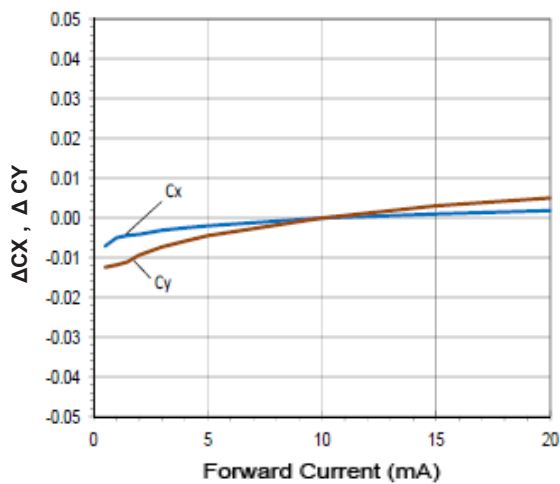
Maximum Current Vs Ambient Temperature



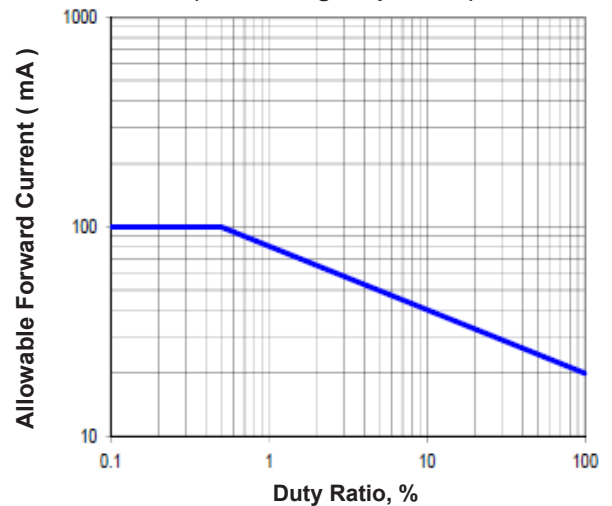
Relative Intensity Vs Wavelength



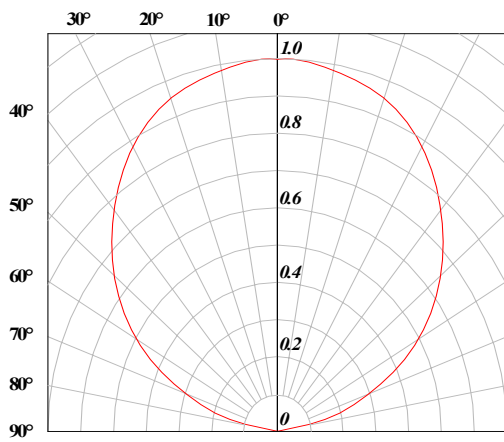
Chromaticity Coordinate Shift



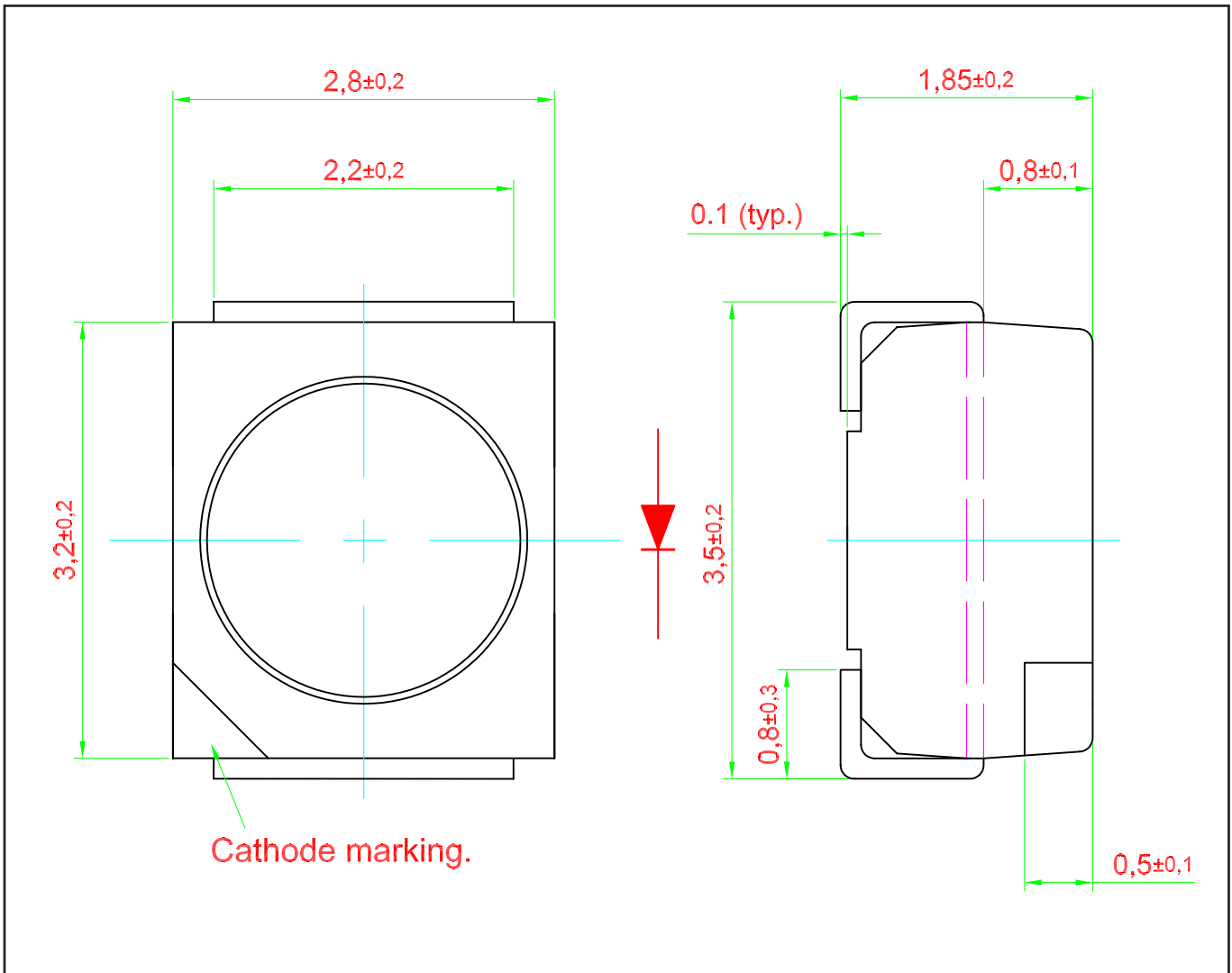
Allowable Forward Current Vs Duty Ratio
 (Ta=25 Deg C, tp≤10uS)



Radiation Pattern



DomiLED • InGaN : DDZB-DJG-1-I1 Package Outlines

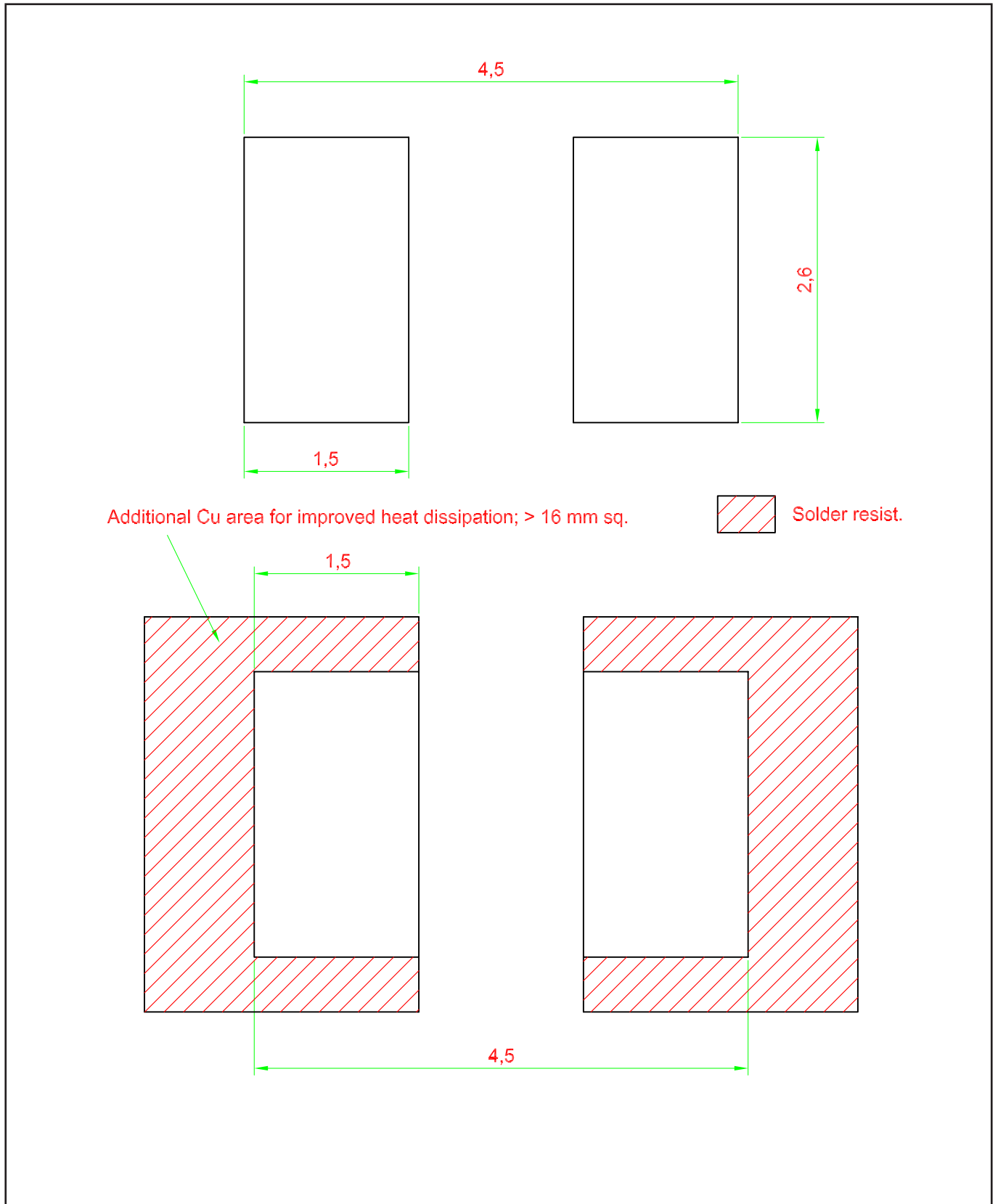


Materials

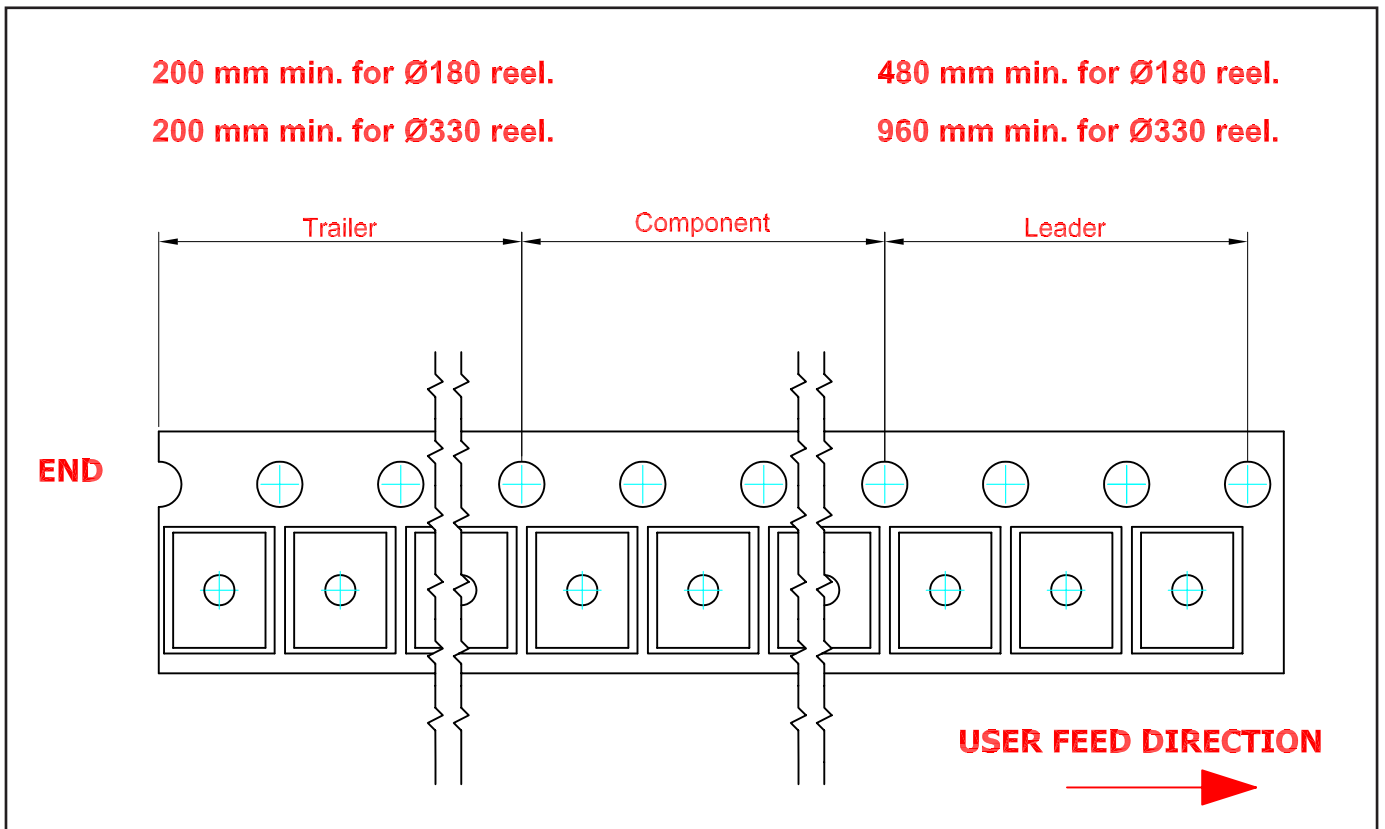
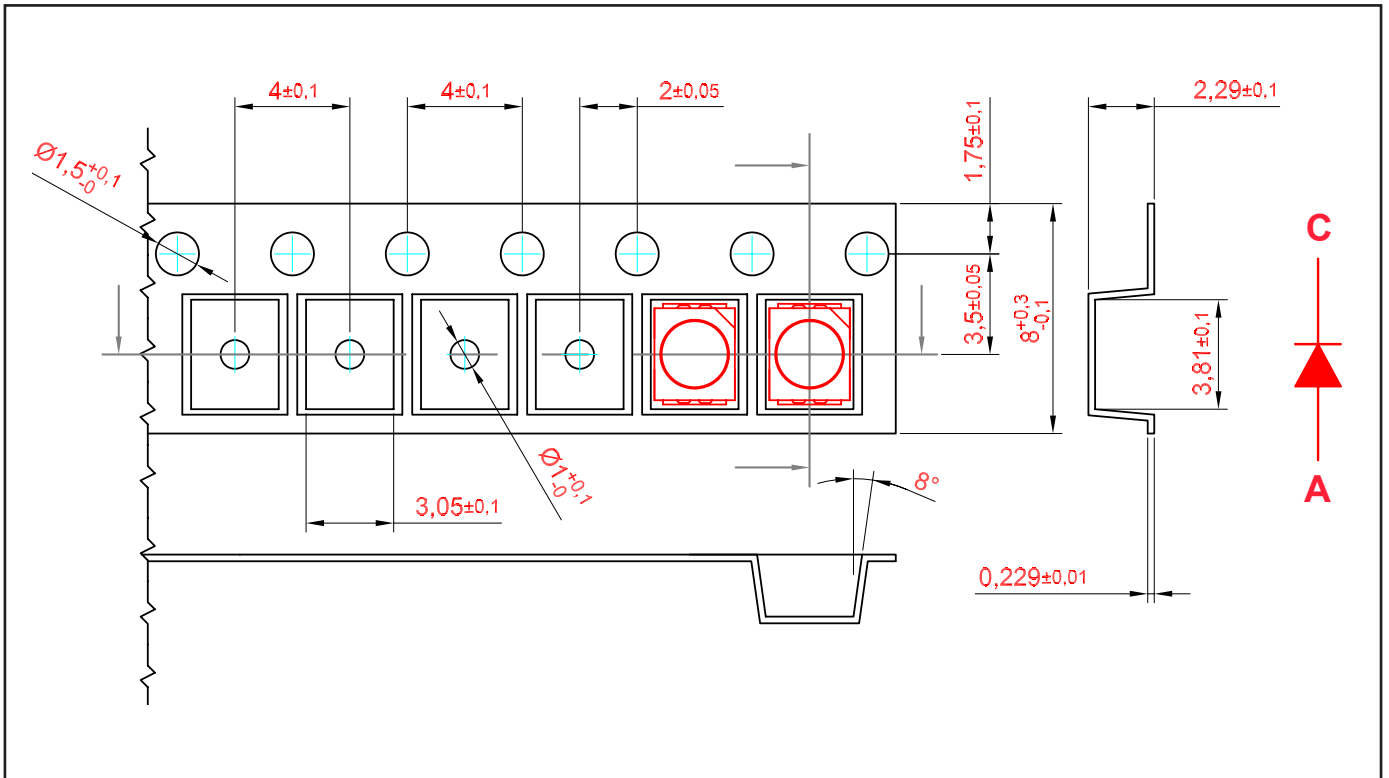
| Materials | |
|----------------|---|
| Lead Frame | Cu Alloy With Ag Plating |
| Housing | High temperature resistant plastic, PPA |
| Encapsulant | Silicone Resin |
| Lead-finishing | Sn Plating |

Note: Package is Pb-free.

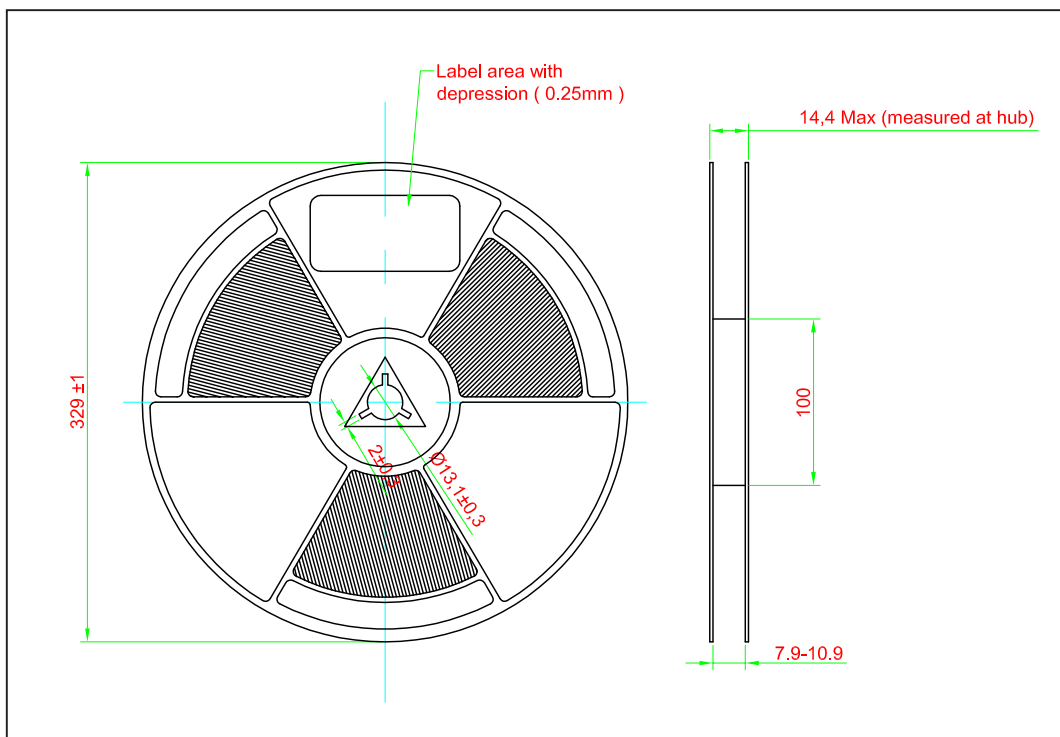
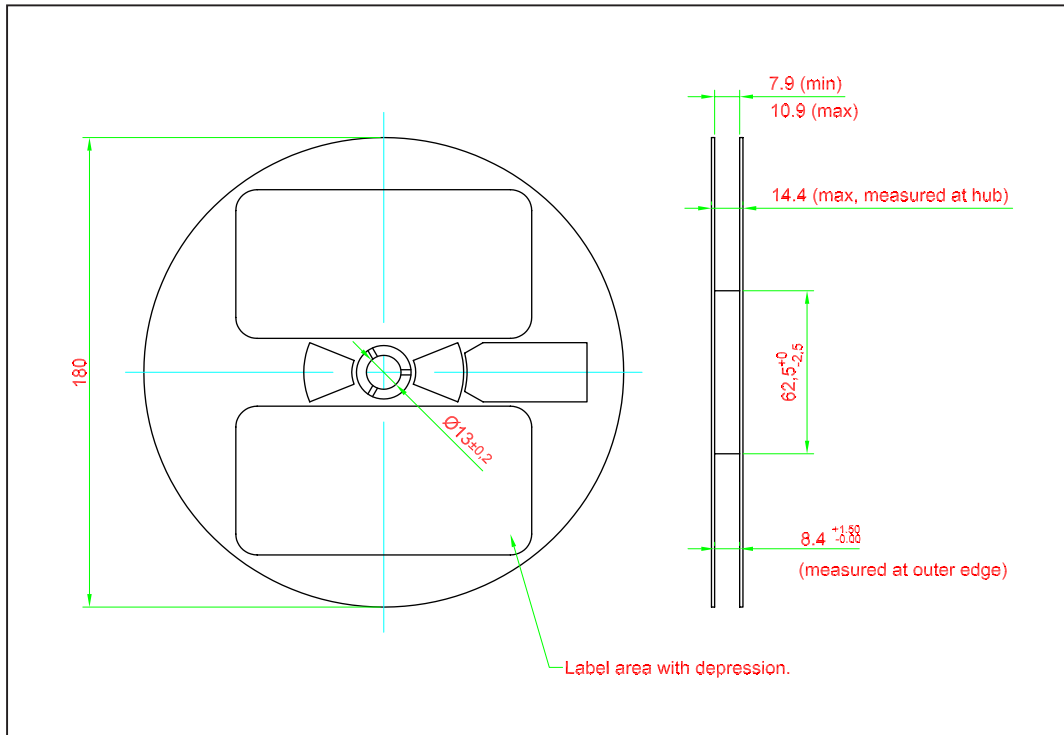
Recommended Solder Pad



Taping and orientation

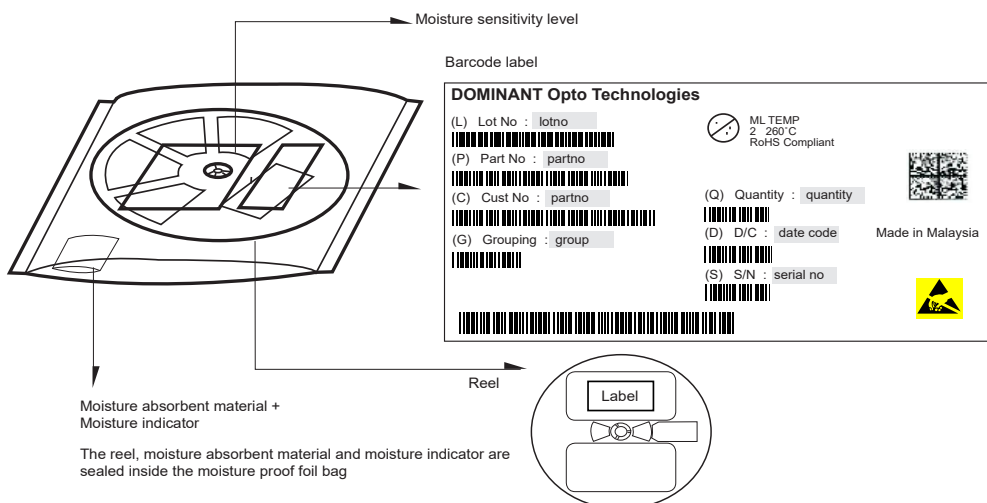


Packaging Specification

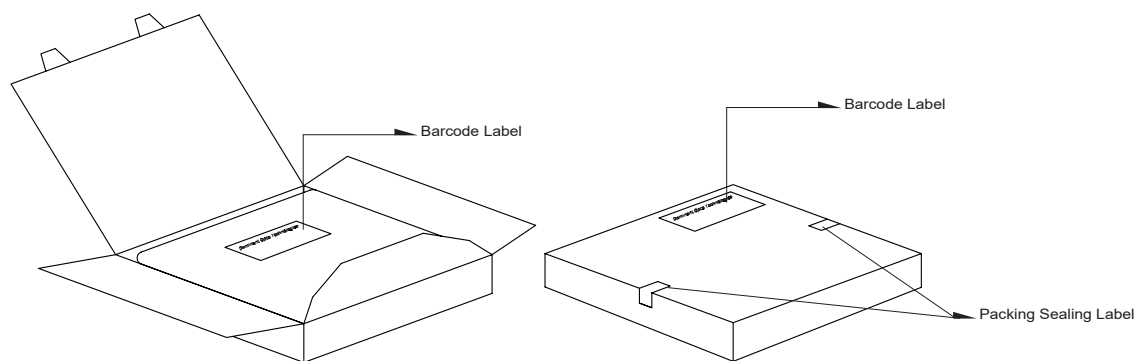


| | Reel Diameter (mm) | Quantity (pcs) | Partno |
|------------------|--------------------|----------------|--------------------|
| Standard Packing | 180 | 2000 | DDZB-DJG-xxx-x-x |
| Optional Packing | 329 | 8000 | DDZB-DJG-xxx-x-x-8 |

Packaging Specification



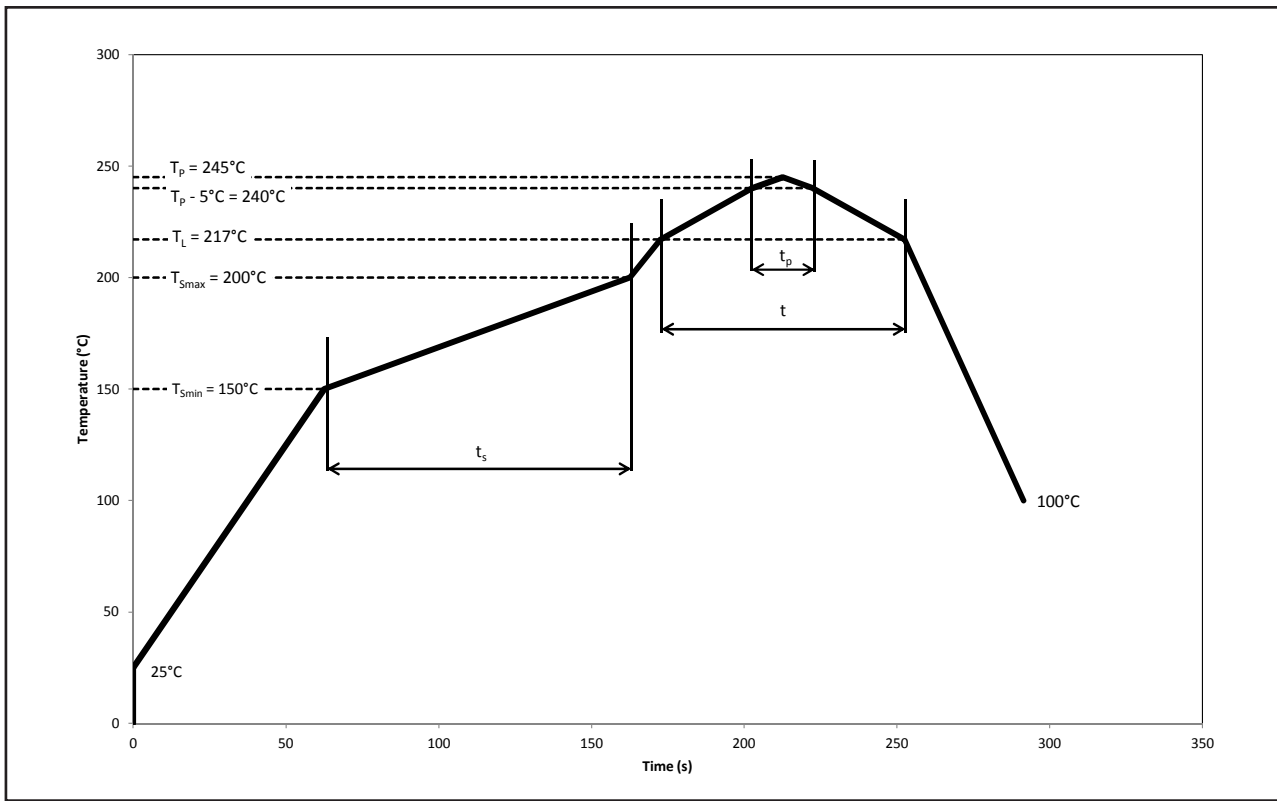
| Quantity per bag (pcs) | Average 1pc DomiLED (gram) | 1 completed bag (gram) |
|------------------------|----------------------------|------------------------|
| 2000 | 0.034 | 240 ± 10 |
| 8000 | 0.034 | 750 ± 10 |



| Reel Diameter (mm) | Packing Box Dimensions (mm) |
|--------------------|-----------------------------|
| 180 | 210 x 210 x 16 |
| 329 | 345 x 345 x 16 |

Recommended Pb-free Soldering Profile

Product complies to MSL Level 2 acc. to JEDEC J-STD-020E



| Profile Feature | Symbol | Pb-Free Assembly | | | Unit |
|--|--------|------------------|-------------|------|------|
| | | Min. | Recommended | Max. | |
| Ramp-up rate to preheat 25°C to T_{smin} | - | - | 2 | 3 | °C/s |
| Time t_s T_{smin} to T_{smax} | t_s | 60 | 100 | 120 | s |
| Ramp-up rate to peak T_L to T_p | - | - | 2 | 3 | °C/s |
| Liquidous temperature | T_L | - | 217 | - | °C |
| Time above liquidous temperature | t | 60 | 80 | 150 | s |
| Peak temperature | T_p | - | 245 | 260 | °C |
| Time within 5°C of the specified peak temperature $T_p - 5^\circ\text{C}$ | T_p | 10 | 20 | 30 | s |
| Ramp-down rate T_p to 100°C | - | - | 3 | 6 | °C/s |
| Time 25°C to T_p | - | - | - | 480 | s |

Appendix

1) **Brightness:**

- 1.1 Luminous intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.2 Luminous flux is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.3 Radiant intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.4 Radiant flux is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).

2) **Color:**

- 2.1 Chromaticity coordinate groups are measured at current pulse 25 ms(typ) with an internal reproducibility of ± 0.005 and an expanded uncertainty of ± 0.01 (accordingly to GUM with a coverage factor of $k=3$).
- 2.2 Dominant wavelength is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 0.5\text{nm}$ and an expanded uncertainty of $\pm 1\text{nm}$ (accordingly to GUM with a coverage factor of $k=3$).

3) **Voltage:**

- 3.1 Forward Voltage, V_f is measured when a current pulse of 8 ms(typ) with an internal reproducibility of $\pm 0.05\text{V}$ and an expanded uncertainty of $\pm 0.1\text{V}$ (accordingly to GUM with a coverage factor of $k=3$).

4) **Typical Values:**

- 4.1 At special conditions of LED manufacturing processes, typical data or calculated correlations of technical parameters only reflect the statistical figures. But not necessarily correspond to the actual parameters of each single product, which could differ from the typical data or calculated correlations or the typical characteristic line. These typical data may change whenever technical improvements happen.

5) **Tolerance of Measure**

- 5.1 Unless otherwise noted in drawing, tolerances are specified with ± 0.1 and dimension are specific in mm.

6) **Reverse Voltage:**

- 6.1 Not designed for reverse operation. Continuous reverse voltage can cause migration and LED damage.

Revision History

| Page | Subjects | Date of Modification |
|----------------|--|-----------------------------|
| - | Initial release | 21 Aug 2014 |
| 1, 14 | Add Features Update Packaging Specification | 16 Oct 2015 |
| 1, 2, 14, 16 | Update Product Photo Typo Error on ESD (HBM) Update Packaging Specification Add Appendix | 21 Sep 2018 |
| 12, 13, 14, 15 | Add Polarity in Taping and Orientation Update Product Specification Update Recommended Pb-free Soldering Profile | 15 Sep 2021 |
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NOTE

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About Us

DOMINANT Opto Technologies is a dynamic company that is amongst the world's leading automotive LED manufacturers. With an extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing and development capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies, an IATF 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

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