

## 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.
- > Designed for sideways illumination.
- > 120° viewing angle.
- > Small package outline.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.
- > Superior corrosion resistant.



## Applications:

- > Automotive:  
Interior applications, eg: switches, telematics, climate control system, dash board, etc.
- > Consumer Appliances: Backlighting illumination as in PDAs.

### Optical Characteristics at Tj=25°C

| Part Number          | Color            | Viewing Angle° | Luminous Intensity @ IF = 2mA <i>Appx. 1.1</i> |       |       |
|----------------------|------------------|----------------|------------------------------------------------|-------|-------|
|                      |                  |                | Min.                                           | Typ.  | Max.  |
| ● DSS-ASS-J2L1-1     | Super red, 632nm | 120            | 5.60                                           | 9.00  | 14.00 |
| ● DSA-ASS-LM2-1      | Amber, 615nm     | 120            | 11.20                                          | 18.00 | 28.50 |
| ● DSY-ASS-LM2-1      | Yellow, 587nm    | 120            | 11.20                                          | 18.00 | 28.50 |
| ● DSG-ASS-H2K1-1     | Green, 570nm     | 120            | 3.55                                           | 4.50  | 9.00  |
| ● Not for new design |                  |                |                                                |       |       |

### Electrical Characteristics at Tj=25°C

| Part Number | Min. (V) | Vf @ If = 2mA <i>Appx. 3.1</i> |          | Vr @ Ir = 10uA <i>Appx. 6.1</i> |  |
|-------------|----------|--------------------------------|----------|---------------------------------|--|
|             |          | Typ. (V)                       | Max. (V) | Min. (V)                        |  |
| DSx-ASS     | 1.7      | 2.0                            | 2.3      | 12                              |  |

### Absolute Maximum Ratings

|                                         | Maximum Value | Unit |
|-----------------------------------------|---------------|------|
| DC forward current                      | 20            | mA   |
| Peak pulse current                      | 100           | mA   |
| Reverse voltage <i>Appx. 6.1</i>        | 12            | V    |
| ESD threshold (HBM)                     | 2             | kV   |
| LED junction temperature                | 125           | °C   |
| Operating temperature                   | -40 ... +100  | °C   |
| Storage temperature                     | -40 ... +100  | °C   |
| Power dissipation (at room temperature) | 50            | mW   |

## Wavelength Grouping at Tj=25°C

| Color          | Group | Wavelength distribution (nm) <i>Appx. 2.2</i> |
|----------------|-------|-----------------------------------------------|
| DSS; Super red | Full  | 625 - 640                                     |
| DSA; Amber     | Full  | 610 - 621                                     |
|                | W     | 610 - 615                                     |
|                | X     | 615 - 621                                     |
| DSY; Yellow    | Full  | 582 - 594                                     |
|                | W     | 582 - 585                                     |
|                | X     | 585 - 588                                     |
|                | Y     | 588 - 591                                     |
|                | Z     | 591 - 594                                     |
| DSG; Green     | Full  | 564.5 - 576.5                                 |
|                | W     | 564.5 - 567.5                                 |
|                | X     | 567.5 - 570.5                                 |
|                | Y     | 570.5 - 573.5                                 |
|                | Z     | 573.5 - 576.5                                 |

## Luminous Intensity Group at Tj=25°C

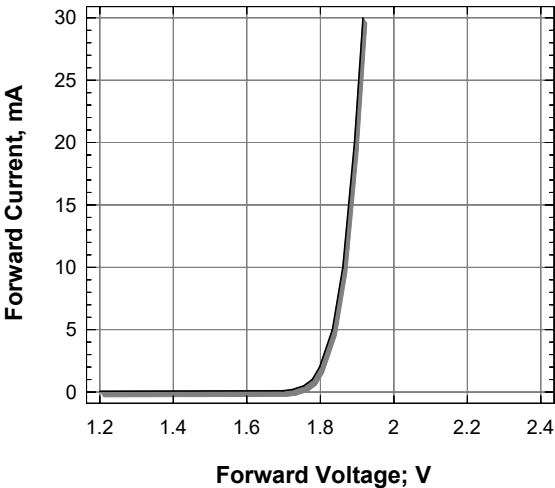
| Brightness Group | Luminous Intensity <i>Appx. 1.1</i><br>IV (mcd) |
|------------------|-------------------------------------------------|
| H2               | 3.55...4.50                                     |
| J1               | 4.50...5.60                                     |
| J2               | 5.60...7.20                                     |
| K1               | 7.20...9.00                                     |
| K2               | 9.00...11.20                                    |
| L1               | 11.20...14.00                                   |
| L2               | 14.00...18.00                                   |
| M1               | 18.00...22.40                                   |
| M2               | 22.40...28.50                                   |

**Vf Binning (Optional)**

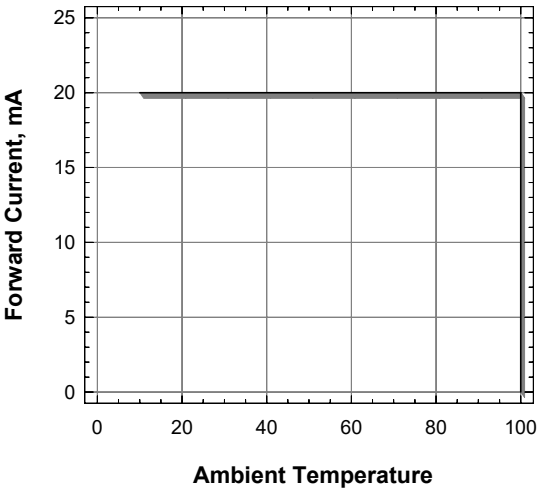
| Vf Bin | Forward Voltage (V) <i>Appx. 3.1</i> |
|--------|--------------------------------------|
| VA     | 1.60 ... 1.80                        |
| VB     | 1.80 ... 2.00                        |
| VC     | 2.00 ... 2.20                        |

Please consult sales and marketing for special part number to incorporate Vf binning.

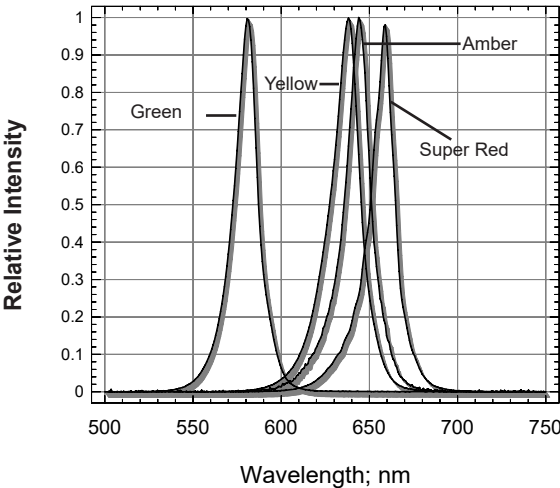
**Forward Current Vs Forward Voltage**



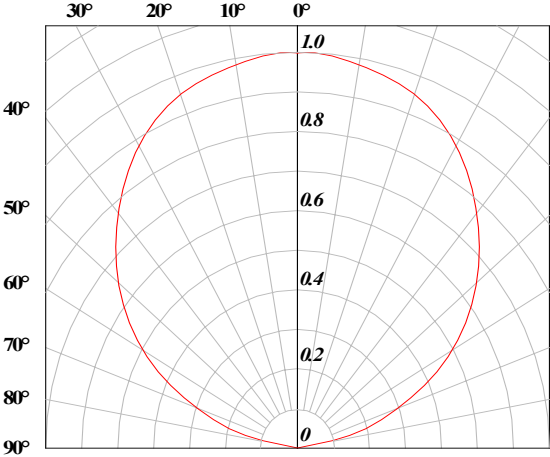
**Forward Current Vs Ambient Temperature**



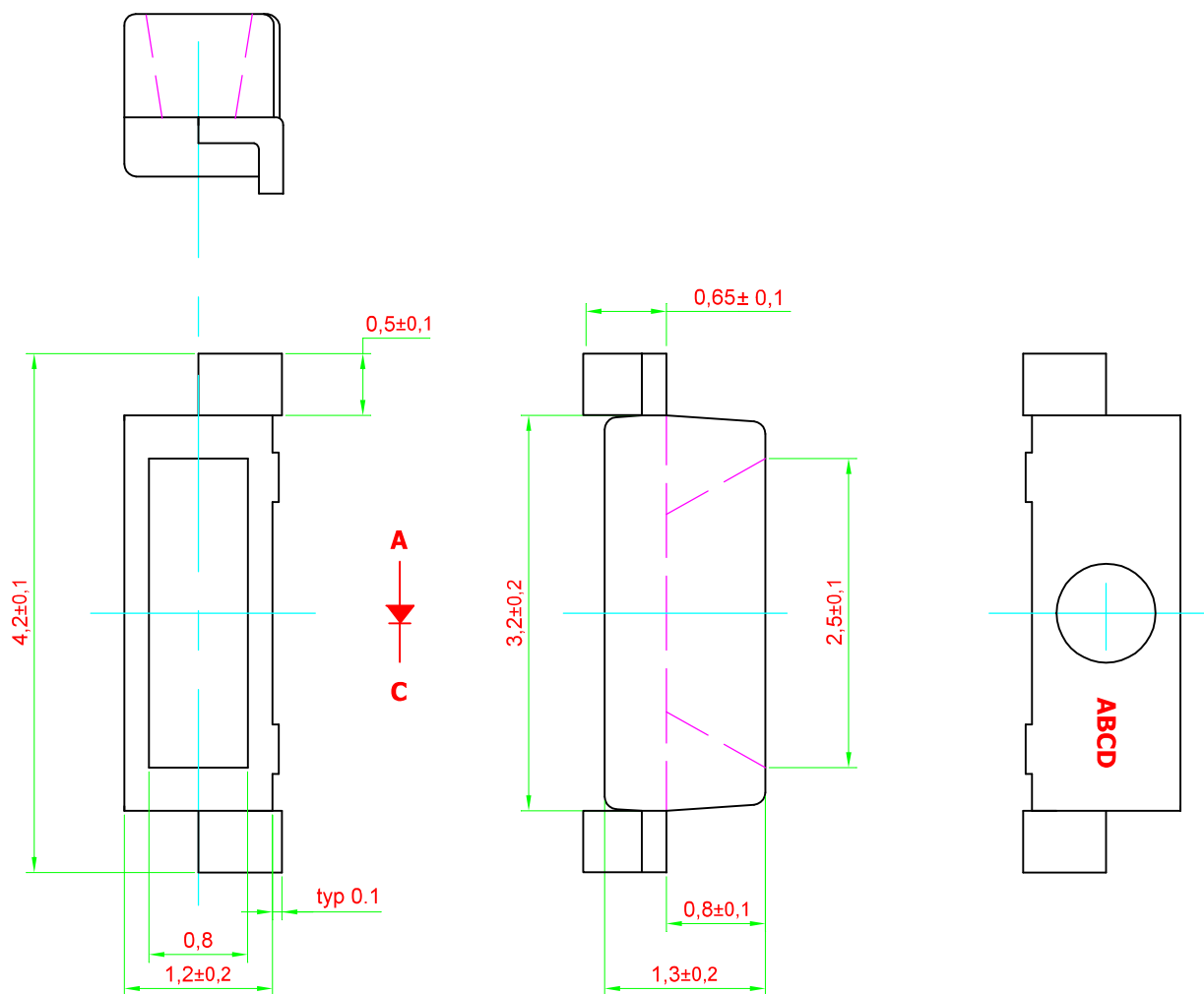
**Relative Intensity Vs Wavelength**



**Radiation Pattern**



## Right Angle DomiLED • AlInGaP : DSx-ASS Package Outlines

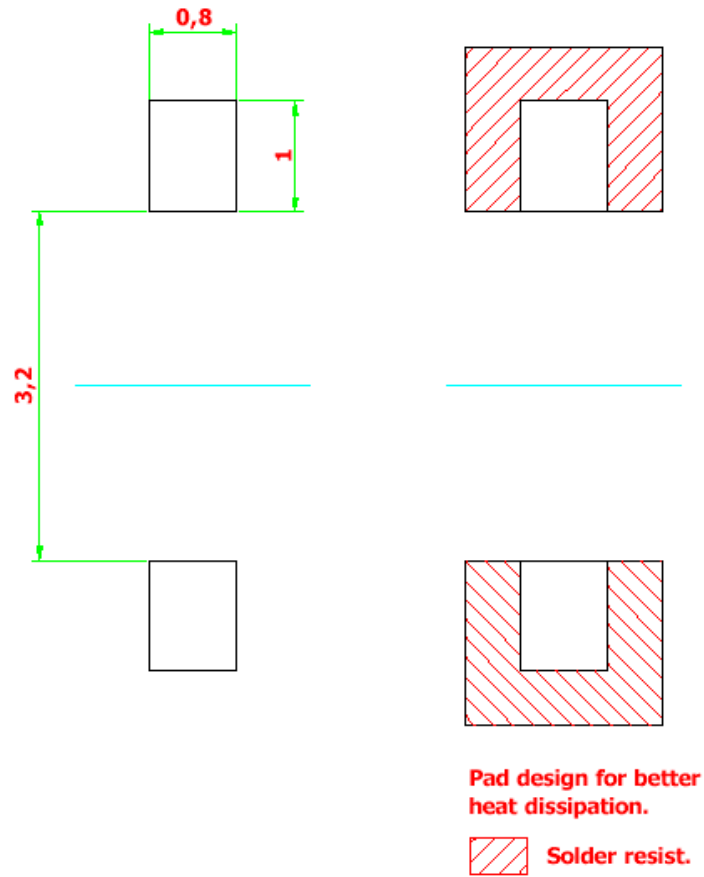


**Note : Primary thermal path is through Cathode lead of LED package.  
 General tolerance  $\pm 0.1$ mm.**

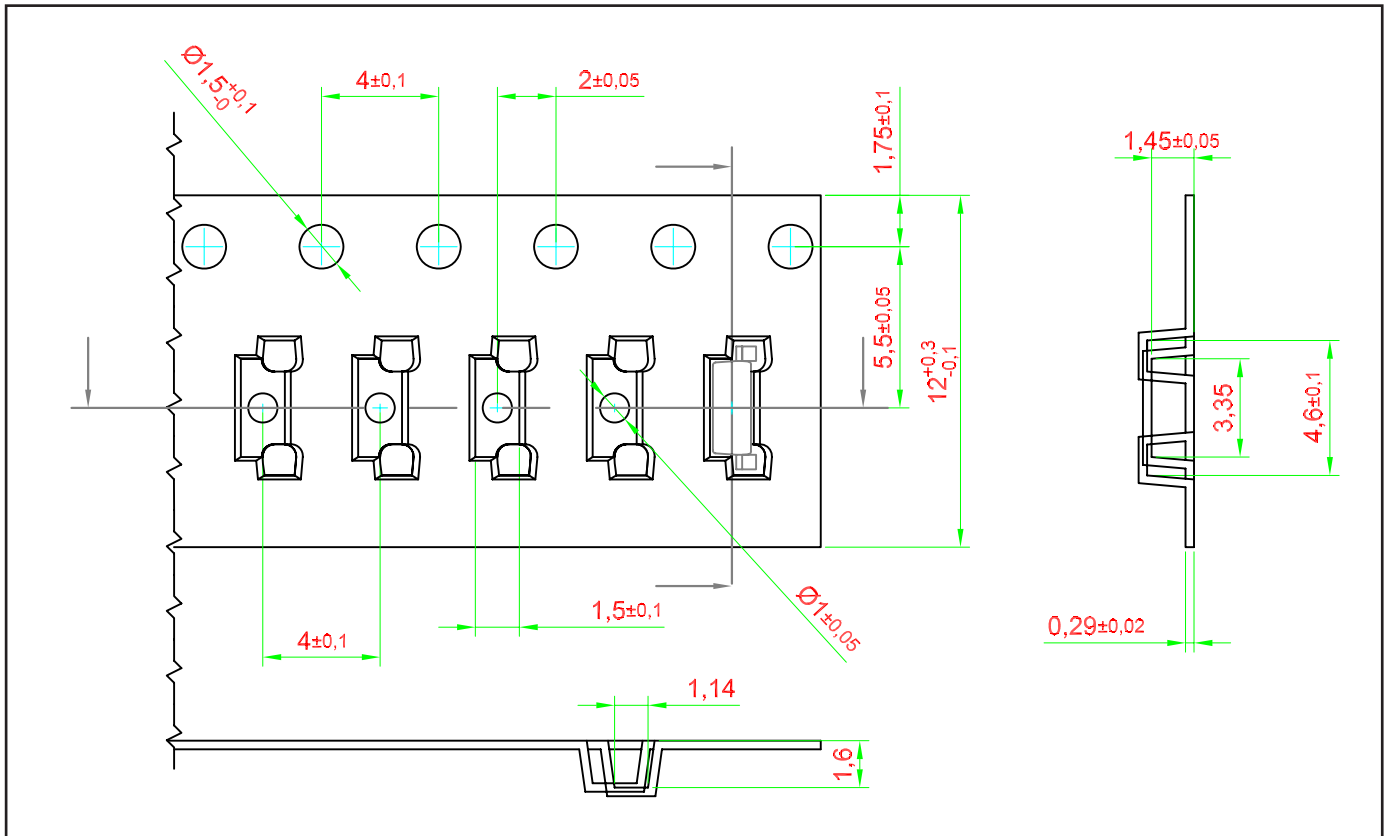
### Material

| Material        |                                    |
|-----------------|------------------------------------|
| Lead-frame      | Cu Alloy With Ag Plating           |
| Package         | High Temperature Resistant Plastic |
| Encapsulant     | Epoxy Resin                        |
| Soldering Leads | Sn Plating                         |

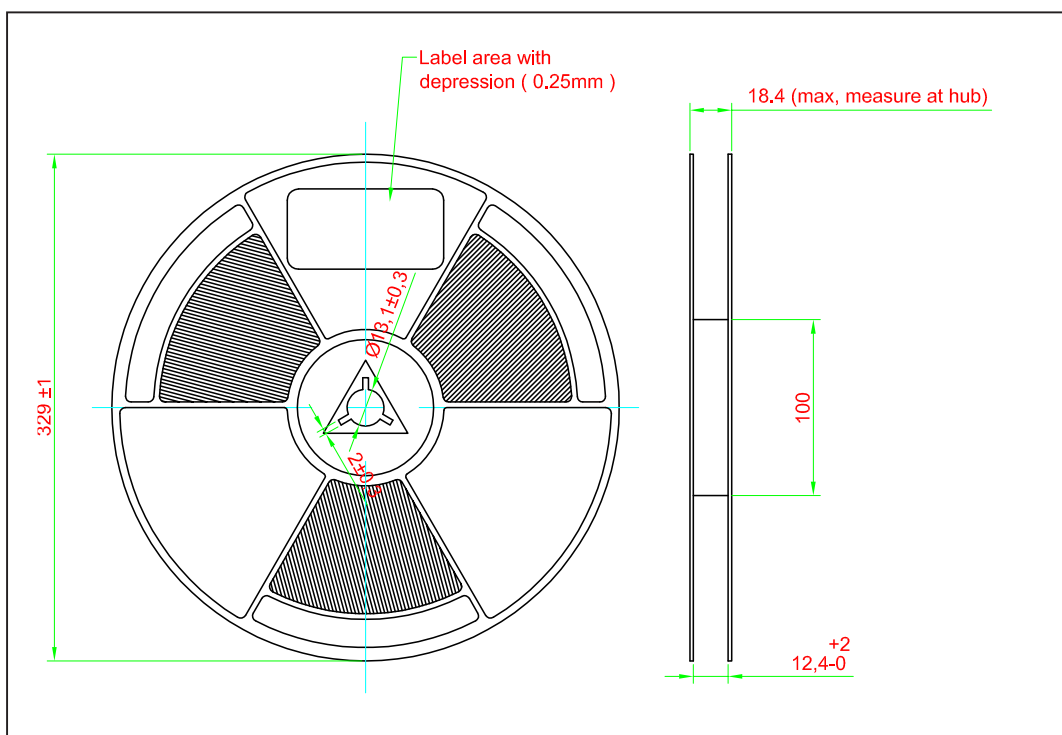
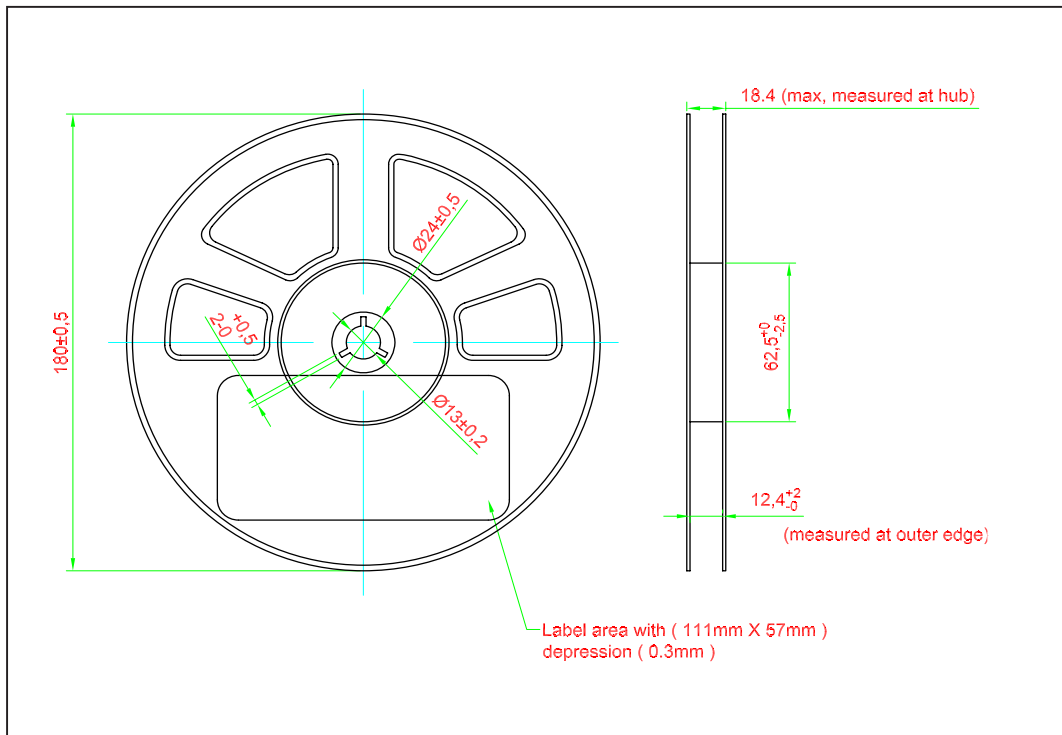
## Recommended Solder Pad



## Taping and orientation



## Packaging Specification

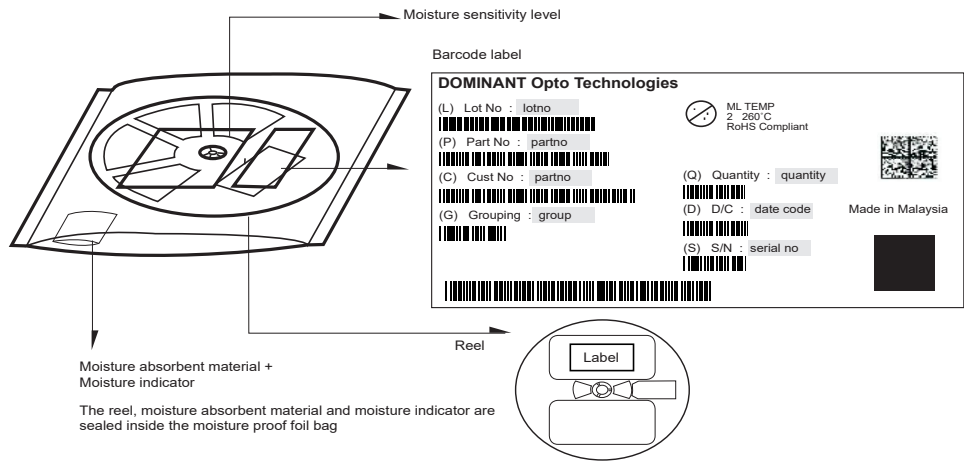


|                  | Reel Diameter (mm) | Quantity (pcs) | *Ordering Number |
|------------------|--------------------|----------------|------------------|
| Standard Packing | 180                | 2500           | DSx-ASS-xxx-x    |
| Optional Packing | 329                | 9000           | DSx-ASS-xxx-x-9  |

Notes:

\* For ordering purpose only. Please consult sales and marketing for details.

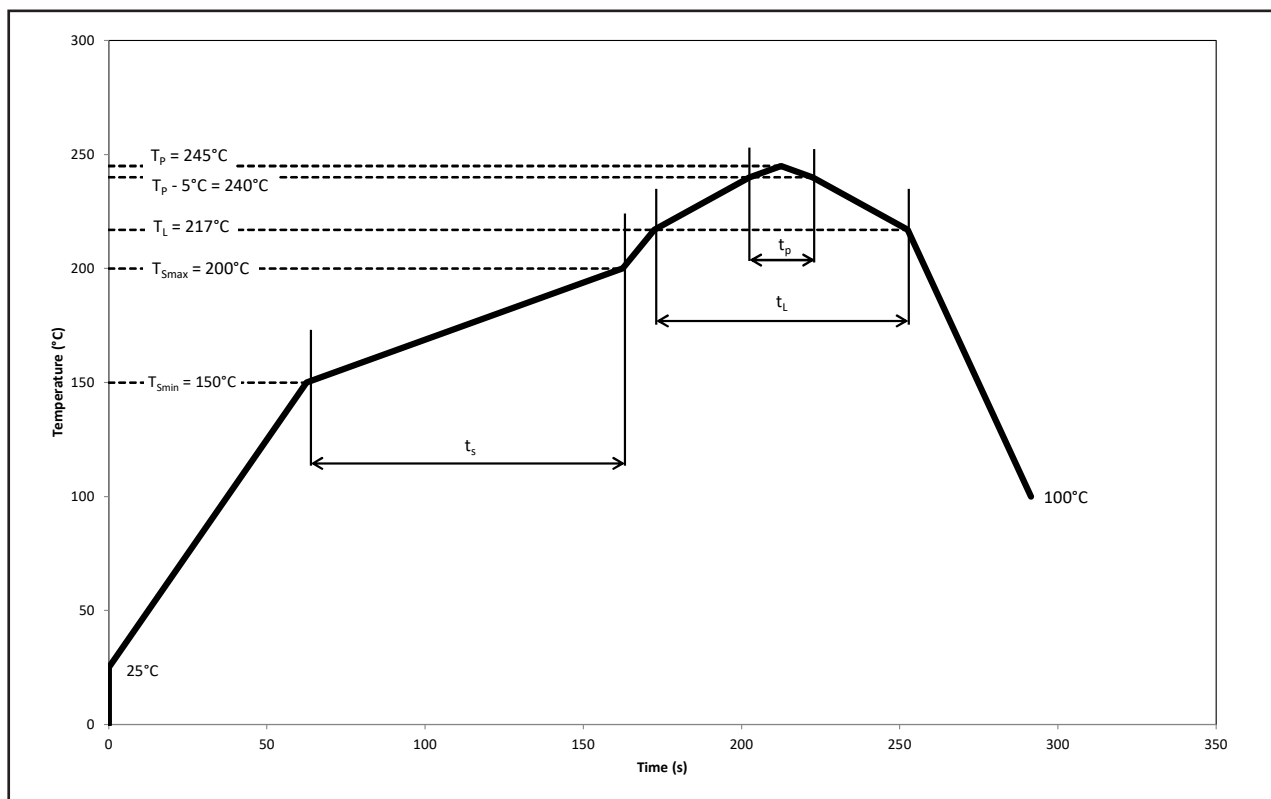
**Packaging Specification**



| Quantity per bag (pcs) | Average 1pc Right Angle DomiLED (g) | 1 completed bag (g) |
|------------------------|-------------------------------------|---------------------|
| 2500                   | 0.010                               | 240 ± 10            |
| 9000                   | 0.010                               | 520 ± 10            |

## Recommended Pb-free Soldering Profile

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



| Pb-Free Assembly                                                          |                |      |             |      |      |
|---------------------------------------------------------------------------|----------------|------|-------------|------|------|
| Profile Feature                                                           | Symbol         | Min. | Recommended | Max. | Unit |
| Ramp-up rate to preheat<br>25°C to T <sub>smin</sub>                      | -              | -    | 2           | 3    | °C/s |
| Time t <sub>s</sub><br>T <sub>smin</sub> to T <sub>smax</sub>             | t <sub>s</sub> | 60   | 100         | 120  | s    |
| Ramp-up rate to peak<br>T <sub>L</sub> to T <sub>p</sub>                  | -              | -    | 2           | 3    | °C/s |
| Liquidous temperature                                                     | T <sub>L</sub> | -    | 217         | -    | °C   |
| Time above liquidous<br>temperature                                       | t <sub>L</sub> | 60   | 80          | 150  | s    |
| Peak temperature                                                          | T <sub>p</sub> | -    | 245         | 260  | °C   |
| Time within 5°C of the specified<br>peak temperature T <sub>p</sub> - 5°C | t <sub>p</sub> | 10   | 20          | 30   | s    |
| Ramp-down rate T <sub>p</sub> to 100°C                                    | -              | -    | 3           | 6    | °C/s |
| Time 25°C to T <sub>p</sub>                                               | -              | -    | -           | 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  $\pm 0.005$  and an expanded uncertainty of  $\pm 0.01$  (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 Due to the specific conditions of semiconductor devices' manufacturing processes, the provided typical data and calculated correlations of technical parameters should only be considered as statistical values. It is important to note that the actual parameters of individual devices may deviate from these typical data, calculated correlations or the typical characteristic line. Dominant reserves the right to update this typical data without prior notice, particularly in response to technical enhancements.

### 5) **Tolerance of Measure**

- 5.1 Unless otherwise noted in drawing, tolerances are specified with  $\pm 0.1$  and dimension are specified 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                                                                                                                                                                          | 15 Jun 2010          |
| 1, 9             | - Update product photo<br>- Error in carrier tape                                                                                                                                        | 21 Jun 2012          |
| 6                | Typo error on package outline                                                                                                                                                            | 16 Oct 2013          |
| 1, 4, 6          | Update Features<br>Add Vf Binning<br>Add Notes in Package Outline                                                                                                                        | 05 Oct 2015          |
| 1, 8, 10         | Add Features<br>Update Carrier Tape<br>Update Packaging Specification                                                                                                                    | 10 Mar 2016          |
| 2, 9, 10, 11, 12 | Not for New Design: DSS-ASS-J2L1-1,<br>DSA-ASS-LM2-1, DSY-ASS-LM2-1,<br>DSG-ASS-H2K1-1<br>Update Packaging Specification<br>Update Recommended Pb-free Soldering Profile<br>Add Appendix | 18 May 2022          |
| 6, 10            | Update Package Outline<br>Update Packaging Specification                                                                                                                                 | 10 Jul 2025          |
|                  |                                                                                                                                                                                          |                      |

### 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, a ISO/TS 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

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