

### **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.
- > 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.

### **Applications:**

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Consumer Appliances: LCD illumination as in PDAs, LCD TV.
- > 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 | Color             | Viewing Angle° | Luminous Intensity @ 20mA |        | IV (mcd) Max. |
|----------------------|-------------------|----------------|---------------------------|--------|---------------|
|                      |                   |                | Min.                      | Typ.   |               |
| DDH-CJS-PQ2-1        | Hyper-red, 640nm  | 120            | 45.00                     | 71.50  | 112.50        |
| DDS-CJS-QR2-1        | Super-red, 632nm  | 120            | 71.50                     | 112.50 | 180.00        |
| DDS-CJS-RS2-1        | Super-red, 632nm  | 120            | 112.50                    | 180.00 | 285.00        |
| ● DDS-SJS-QR2-1      | Super-red, 632nm  | 120            | 71.50                     | 112.50 | 180.00        |
| DDR-CJS-RS2-1        | Red, 625nm        | 120            | 112.50                    | 180.00 | 285.00        |
| DDR-CJS-ST1-1        | Red, 625nm        | 120            | 180.00                    | 285.00 | 355.00        |
| ● DDR-SJS-RS2-1      | Red, 625nm        | 120            | 112.50                    | 180.00 | 285.00        |
| DDR-TJS-TU2-1        | Red, 625nm        | 120            | 285.00                    | 450.00 | 715.00        |
| DDA-CJS-RS2-1        | Amber, 615nm      | 120            | 112.50                    | 180.00 | 285.00        |
| DDA-CJS-ST2-1        | Amber, 615nm      | 120            | 180.00                    | 285.00 | 450.00        |
| ● DDA-SJS-ST2-1      | Amber, 615nm      | 120            | 180.00                    | 285.00 | 450.00        |
| DDO-CJS-RS2-1        | Orange, 605nm     | 120            | 112.50                    | 180.00 | 285.00        |
| DDO-CJS-ST2-1        | Orange, 605nm     | 120            | 180.00                    | 285.00 | 450.00        |
| ● DDO-SJS-ST2-1      | Orange, 605nm     | 120            | 180.00                    | 285.00 | 450.00        |
| DDY-CJS-RS2-1        | Yellow, 587nm     | 120            | 112.50                    | 180.00 | 285.00        |
| DDY-CJS-ST2-1        | Yellow, 587nm     | 120            | 180.00                    | 285.00 | 450.00        |
| ● DDY-SJS-ST2-1      | Yellow, 587nm     | 120            | 180.00                    | 285.00 | 450.00        |
| DDY-TJS-TU2-1        | Yellow, 587nm     | 120            | 285.00                    | 450.00 | 715.00        |
| DDG-CJS-PQ2-1        | Green, 572nm      | 120            | 45.00                     | 71.50  | 112.50        |
| DDG-CJS-QR2-1        | Green, 572nm      | 120            | 71.50                     | 112.50 | 180.00        |
| ● DDG-SJS-QR2-1      | Green, 572nm      | 120            | 71.50                     | 112.50 | 180.00        |
| DDP-SJS-LM2-1        | Pure Green, 560nm | 120            | 11.20                     | 18.00  | 28.50         |
| DDP-SJS-MN2-1        | Pure Green, 560nm | 120            | 18.00                     | 28.50  | 45.00         |

● Not for new design

NOTE

1. All part number above comes in a quantity of 2000 units per reel.
2. Other luminous intensity groups are also available upon request.
3. Luminous intensity is measured with an accuracy of  $\pm 11\%$ .
4. Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.
5. An optional Vf binning is also available upon request. Binning scheme is as per following table.

## Electrical Characteristics at Tj=25°C

| Part Number                                                      | Vf @ If = 20mA |          | Vr @ Ir = 10uA |
|------------------------------------------------------------------|----------------|----------|----------------|
|                                                                  | Typ. (V)       | Max. (V) | Min. (V)       |
| DDH-CJS, DDS-CJS, DDR-CJS, DDA-CJS,<br>DDO-CJS, DDY-CJS, DDG-CJS | 1.9            | 2.3      | 12             |
| DDS-SJS, DDR-SJS, DDA-SJS, DDO-SJS,<br>DDY-SJS, DDG-SJS, DDP-SJS | 1.8            | 2.3      | 12             |
| DDR-TJS, DDY-TJS                                                 | 2.1            | 2.6      | 12             |

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

## Absolute Maximum Ratings

|                                                                   | Maximum Value                  | Unit              |
|-------------------------------------------------------------------|--------------------------------|-------------------|
| DC forward current                                                | 30                             | mA                |
| Peak pulse current;<br>(tp $\leq 10\mu$ s, Duty cycle = 0.005)    | DDx-SJS/DDx-TJS :<br>DDx-CJS : | 1000<br>500<br>mA |
| Reverse voltage                                                   | 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)                           | 75                             | mW                |
| Thermal resistance                                                |                                |                   |
| - Junction / ambient, Rth JA                                      | 500                            | K/W               |
| - Junction / solder point, Rth JS                                 | 280                            | K/W               |
| (Mounting on FR4 PCB, pad size $\geq 16$ mm <sup>2</sup> per pad) |                                |                   |

## Characteristics

|                                                                                                                                                      | Symbol                            | Part Number      | Value | Unit    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------|-------|---------|
| Temperature coefficient of $\lambda_{\text{dom}}$ (typ)<br>$I_F = 20\text{mA}$ ; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$ | $TC_{\lambda_{\text{dom}}}$ (typ) | DDR-CJS, DDR-SJS | 0.03  | nm / K  |
|                                                                                                                                                      |                                   | DDS-CJS, DDS-SJS | 0.01  |         |
|                                                                                                                                                      |                                   | DDO-CJS, DDO-SJS | 0.04  |         |
|                                                                                                                                                      |                                   | DDY-CJS, DDY-SJS | 0.09  |         |
|                                                                                                                                                      |                                   | DDA-CJS, DDA-SJS | 0.05  |         |
|                                                                                                                                                      |                                   | DDG-CJS, DDG-SJS | 0.10  |         |
|                                                                                                                                                      |                                   | DDH-CJS          | 0.01  |         |
|                                                                                                                                                      |                                   | DDR-TJS          | 0.02  |         |
|                                                                                                                                                      |                                   | DDY-TJS          | 0.09  |         |
|                                                                                                                                                      |                                   | DDP-SJS          | 0.10  |         |
|                                                                                                                                                      |                                   |                  |       |         |
| Temperature coefficient of $V_F$ (typ)<br>$I_F = 20\text{mA}$ ; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$                  | $TC_V$                            | DDR-CJS, DDR-SJS | -4.3  | mV / K  |
|                                                                                                                                                      |                                   | DDS-CJS, DDS-SJS | -2.3  |         |
|                                                                                                                                                      |                                   | DDO-CJS, DDO-SJS | -1.6  |         |
|                                                                                                                                                      |                                   | DDY-CJS, DDY-SJS | -3.3  |         |
|                                                                                                                                                      |                                   | DDA-CJS, DDA-SJS | -3.2  |         |
|                                                                                                                                                      |                                   | DDG-CJS, DDG-SJS | -0.2  |         |
|                                                                                                                                                      |                                   | DDH-CJS          | -1.6  |         |
|                                                                                                                                                      |                                   | DDR-TJS          | -2.0  |         |
|                                                                                                                                                      |                                   | DDY-TJS          | -1.6  |         |
|                                                                                                                                                      |                                   | DDP-SJS          | -0.2  |         |
|                                                                                                                                                      |                                   |                  |       |         |
| Temperature coefficient of $I_V$ (typ)<br>$I_F = 20\text{mA}$ ; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$                  | $TC_{IV}$                         | DDR-CJS, DDR-SJS | -0.7  | mcd / K |
|                                                                                                                                                      |                                   | DDS-CJS, DDS-SJS | -0.4  |         |
|                                                                                                                                                      |                                   | DDO-CJS, DDO-SJS | -1.5  |         |
|                                                                                                                                                      |                                   | DDY-CJS, DDY-SJS | -2.3  |         |
|                                                                                                                                                      |                                   | DDA-CJS, DDA-SJS | -1.1  |         |
|                                                                                                                                                      |                                   | DDG-CJS, DDG-SJS | -0.8  |         |
|                                                                                                                                                      |                                   | DDH-CJS          | -0.3  |         |
|                                                                                                                                                      |                                   | DDR-TJS          | -1.8  |         |
|                                                                                                                                                      |                                   | DDY-TJS          | -5.1  |         |
|                                                                                                                                                      |                                   | DDP-SJS          | -0.4  |         |

## Wavelength Grouping at Tj=25°C

| Color                 | Group | Wavelength distribution (nm) |
|-----------------------|-------|------------------------------|
| DDH; Hyper-red        | Full  | 636 - 646                    |
| DDS; Super-red        | Full  | 625 - 640                    |
| DDR-CJ, -SJ; Red (AS) | Full  | 620 - 630                    |
| DDR-TJ; Red (TS)      | Full  | 620 - 635                    |
| DDA; Amber            | Full  | 610 - 621                    |
|                       | W     | 610 - 615                    |
|                       | X     | 615 - 621                    |
| DDO; Orange           | Full  | 600 - 612                    |
|                       | W     | 600 - 603                    |
|                       | X     | 603 - 606                    |
|                       | Y     | 606 - 609                    |
|                       | Z     | 609 - 612                    |
| DDY; Yellow           | Full  | 582 - 594                    |
|                       | W     | 582 - 585                    |
|                       | X     | 585 - 588                    |
|                       | Y     | 588 - 591                    |
|                       | Z     | 591 - 594                    |
| DDG; 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                |
| DDP; Pure Green       | Full  | 552.5 - 564.5                |
|                       | W     | 552.5 - 555.5                |
|                       | X     | 555.5 - 558.5                |
|                       | Y     | 558.5 - 561.5                |
|                       | Z     | 561.5 - 564.5                |

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

## Luminous Intensity Group at Tj=25°C

| Brightness Group | Luminous Intensity @ IV (mcd) |
|------------------|-------------------------------|
| L1               | 11.2...14.0                   |
| L2               | 14.0...18.0                   |
| M1               | 18.0...22.4                   |
| M2               | 22.4...28.5                   |
| N1               | 28.5...35.5                   |
| N2               | 35.5...45.0                   |
| P1               | 45.0...56.0                   |
| P2               | 56.0...71.5                   |
| Q1               | 71.5...90.0                   |
| Q2               | 90.0...112.5                  |
| R1               | 112.5...140.0                 |
| R2               | 140.0...180.0                 |
| S1               | 180.0...224.0                 |
| S2               | 224.0...285.0                 |
| T1               | 285.0...355.0                 |
| T2               | 355.0...450.0                 |
| U1               | 450.0...560.0                 |
| U2               | 560.0...715.0                 |

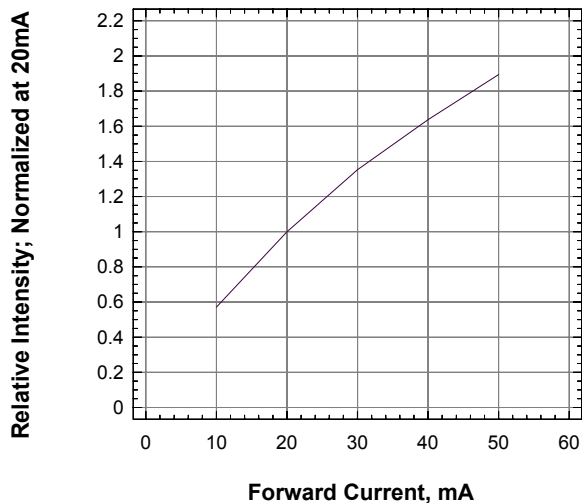
Luminous intensity is measured with an accuracy of  $\pm 11\%$ .

## Vf Binning (Optional) at Tj= 25°C

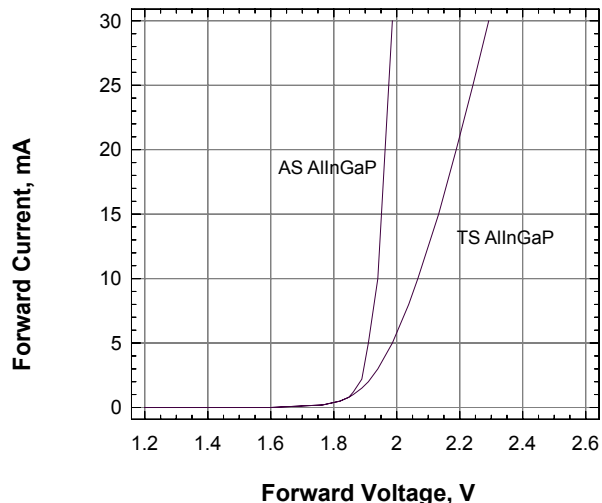
| Vf Bin @ 20mA | Forward Voltage (V) |
|---------------|---------------------|
| 01            | 1.55 ... 1.85       |
| 02            | 1.85 ... 2.15       |
| 03            | 2.15 ... 2.45       |
| 04            | 2.45 ... 2.75       |

Forward voltage, Vf is measured with an accuracy of  $\pm 0.1$  V.  
Please consult sales & marketing for special part number to incorporate Vf binning.

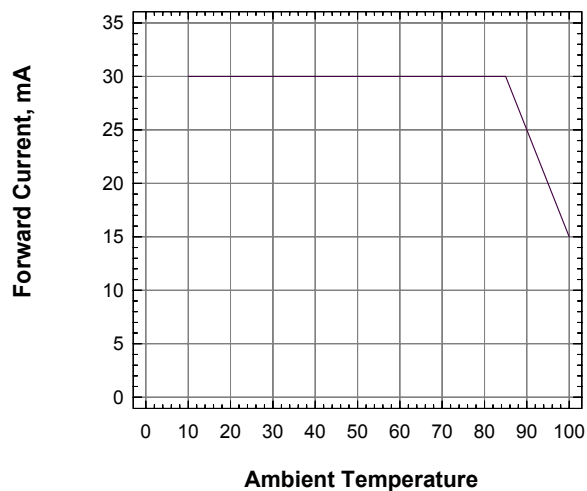
**Relative Luminous Intensity Vs Forward Current**



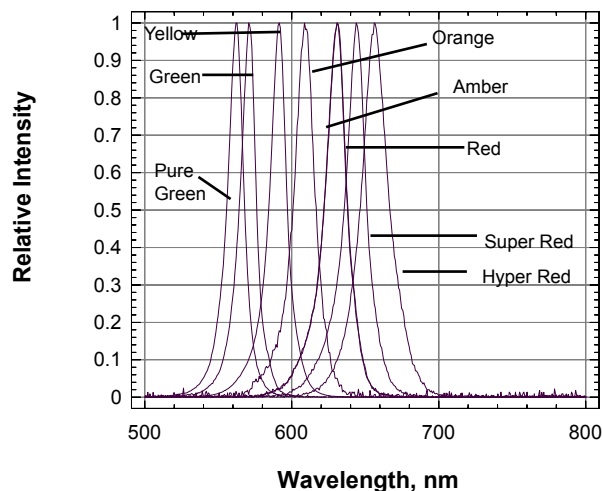
**Forward Current Vs Forward Voltage**



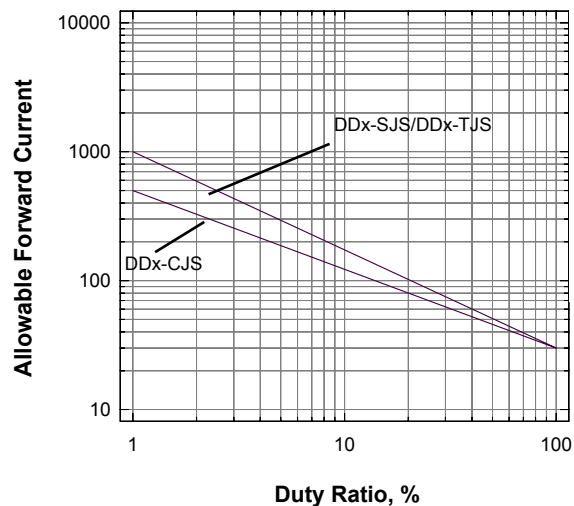
**Maximum Current Vs Temperature**



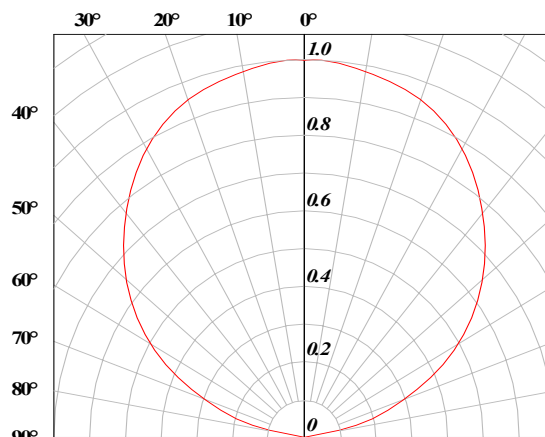
**Relative Intensity Vs Wavelength**



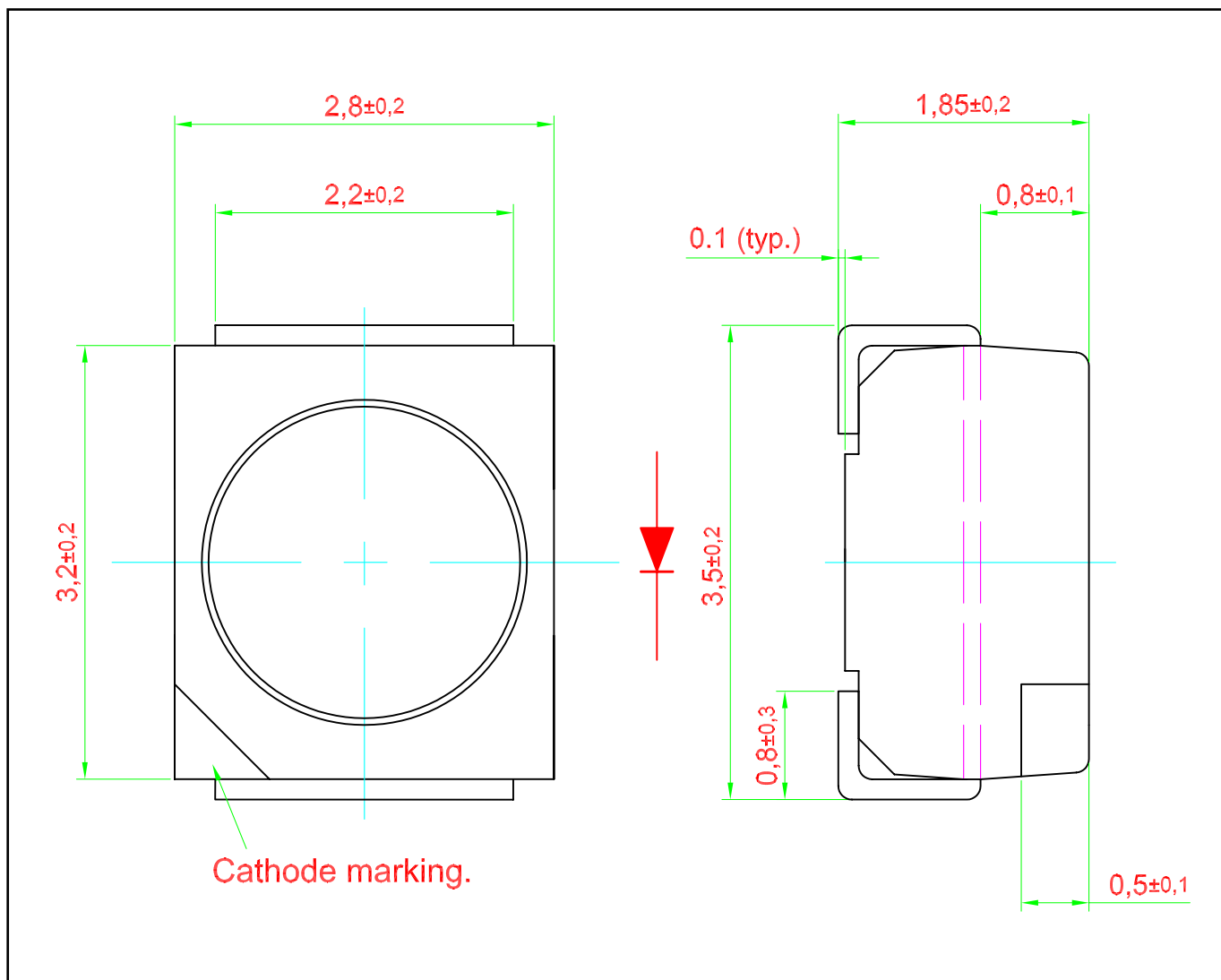
**Allowable Forward Current Vs Duty Ratio (Ta= 25 Deg C)**



**Radiation Pattern**



## DomiLED™ • AllnGap : DDx-xJS Package Outlines

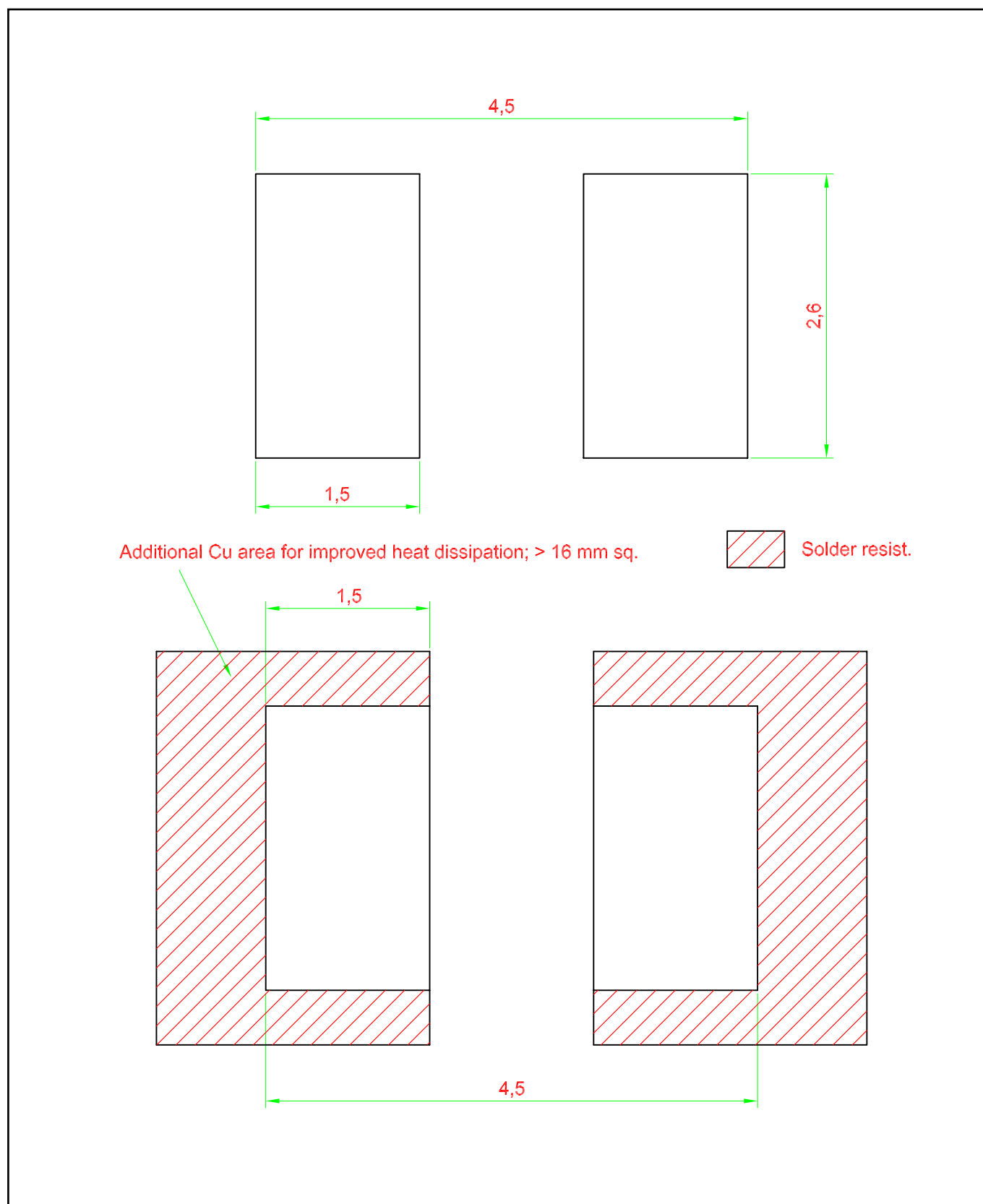


## Material

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

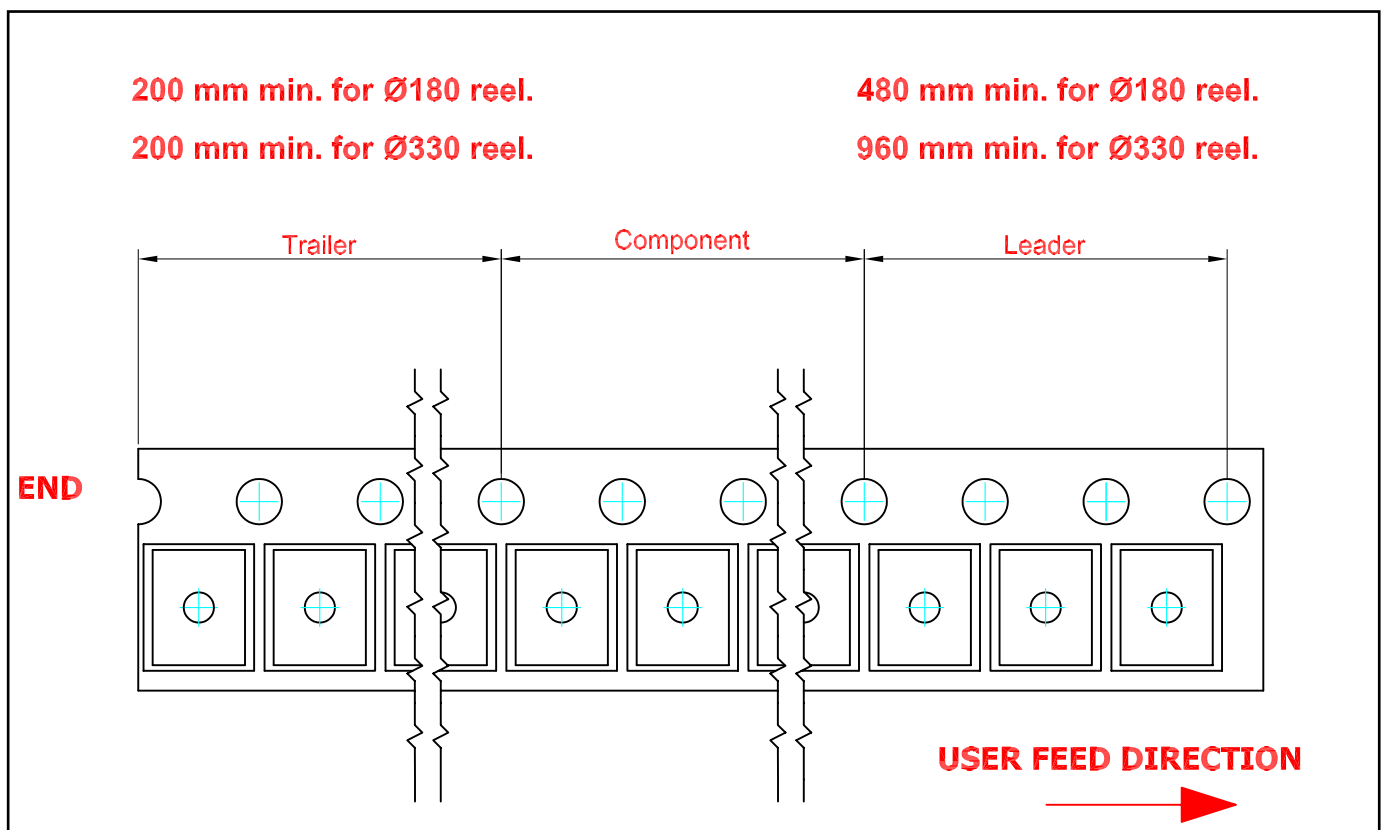
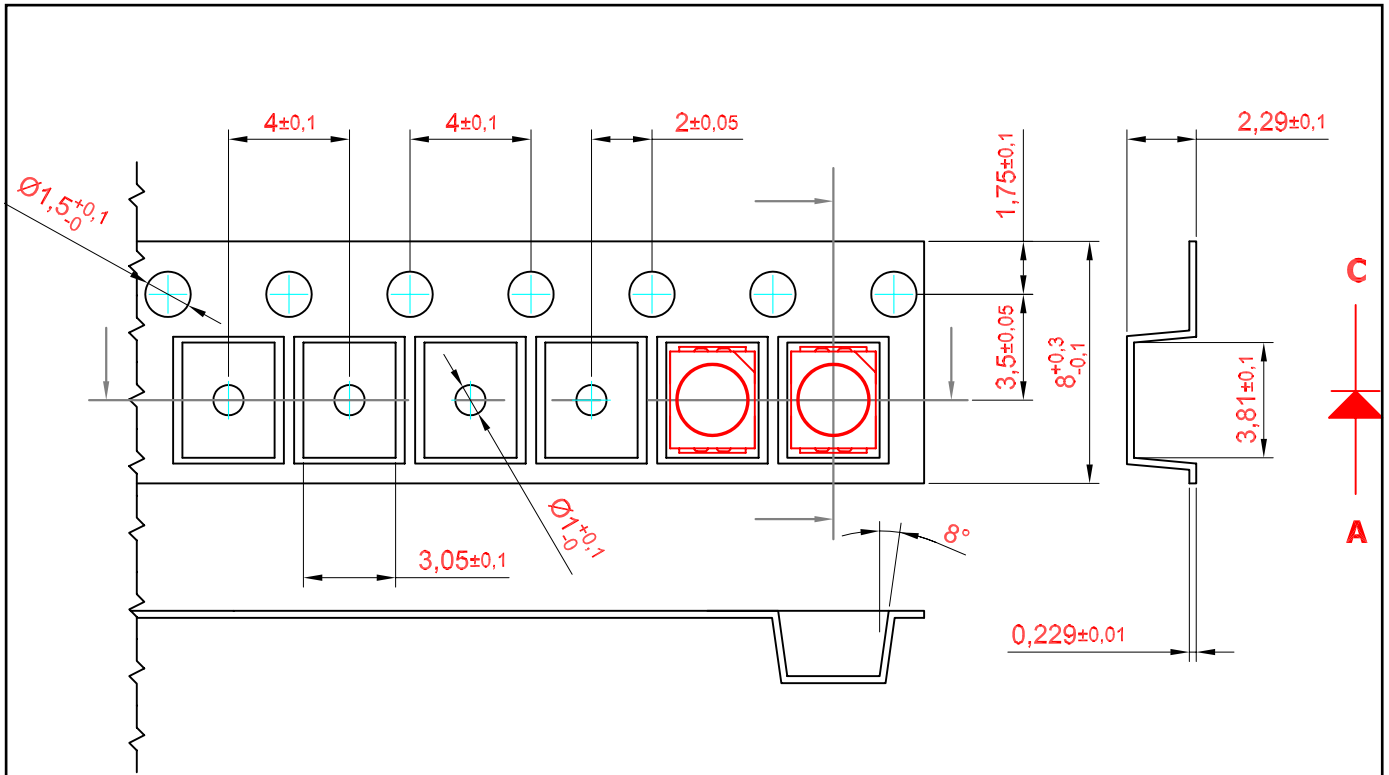


## Recommended Solder Pad

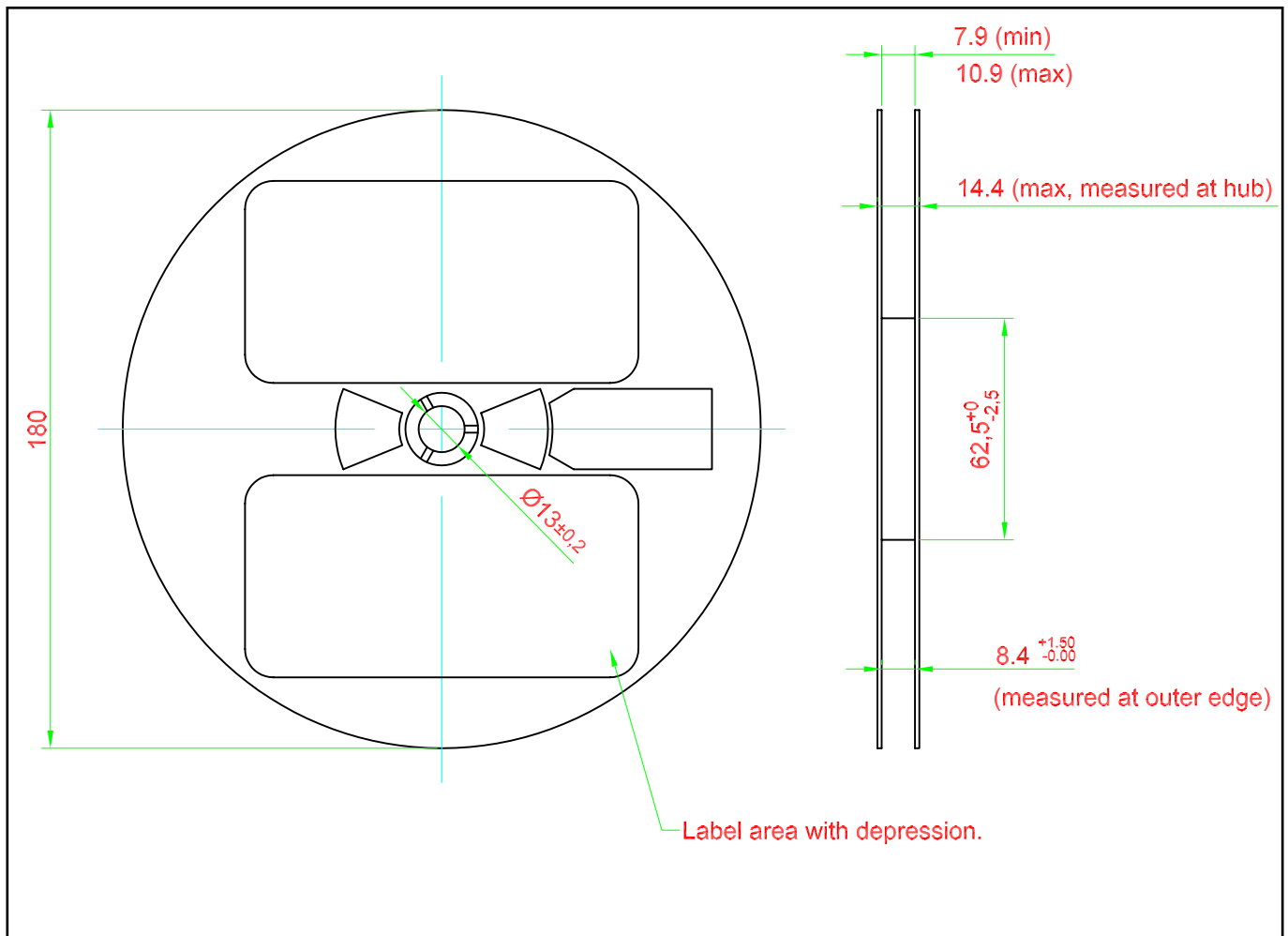


## Taping and orientation

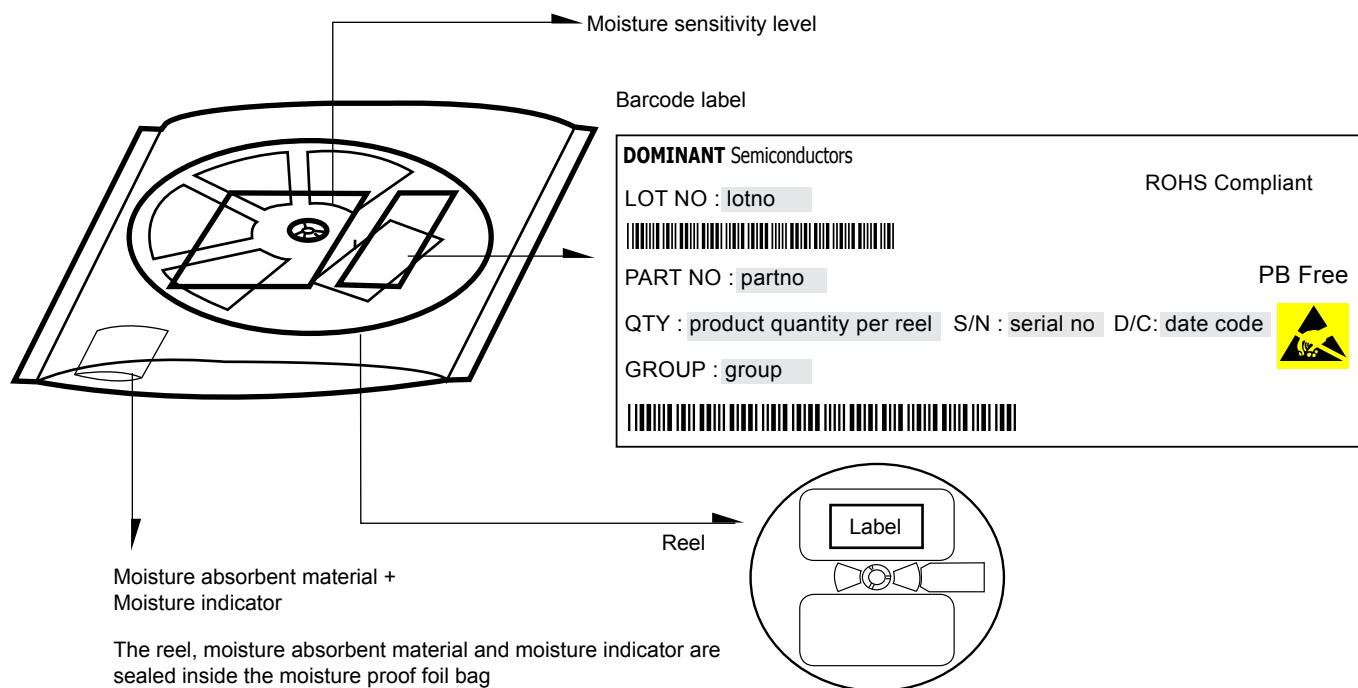
- Reels come in quantity of 2000 units.
- Reel diameter is 180 mm.



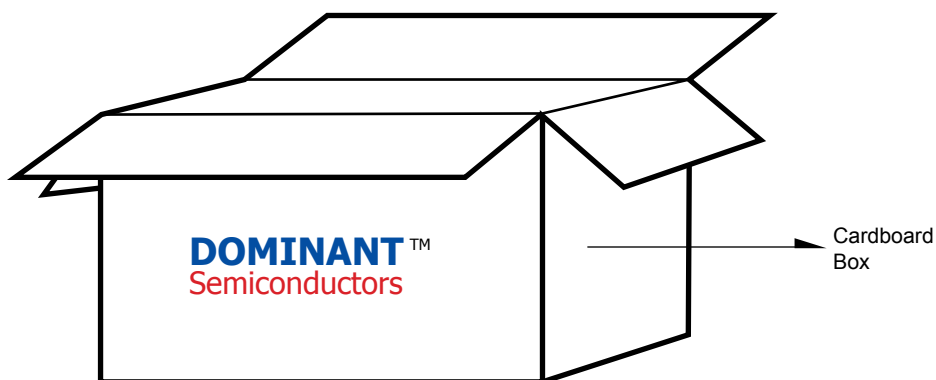
## Packaging Specification



## Packaging Specification



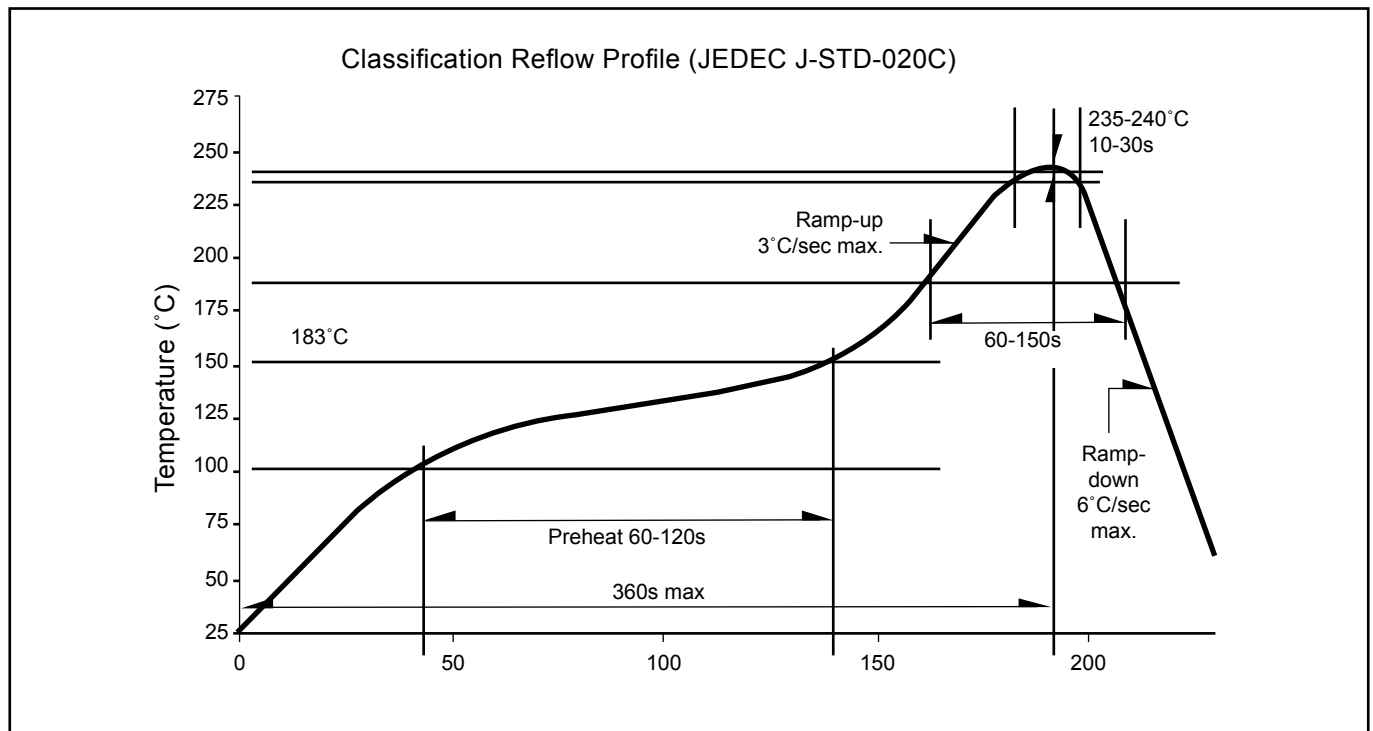
|               | Average 1pc DomiLED/Multi DomiLED | 1 completed bag (2000pcs) |
|---------------|-----------------------------------|---------------------------|
| Weight (gram) | 0.034                             | 190 ± 10                  |



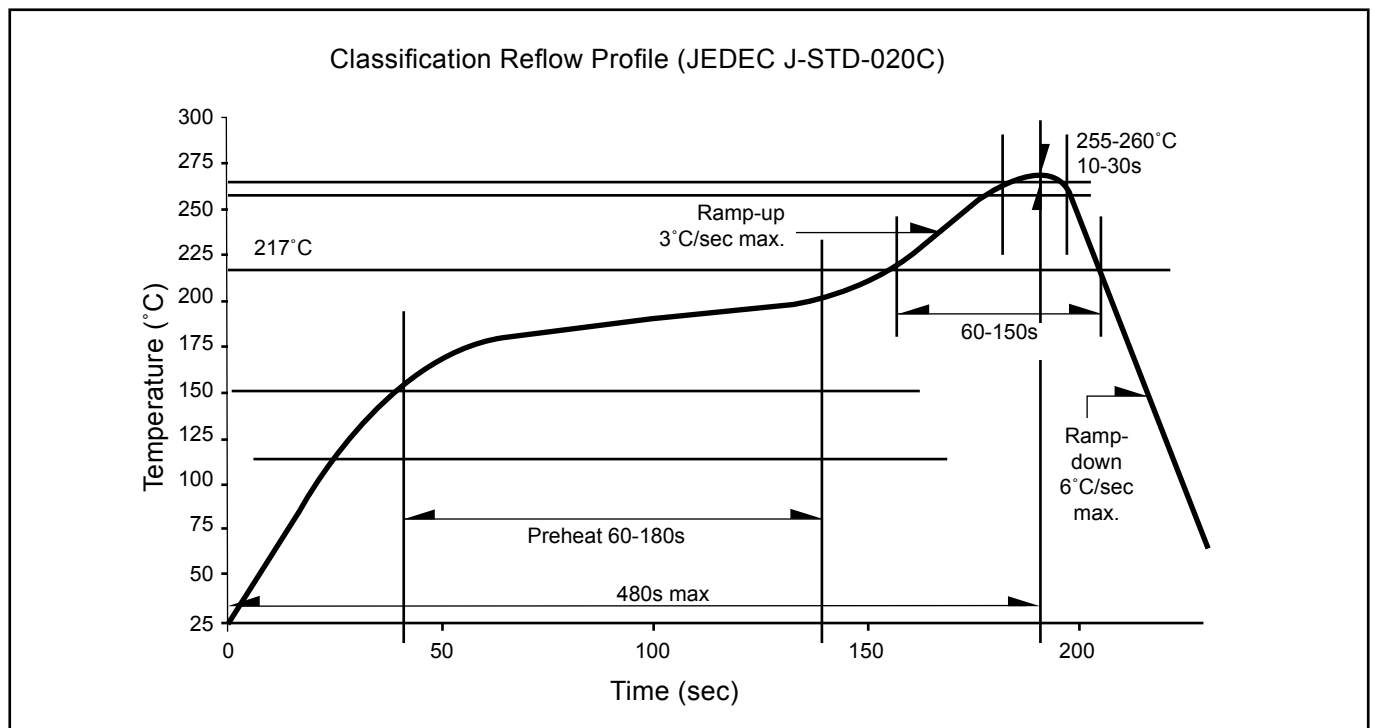
### For DomiLED™

| Cardboard Box Size | Dimensions (mm) | Empty Box Weight (kg) | Reel / Box   | Quantity / Box (pcs) |
|--------------------|-----------------|-----------------------|--------------|----------------------|
| Small              | 300 x 250 x 250 | 0.58                  | 15 reels MAX | 30,000 MAX           |
| Large              | 416 x 516 x 476 | 1.74                  | 96 reels MAX | 192,000 MAX          |

## Recommended Sn-Pb IR-Reflow Soldering Profile



## Recommended Pb-free Soldering Profile



## Revision History

| Page | Subjects                                                                                                                                                      | Date of Modification |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|      | New Format                                                                                                                                                    | 06 Sept 2005         |
| 7    | Graph: Maximum Current Vs Temperature.<br>When Ambient Temperature=100°; Forward<br>Current=15mA                                                              | 06 Mar 2006          |
| 7    | Add Characteristics table                                                                                                                                     | 07 Jun 2007          |
| 8    | Add Allowable Forward Current Vs Duty Ratio<br>Graph                                                                                                          | 07 Jun 2007          |
| 3    | Add new part no: DDS-CJS-RS2-1;<br>DDA-CJS-ST2-1;<br>DDO-CJS-ST2-1;<br>DDY-CJS-ST2-1                                                                          | 25 Oct 2007          |
| 2    | Add new partno: DDR-CJS-ST1-1                                                                                                                                 | 13 Jun 2008          |
| 2    | Add new partno: DDG-CJS-QR2-1<br>Not for new design : DDS-SJS-QR2-1;<br>DDR-SJS-RS2-1;<br>DDA-SJS-ST2-1;<br>DDO-SJS-ST2-1;<br>DDY-SJS-ST2-1;<br>DDG-SJS-QR2-1 | 07 Apr 2009          |

### NOTE

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DOMINANT Semiconductors reserves the right to make changes at any time without prior notice to any products in order to improve reliability, function or design.

DOMINANT Semiconductors products are not authorized for use as critical components in life support devices or systems without the express written approval from the Managing Director of DOMINANT Semiconductors.

## About Us

DOMINANT Semiconductors is a dynamic Malaysian Corporation that is among the world's leading SMT LED Manufacturers. An excellence – driven organization, it offers a comprehensive product range for diverse industries and applications. Featuring an internationally certified quality assurance acclaim, DOMINANT's extra bright LEDs are perfectly suited for various lighting applications in the automotive, consumer and communications as well as industrial sectors. With extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing, research and testing capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Semiconductors can be found on the Internet at <http://www.dominant-semi.com>.

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