

### Multi DomiLED<sup>™</sup>

Synonymous with function and performance, the Multi DomiLED<sup>™</sup> series is perfectly suited for a variety of cross-industrial applications due to its small package outline, durability and superior brightness.



### Features:

- > High brightness tri-color surface mount LED.
- > Each color can be individually controlled
- > 120° viewing angle.
- > Small package outline (LxWxH) of 3.2 x 3.0 x 1.7mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.



### Applications:

- > Automotive: interior, eg: backlighting of display --> navigation system
- > Signs: full color video
- > Consumer & Communication: backlighting of LCDs
- > General Lighting: architectural lighting, decorative lighting



| Part Ordering Number      | Color, $\lambda_{dom}$ (nm) |            |         | Viewing Angle° | Luminous Intensity @ IF = 20mA IV (mcd) |                       |                      |
|---------------------------|-----------------------------|------------|---------|----------------|---|-----------------------|----------------------|
|                           | Chip #1                     | Chip #2    | Chip #3 |                | Chip #1                                 | Chip #2               | Chip #3              |
| <b>D6RTB-DJD-TU+UV+RS</b> | Red                         | True Green | Blue    | <b>120</b>     | <b>320.0 - 637.0</b>                    | <b>715.0 - 1400.0</b> | <b>126.0 - 254.0</b> |
| • D6RTB-DJD-T3U3R3        | 625nm                       | 525nm      | 460nm   |                | 320.0 - 450.0                           | 715.0 - 1012.0        | 126.0 - 180.0        |
| • D6RTB-DJD-T3U3S3        |                             |            |         |                | 320.0 - 450.0                           | 715.0 - 1012.0        | 180.0 - 254.0        |
| • D6RTB-DJD-T3V3R3        |                             |            |         |                | 320.0 - 450.0                           | 1012.0 - 1400.0       | 126.0 - 180.0        |
| • D6RTB-DJD-T3V3S3        |                             |            |         |                | 320.0 - 450.0                           | 1012.0 - 1400.0       | 180.0 - 254.0        |
| • D6RTB-DJD-U3U3R3        |                             |            |         |                | 450.0 - 637.0                           | 715.0 - 1012.0        | 126.0 - 180.0        |
| • D6RTB-DJD-U3U3S3        |                             |            |         |                | 450.0 - 637.0                           | 715.0 - 1012.0        | 180.0 - 254.0        |
| • D6RTB-DJD-U3V3R3        |                             |            |         |                | 450.0 - 637.0                           | 1012.0 - 1400.0       | 126.0 - 180.0        |
| • D6RTB-DJD-U3V3S3        |                             |            |         |                | 450.0 - 637.0                           | 1012.0 - 1400.0       | 180.0 - 254.0        |

**NOTE:**

1. Reel comes in a quantity of 1000 units per reel.
2. Luminous intensity is measured with an accuracy of  $\pm 11\%$ .
3. All electrical and optical data are measured at room temperature; Ta = 25°C.

**Wavelength Grouping**

| Color      | Group | Wavelength distribution (nm) |
|------------|-------|------------------------------|
| Red        | Full  | 620 - 630                    |
| True Green | Full  | 521 - 536                    |
|            | A     | 521 - 526                    |
|            | B     | 526 - 531                    |
|            | C     | 531 - 536                    |
| Blue       | Full  | 460 - 470                    |
|            | A     | 460 - 465                    |
|            | B     | 465 - 470                    |

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

**Electrical Characteristics at Ta=25°C**

|            | Vf @ If = 20mA |          |          |
|------------|----------------|----------|----------|
|            | Min. (V)       | Typ. (V) | Max. (V) |
| Red        | 2.00           | 2.10     | 2.60     |
| True Green | 3.00           | 3.20     | 3.60     |
| Blue       | 3.00           | 3.20     | 3.60     |

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

## Materials

| Materials      |   |
|----------------|---|
| Lead Frame     | Copper alloy                            |
| Housing        | High temperature resistant plastic, PPA |
| Encapsulant    | Silicone resin                          |
| Lead-finishing | Pure tin plating, Sn                    |

Note: Package is Pb-free.

## Correlation Between Luminous Intensity And Luminous Flux

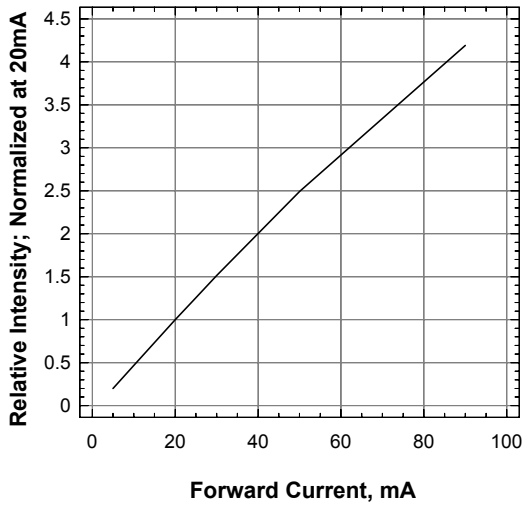
| Color      | IV Bin | Luminous Intensity (mcd) |      | Correlated Luminous Flux (lm) |      |
|------------|--------|--------------------------|------|-------------------------------|------|
|            |        | Min                      | Max  | Min                           | Max  |
| Red        | T3     | 320                      | 450  | 0.80                          | 1.13 |
|            | U3     | 450                      | 637  | 1.13                          | 1.59 |
| True Green | U3     | 715                      | 1012 | 1.79                          | 2.53 |
|            | V3     | 1012                     | 1400 | 2.53                          | 3.50 |
| Blue       | R3     | 126                      | 180  | 0.32                          | 0.45 |
|            | S3     | 180                      | 254  | 0.45                          | 0.64 |

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

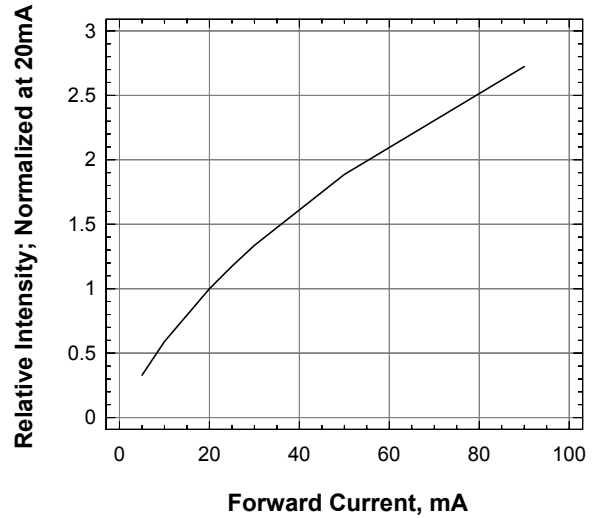
## Absolute Maximum Ratings

|  | Maximum Value  | Unit |
|--|--|------|
| DC forward current   | Red; AllInGaP=30;<br>True Green, Blue; InGaN=25            | mA   |
| Peak pulse current; ( $t_p \leq 10\mu s$ , Duty cycle = 0.005) | Red ; AllInGaP=500;<br>True Green, Blue; InGaN=200         | mA   |
| Reverse voltage  | Red; AllInGaP=12;<br>True Green, Blue; InGaN= Not Designed | V    |
| ESD threshold (HBM)  | 2000   | V    |
| LED junction temperature                                       | 125  | °C   |
| Operating temperature  | -40 ... +100   | °C   |
| Storage temperature  | -40 ... +100   | °C   |
| Thermal resistance junction/ambient (3 chips on)               |  |      |
| Red, $R_{th JA}$   | 500  | K/W  |
| Blue & True Green, $R_{th JA}$                                 | 600  | K/W  |

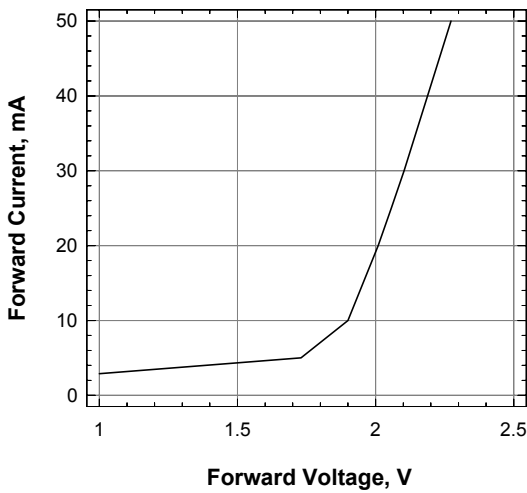
**Relative Intensity Vs Forward Current (Red)**



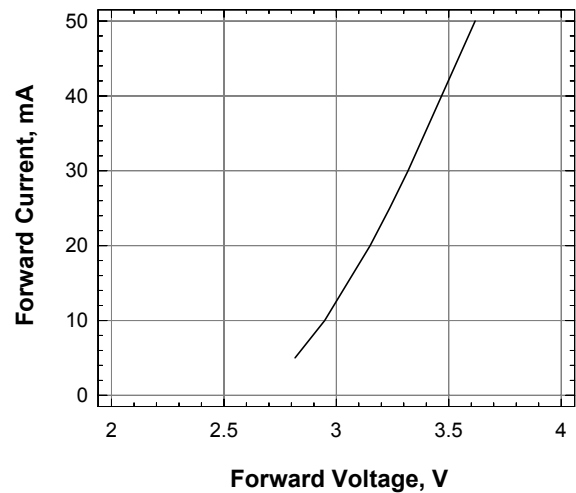
**Relative Intensity Vs Forward Current (Blue and True Green)**



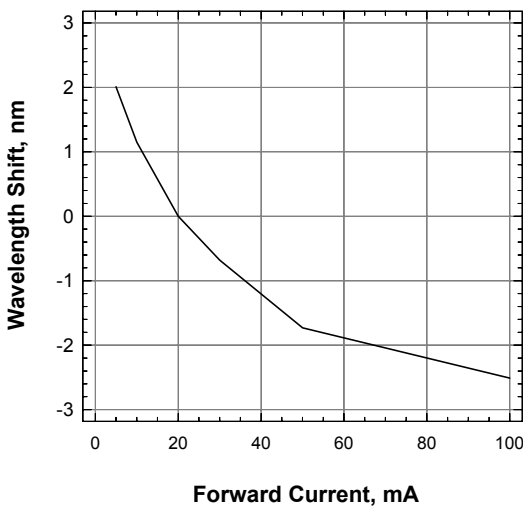
**Forward Current Vs Forward Voltage (Red)**



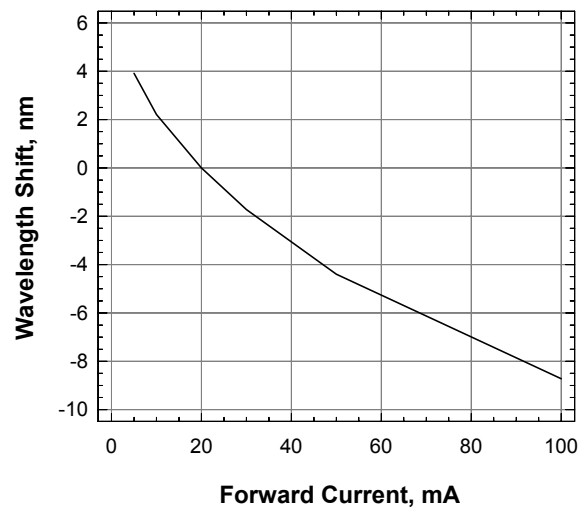
**Forward Current Vs Forward Voltage (Blue and True Green)**



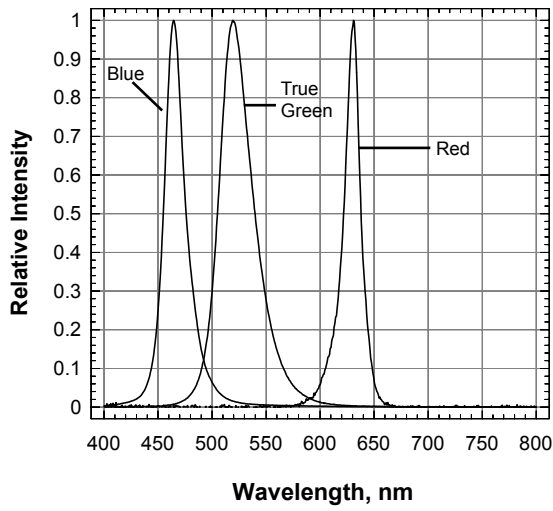
**Wavelength Shift Vs Forward Current (Blue)**



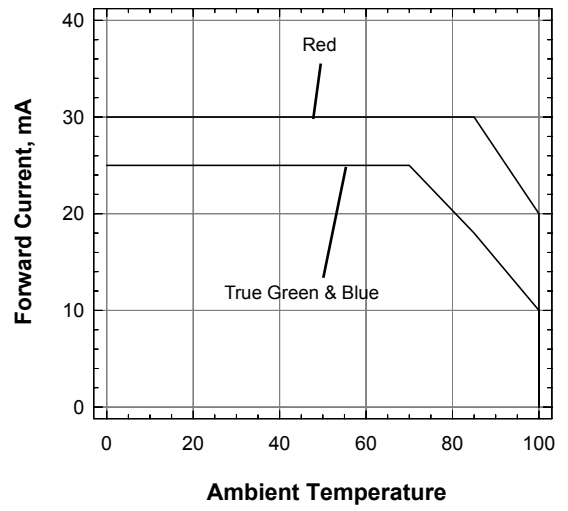
**Wavelength Shift Vs Forward Current (True Green)**



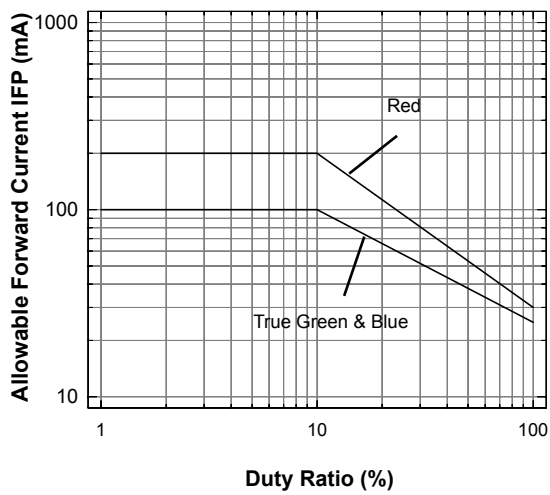
**Relative Intensity vs Wavelength**



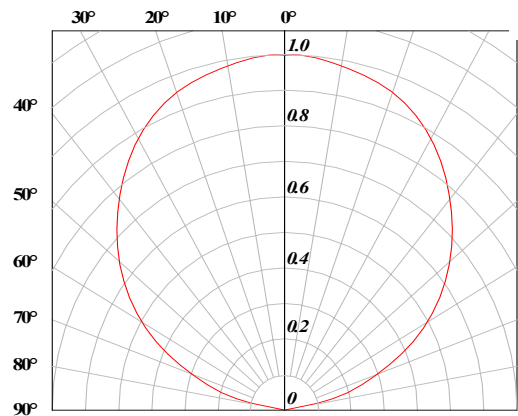
**Maximum Permissible Forward Current**



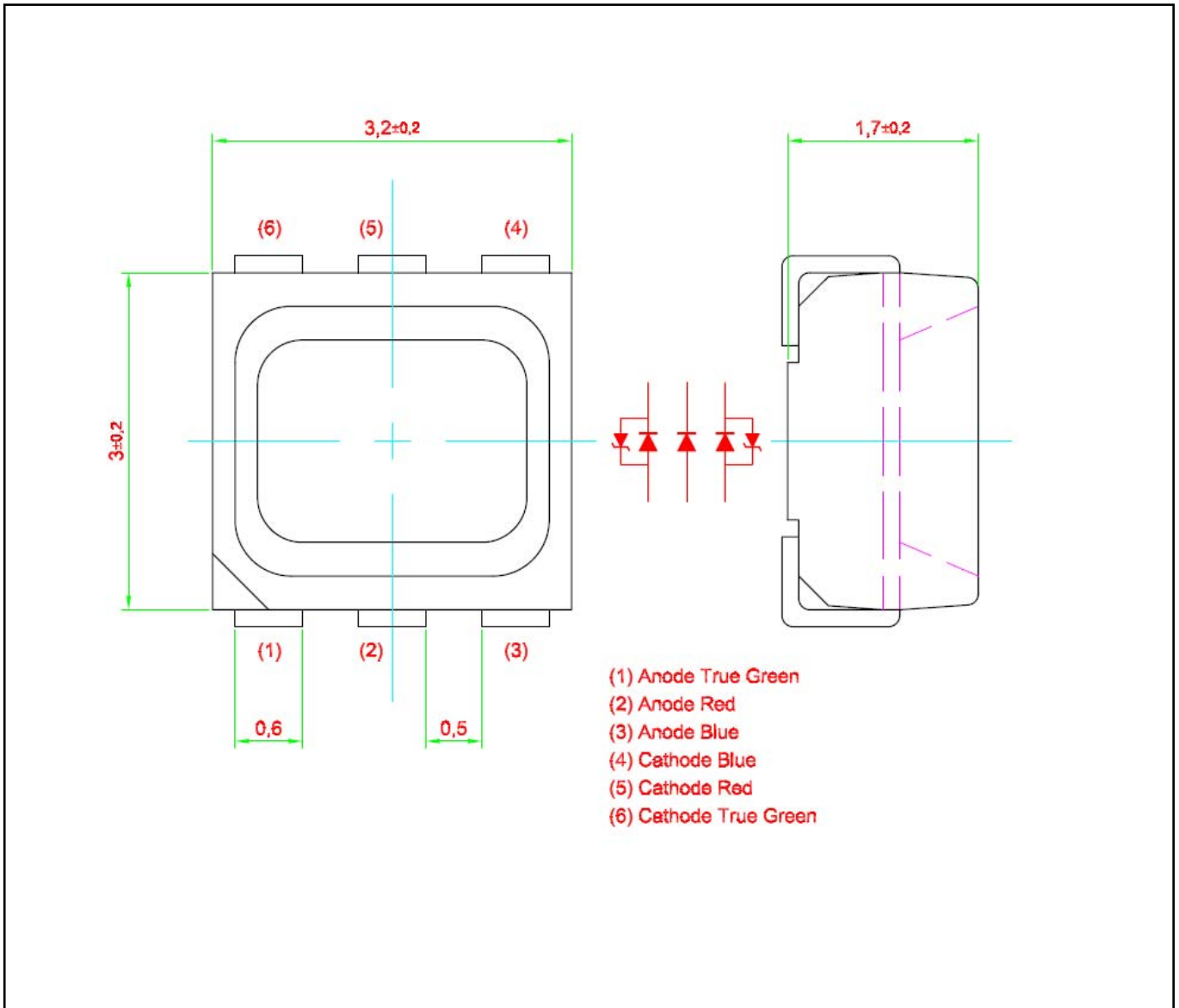
**Allowable Forward Current vs Duty Ratio**



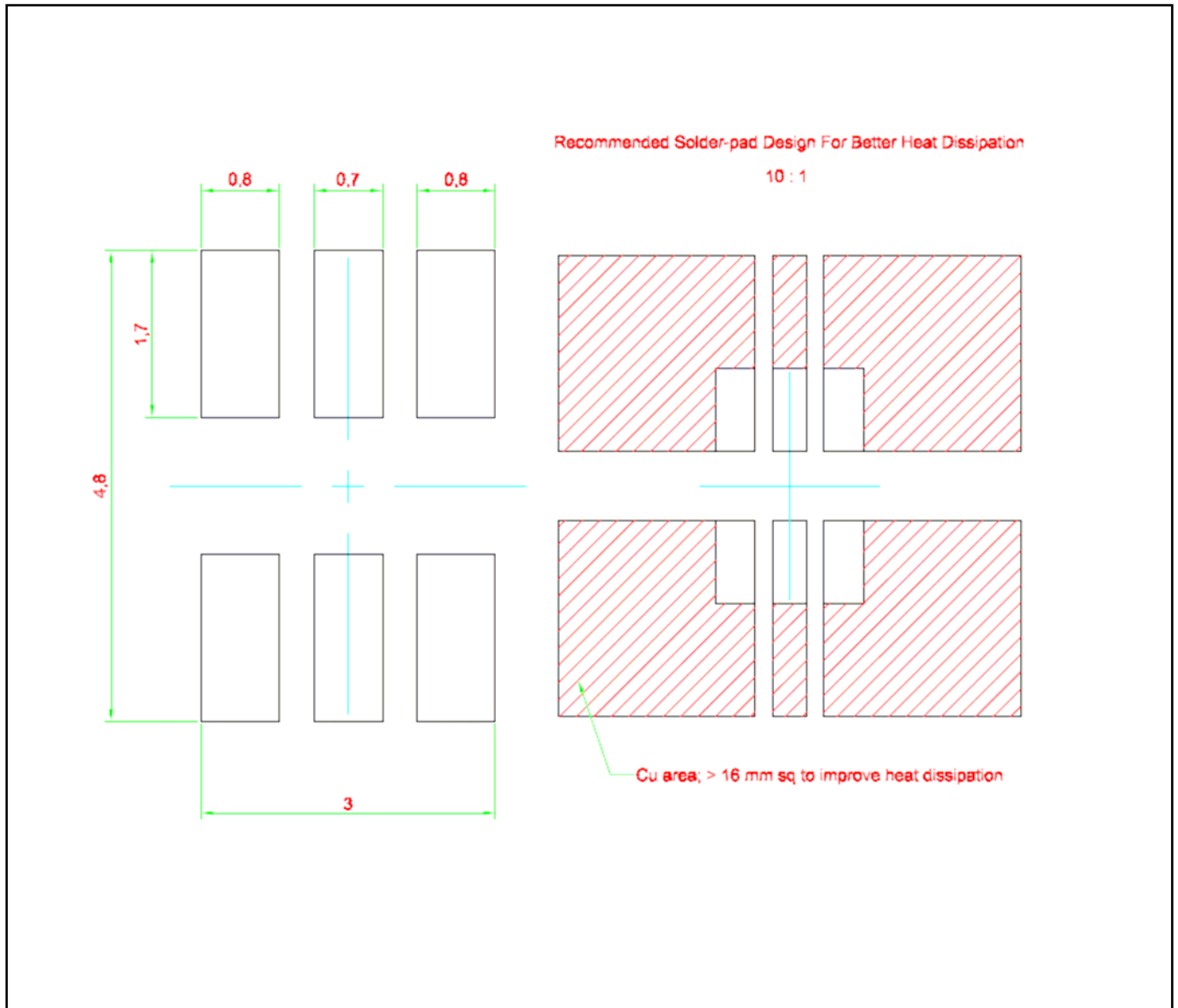
**Radiation Pattern**



### Multi DomiLED™ : D6RTB-DJD Package Outlines

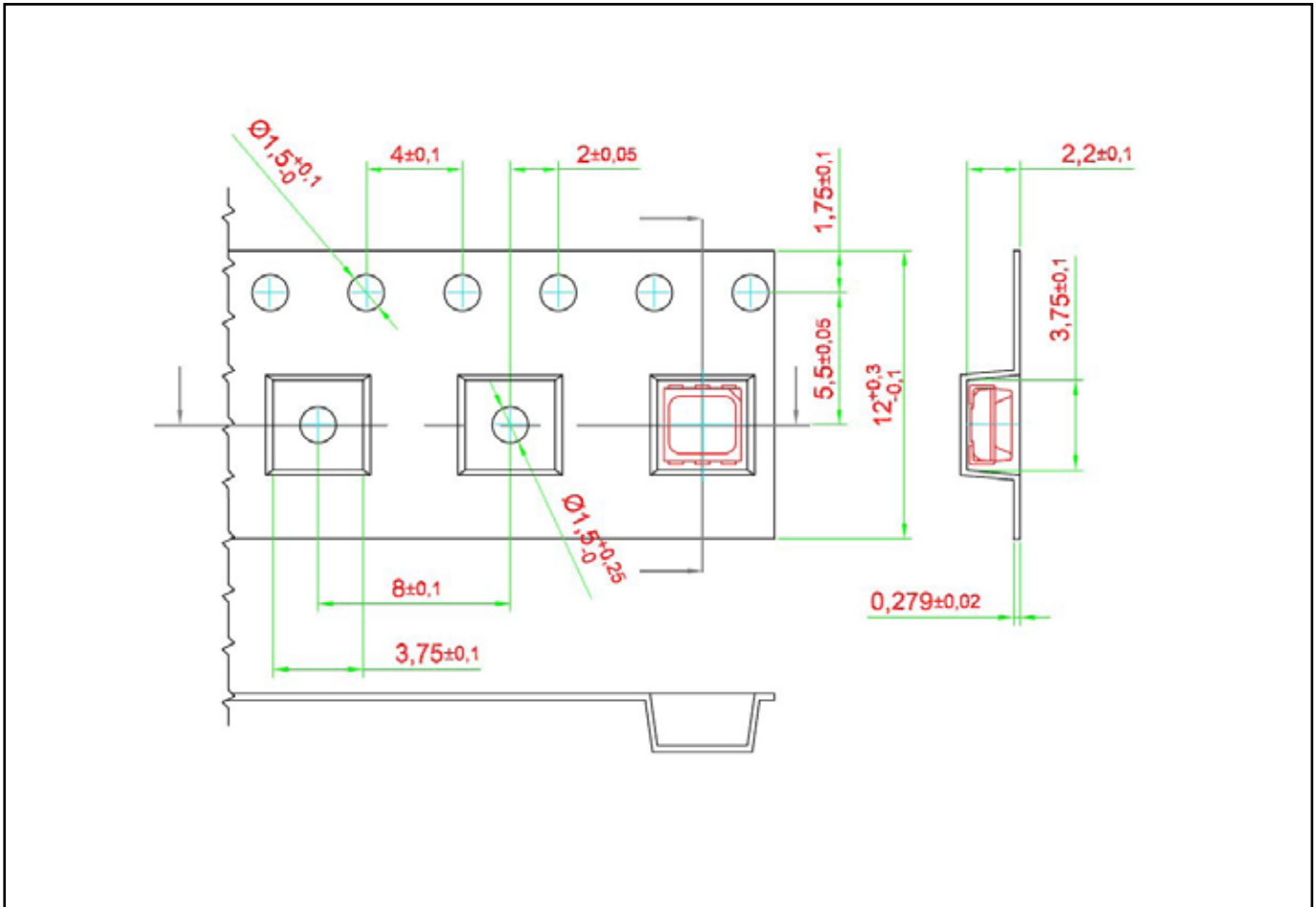


### Recommended Solder Pad



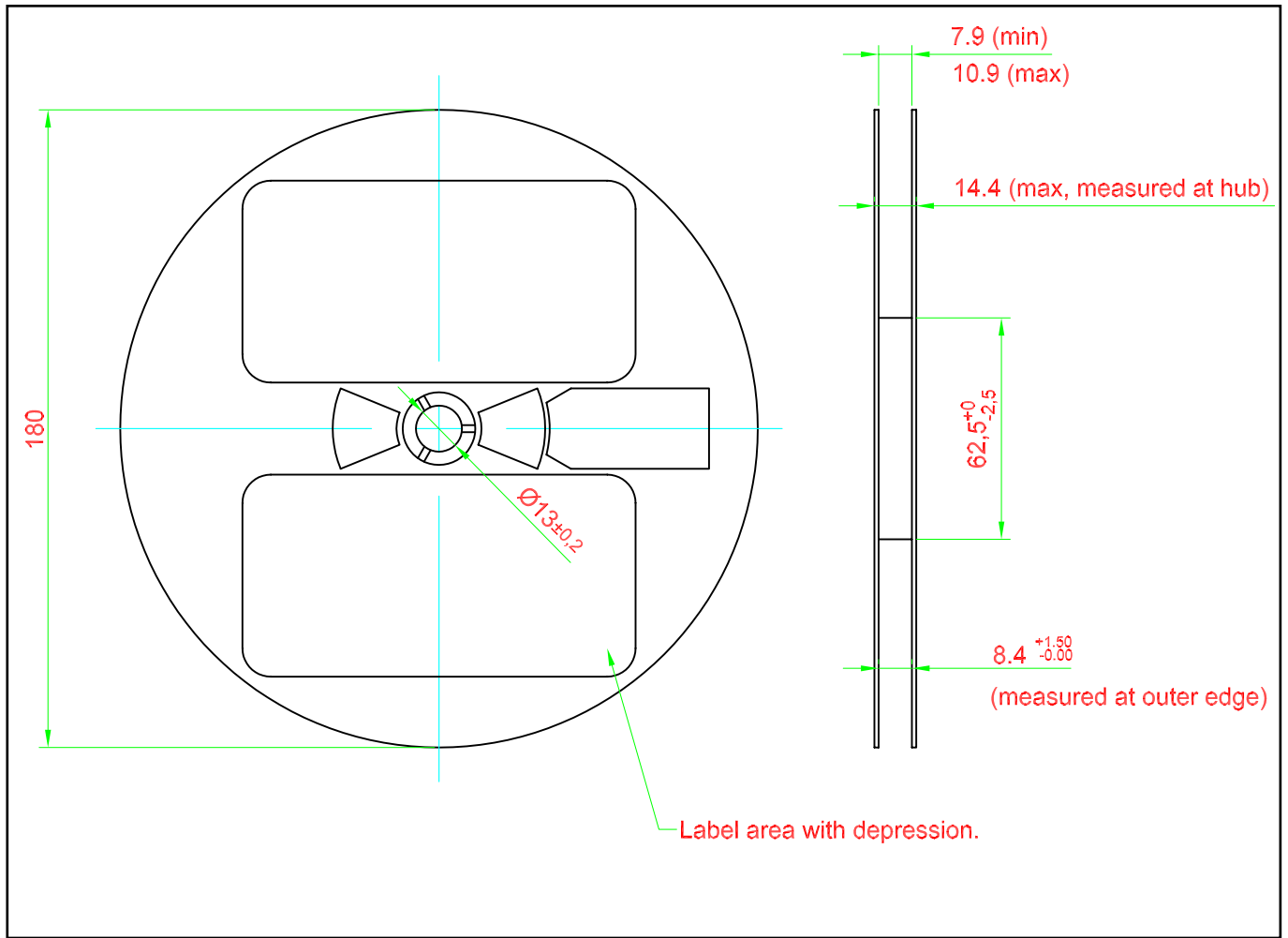
### Taping and orientation

- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.

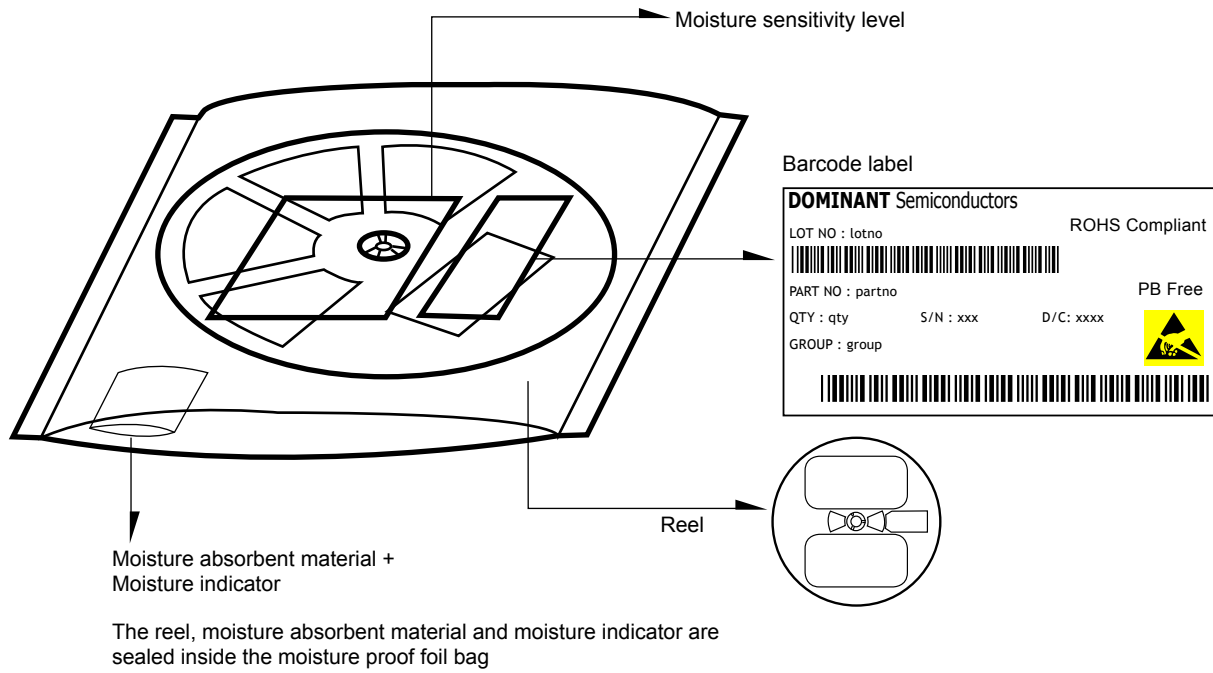




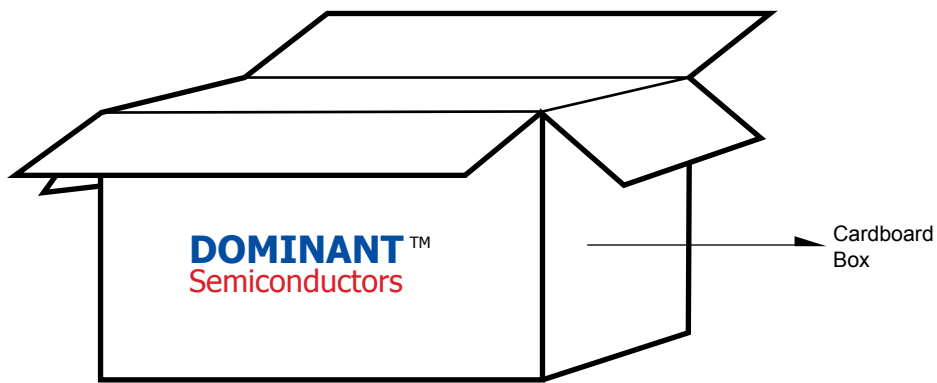
**Packaging Specification**



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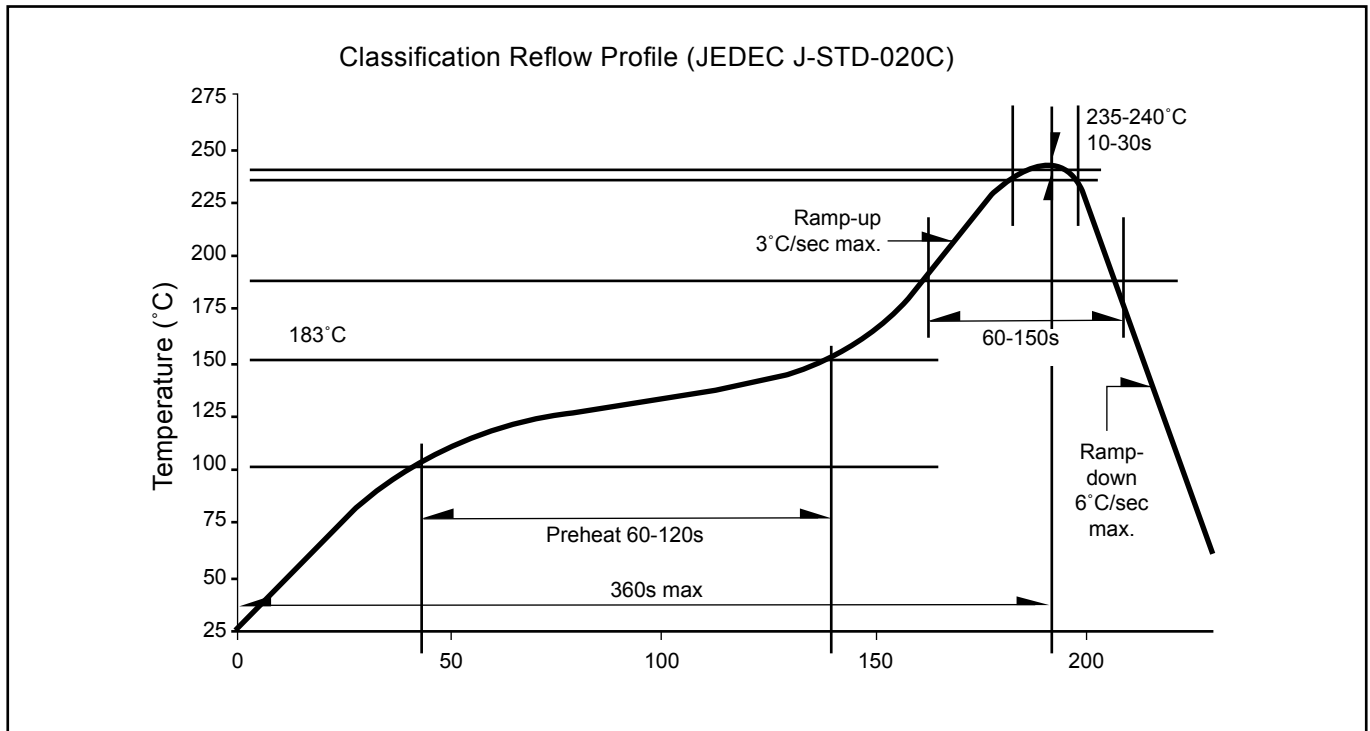
|               | Average 1pc DomiLED/Multi DomiLED | 1 completed bag (1000pcs) |
|---------------|-----------------------------------|---------------------------|
| Weight (gram) | 0.034                             | 100 ± 10                  |



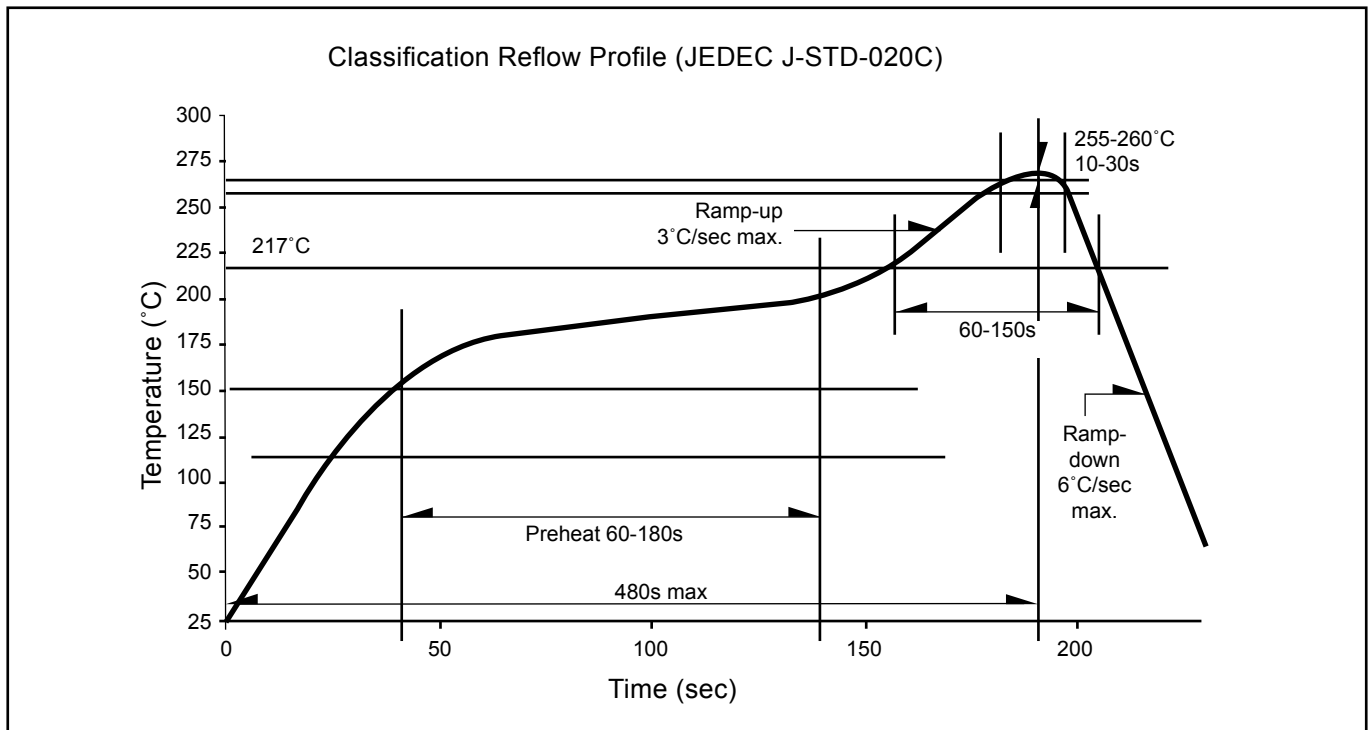
**For Multi DomiLED™**

| 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 | 15,000 MAX           |
| Large              | 416 x 516 x 476 | 1.74                  | 50 reels MAX | 50,000 MAX           |

**Recommended Sn-Pb IR-Reflow Soldering Profile**



**Recommended Pb-free Soldering Profile**



**Revision History**

| Page | Subjects                                      | Date of Modification |
|------|---|----------------------|
| -    | Change to official format                     | 05 Mar 2007          |
| 3    | - Add Thermal Resistance Junction/Ambient     | 16 May 2007          |
| 5    | - Add Max permissible Forward Current Graph   | 16 May 2007          |
| 5    | - Add Allowable Forward Current Vs Duty Ratio | 16 May 2007          |
|      |   |                      |
|      |   |                      |
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## 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>.

Please contact us for more information:

### Head Quarter

DOMINANT Semiconductors Sdn. Bhd.  
Lot 6, Batu Berendam, FTZ Phase III, 75350 Melaka, Malaysia  
Tel: (606) 283 3566 Fax: (606) 283 0566  
E-mail: [sales@dominant-semi.com](mailto:sales@dominant-semi.com)

### DOMINANT China Sales Office

DOMINANT Semiconductors (Shenzhen) Co. Ltd.  
24BC Newbaohui Building, No. 1007 West Nanhai Blvd., Nanshan, Shenzhen, China P.C. 518054  
Tel: +86 (755) 86031785 / +86 (755) 86031786 Fax: +86 (755) 86031789  
E-mail: [sales\\_china@dominant-semi.com](mailto:sales_china@dominant-semi.com)

### DOMINANT Korea Sales Office

DOMINANT Semiconductors Korea Inc.  
902 Sunil Technopia, 440 Sangdaewon-dong, Jungwon-gu, Sungnam-si, Kyunggi-do, Korea 462726  
Tel: 82-31-777-3978 Fax: 82-31-777-3976  
E-mail: [sales\\_korea@dominant-semi.com](mailto:sales_korea@dominant-semi.com)

