

# LUMBF205 thru LUMBF260

Glass Passivated Junction Ultra Fast Rectifiers

Reverse Voltage 50 to 600V Forward Current 2.0A

## FEATURES

- \* Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- \* High temperature metallurgically bonded construction
- \* Glass passivated chip
- \* Capable of meeting environmental standards of MIL-S-19500
- \* For use in high frequency rectifier circuits
- \* Fast switching for high efficiency
- \* High temperature soldering guaranteed: 260°C/10 seconds

## Mechanical Data

**Case:** JEDEC SMB-FL, molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denotes cathode end

**Mounting Position:** Any

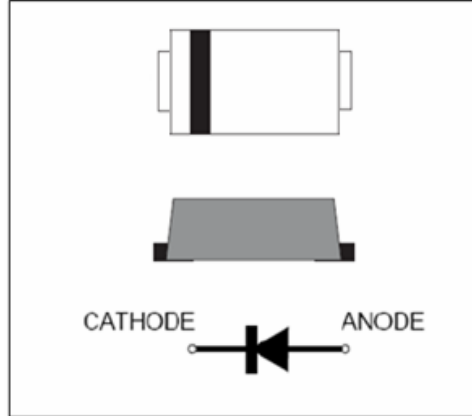
**Weight:** 0.066 g

**Handling precaution:** None

## Electrical Characteristic

### 1. Maximum & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter Symbol                                                                                 | symbol                         | LUMB<br>F205 | LUMB<br>F210 | LUMB<br>F215 | LUMB<br>F220 | LUMB<br>F240 | LUMB<br>F250 | LUMB<br>F260 | Unit |
|--------------------------------------------------------------------------------------------------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------|
| device marking code                                                                              |                                | UM205        | UM210        | UM215        | UM220        | UM240        | UM250        | UM260        |      |
| Maximum repetitive peak reverse voltage                                                          | $V_{RRM}$                      | 50           | 100          | 150          | 200          | 400          | 500          | 600          | V    |
| Maximum RSM voltage                                                                              | $V_{RSM}$                      | 35           | 70           | 105          | 140          | 280          | 350          | 420          | V    |
| Maximum DC blocking voltage                                                                      | $V_{DC}$                       | 50           | 100          | 150          | 200          | 400          | 500          | 600          | V    |
| Maximum average forward rectified current at TC = 75°C                                           | IF(AV)                         | 2.0          |              |              |              |              |              |              | A    |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$                      | 60           |              |              |              |              |              |              | A    |
| Typical thermal resistance (Note 2)                                                              | R $\theta$ JA<br>R $\theta$ JC | 135<br>25    |              |              |              |              |              |              | °C/W |
| Operating junction and storage temperature range                                                 | TJ, TSTG                       | -50 to +150  |              |              |              |              |              |              | °C   |



we declare that the material of product is halogen free (green epoxy compound).

### Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter Symbol                                                                                                                     | symbol | LUMB<br>F205 | LUMB<br>F210 | LUMB<br>F215 | LUMB<br>F220 | LUMB<br>F240 | LUMB<br>F250 | LUMB<br>F260 | Unit |
|--------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------|
| Maximum Instantaneous Forward Voltage<br>(IF = 2.0 Amps, TJ = 25°C)                                                                  | VF     | 0.93         |              |              |              | 1.25         |              | 1.5          | V    |
| Maximum full load reverse current, full cycle<br>average, (note2)<br>(Rated dc Voltage, TJ = 125°C)<br>(Rated dc Voltage, TJ = 25°C) | IR     | 150<br>5.0   |              |              |              |              |              |              | µA   |
| Typical reverse recovery time (Note 1)                                                                                               | trr    | 35           |              |              |              | 50           |              |              | ns   |
| Typical junction capacitance at 4.0V, 1MHz                                                                                           | CJ     | 45           |              |              |              |              |              |              | PF   |

NOTES:

1. IF = 0.5A, IR = 1.0A, IRR = 0.25A
2. 8.0mm<sup>2</sup> (.013mm thick) land areas

## LUMBF205 thru LUMBF260

### 2. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

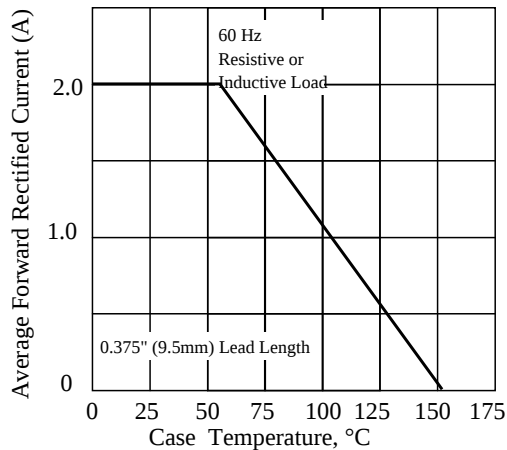


Fig. 2 - Maximum Non-repetitive Peak

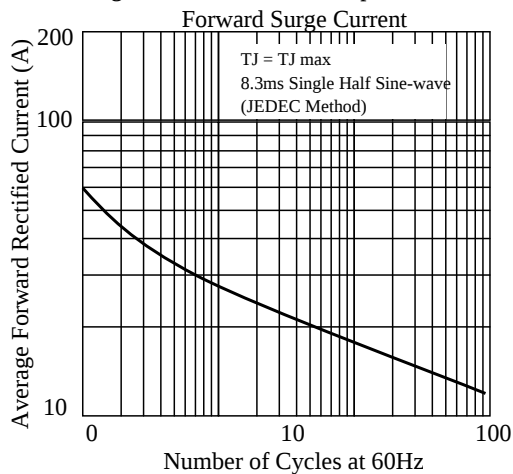


Fig 3. - Typical Instantaneous Forward Characteristics

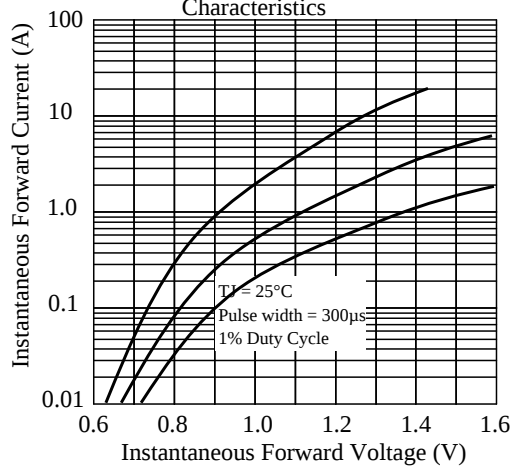


Fig 4. - Typical Reverse Characteristics

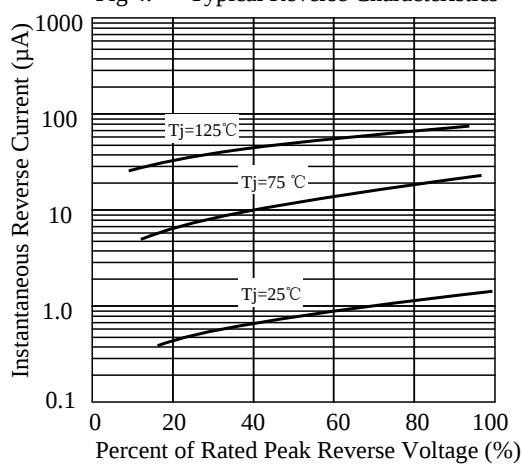


Fig 5. - typical transient thermal impedance

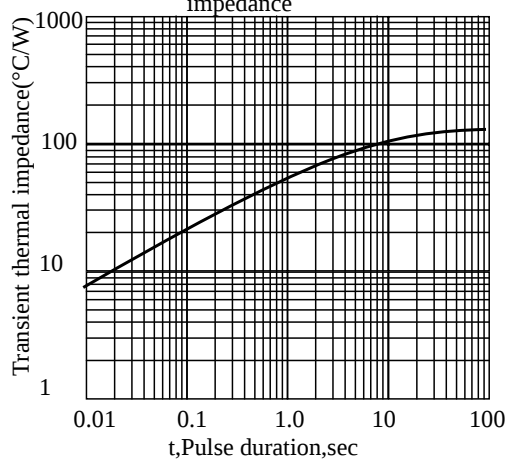
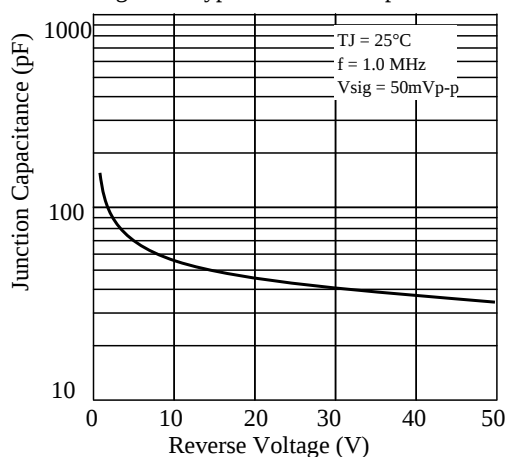


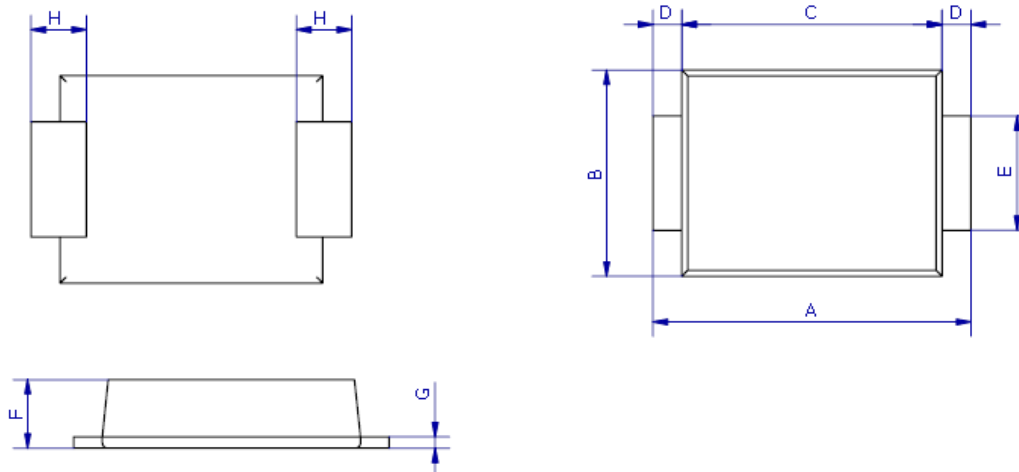
Fig 6. - Typical Junction Capacitance



## LUMBF205 thru LUMBF260

### 3. dimension:

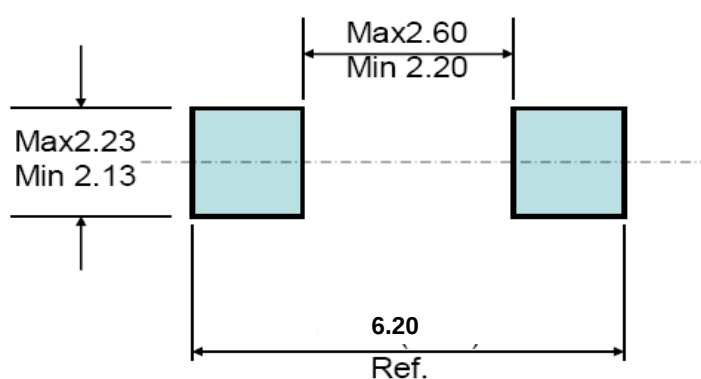
SMB-FL



| DIM | MILLIMETERS |      | INCHES   |         |
|-----|-------------|------|----------|---------|
|     | MIN         | MAX  | MIN      | MAX     |
| A   | 5.3         | 5.7  | 0.209    | 0.224   |
| B   | 3.4         | 3.8  | 0.134    | 0.150   |
| C   | 4.3         | 4.7  | 0.169    | 0.185   |
| D   | 0.45Typ     |      | 0.018Typ |         |
| E   | 1.9         | 2.1  | 0.0748   | 0.08268 |
| F   | 1.05        | 1.40 | 0.04134  | 0.05512 |
| G   | 0.2         | 0.3  | 0.00591  | 0.00984 |
| H   | 0.95Typ     |      | 0.037Typ |         |

### Mounting Pad Layout

--- SMB-FL

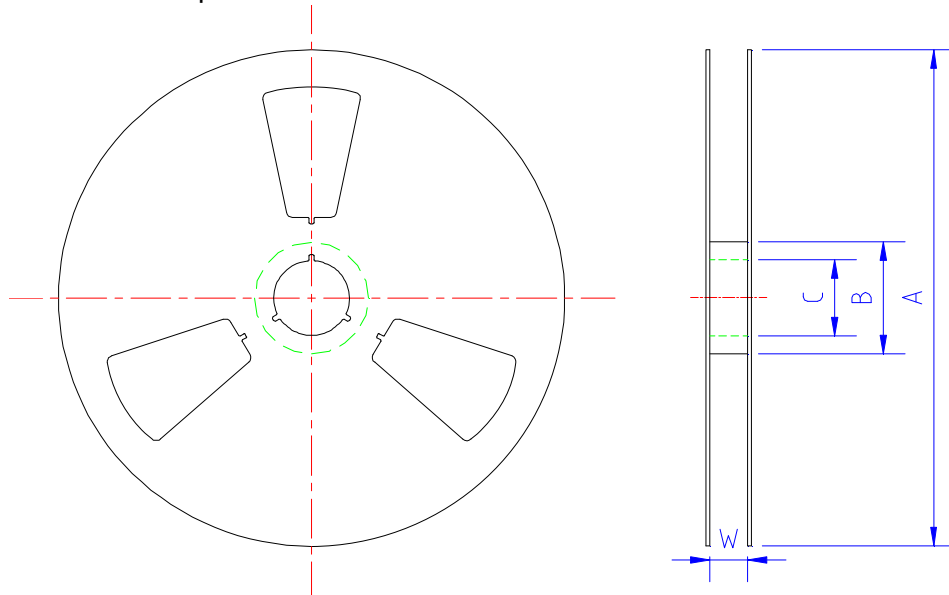


|                                                        |                               |
|--------------------------------------------------------|-------------------------------|
| Title:<br><b>Power Diode SMD Package Pa cking Spec</b> | DOC NO.: WI-258               |
|                                                        | Version: 5    Modification: 0 |
|                                                        | Page: 2                       |

## 5.1 、 SMD Packing Reel Spec & Packing Quantity

### 5.1.1 Reel Packing

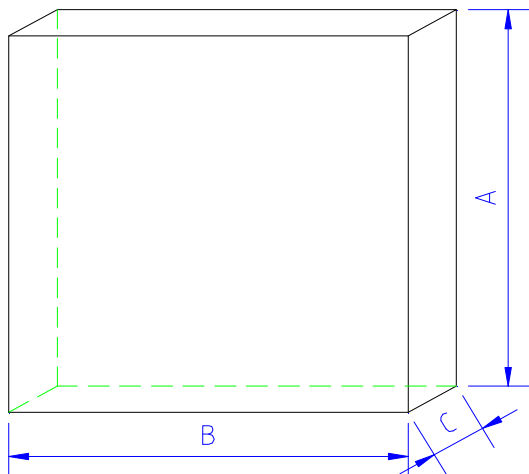
#### A. Reel Spec



unit: mm

| SPEC             | A         | B        | C        | W        | Quantity/Reel |
|------------------|-----------|----------|----------|----------|---------------|
| SMA-FL 7" reel   | 177.0±2.0 | 54.0±0.5 | 13.0±0.5 | 13.2±0.2 | 3K            |
| TO277 13" reel   | 330.0±2.0 | 75.0±0.5 | 13.0±0.5 | 13.2±0.2 | 5K            |
| SOD123FL 7" reel | 177.0±2.0 | 50.0±0.5 | 13.0±0.5 | 9.4±1.5  | 3K            |
| SOD323HE 7" reel | 177.0±2.0 | 50.0±0.5 | 13.0±0.5 | 9.4±1.5  | 3K            |
| SMB-FL 13" reel  | 330.0±2.0 | 75.0±0.5 | 13.0±0.5 | 13.2±0.2 | 5K            |

#### B. 13" reel packing box



unit: mm

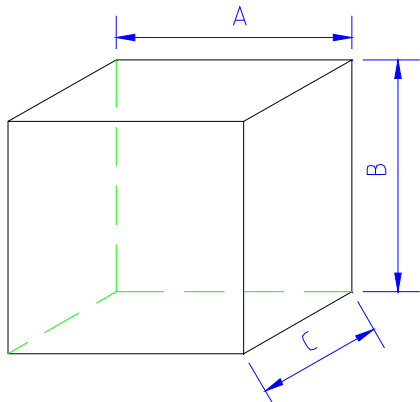
|      | A       | B       | C      |
|------|---------|---------|--------|
| size | 335±5.0 | 335±2.0 | 40±1.0 |

as per above packing

| Spec            | Q' ty/Box |
|-----------------|-----------|
| TO277 13" reel  | 10K       |
| SMB-FL 13" reel | 10K       |

|                                                |                 |
|------------------------------------------------|-----------------|
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C. 7" reel packing box



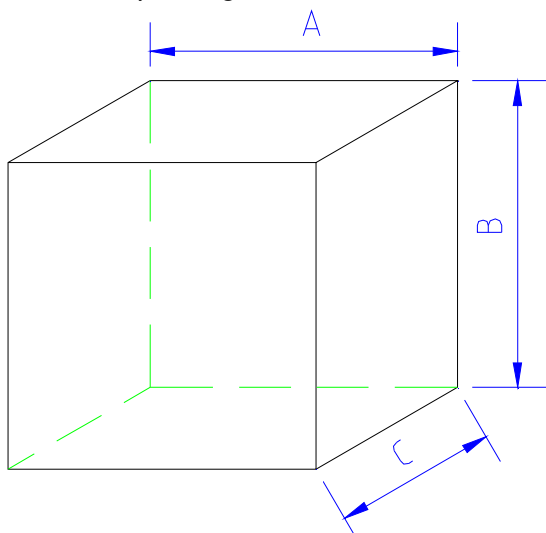
unit: mm

|                                | A       | B       | C       |
|--------------------------------|---------|---------|---------|
| SMA-FL<br>SOD123FL<br>SOD323HE | 186±2.0 | 139±2.0 | 185±2.0 |

as per above packing

|          | Q' ty/Box |
|----------|-----------|
| SMA-FL   | 30K       |
| SOD123FL | 30K       |
| SOD323HE | 30K       |

D. reel packing carton



unit: mm

|      | A       | B       | C       |
|------|---------|---------|---------|
| size | 350±2.0 | 340±2.0 | 350±2.0 |

as per above packing

| Spec            | Q' ty/Carton |
|-----------------|--------------|
| TO277 13" reel  | 80K          |
| SMB-FL 13" reel | 80K          |

unit: mm

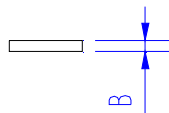
|                                | A       | B       | C       |
|--------------------------------|---------|---------|---------|
| SMA-FL<br>SOD123FL<br>SOD323HE | 455±2.0 | 400±2.0 | 410±2.0 |

as per above packing

| Spec              | Q' ty/Carton |
|-------------------|--------------|
| SMA-FL 7" reel    | 360K         |
| SOD123-FL 7" reel | 360K         |
| SOD323HE 7" reel  | 360K         |

### 5.1.2 Tape Spec

A. Cover Tape

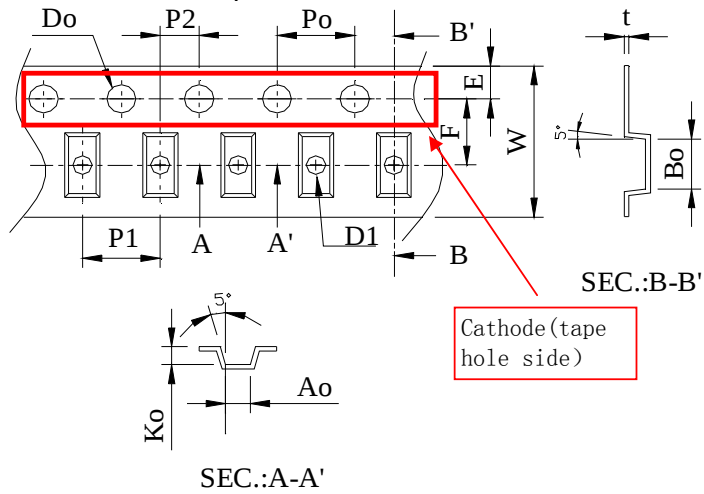


unit: mm

|                           | A        | B           |
|---------------------------|----------|-------------|
| SMA-FL<br>SMB-FL<br>TO277 | 9.5±0.10 | 0.062±0.007 |
| SOD123FL<br>SOD323HE      | 5.4±0.10 |             |

|                                                    |                               |
|----------------------------------------------------|-------------------------------|
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### B. Carrier Tape

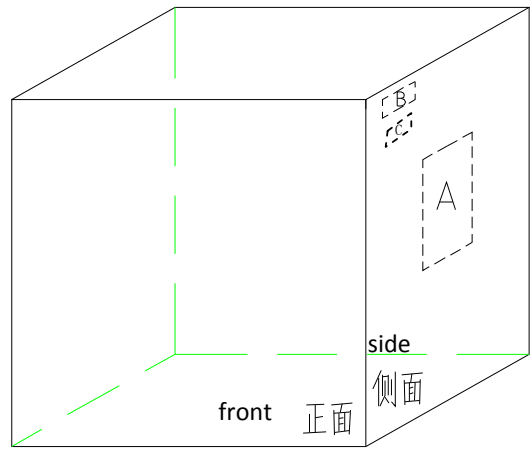
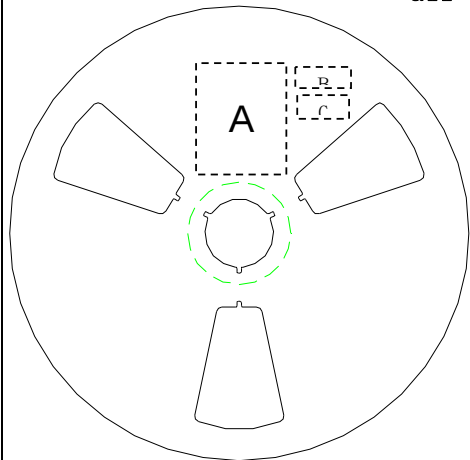


| Item | SOD323HE  | SOD123FL  | SMA-FL    | SMB-FL    | TO277     |
|------|-----------|-----------|-----------|-----------|-----------|
| W    | 8±0.3     | 8±0.3     | 12±0.3    | 12±0.3    | 12±0.3    |
| P1   | 4±0.1     | 4±0.1     | 4±0.1     | 8±0.1     | 8±0.1     |
| E    | 1.75±0.1  | 1.75±0.1  | 1.75±0.1  | 1.75±0.1  | 1.75±0.1  |
| F    | 3.5±0.05  | 3.5±0.05  | 5.5±0.05  | 5.5±0.05  | 5.5±0.05  |
| D0   | 1.55±0.05 | 1.55±0.05 | 1.55±0.05 | 1.55±0.05 | 1.55±0.05 |
| D1   | 1.1±0.1   | 1.1±0.1   | 1.5±0.1   | 1.55±0.05 | 1.5±0.1   |
| P0   | 4±0.1     | 4±0.1     | 4±0.1     | 4±0.1     | 4±0.1     |
| P2   | 2±0.05    | 2±0.05    | 2±0.05    | 2±0.05    | 2±0.05    |
| 10P0 | 40±0.2    | 40±0.2    | 40±0.2    | 40±0.2    | 40±0.2    |
| A0   | 1.45±0.1  | 1.95±0.1  | 2.83±0.1  | 3.8±0.1   | 4.3±0.1   |
| B0   | 2.75±0.1  | 3.95±0.1  | 4.75±0.1  | 5.75±0.1  | 6.8±0.1   |
| K0   | 0.80±0.1  | 1.30±0.1  | 1.42±0.1  | 1.4±0.1   | 1.35±0.1  |
| T    | 0.25±0.05 | 0.25±0.05 | 0.25±0.05 | 0.25±0.05 | 0.25±0.05 |

|                                                       |                 |                 |
|-------------------------------------------------------|-----------------|-----------------|
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|                                                       | Version: 5      | Modification: 0 |
|                                                       | Page: 5         |                 |

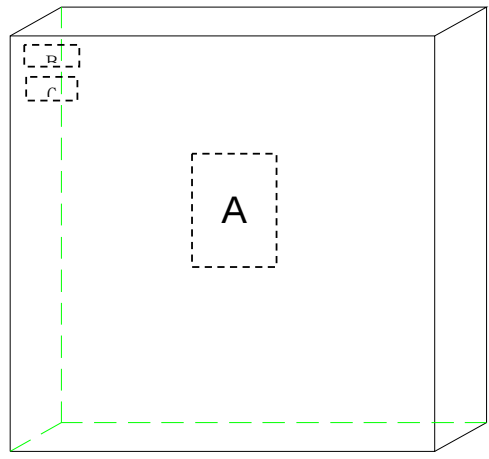
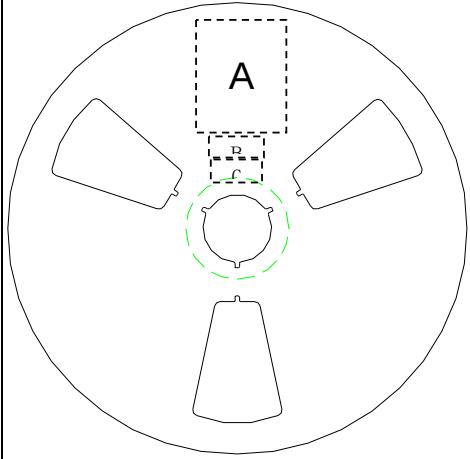
### 5.2、SMD Power Diode General Packing Spec

A. 7" reel                      all labels will be at cathode side of reel    ;



A:LRC label;                      B:Environment Label    C:Halide free label

B. 13" reel



A:LRC label;                      B:Environment Labe    C:Halide free label

C.Tape lead: face anode side of the reel,upper side is the tape lead position. All labels are at cathode side of the reel.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                 |
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| 标题:<br><br>Power Diode SMD Package Packing Spec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DOC NO.: WI-258                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Version: 5      Modification: 0 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Page: 6                         |
| <div> <div> <div>C. Label Content :</div> <div>LRC Label</div> <div> <div> <div>P/N</div> <div>→</div> <div>(1P) LPN: SM140A</div> </div> <div> <div>Lot No.</div> <div>→</div> <div>(1T) LOT: 140106049X</div> </div> <div> <div>Date code</div> <div>→</div> <div>(9D) DTE: 1403</div> </div> <div> <div>Quantity</div> <div>→</div> <div>(Q) QTY: 10000</div> </div> </div> <div> <div>Two-dimension code</div> <div>→</div> <div>  <div> <div>CS:LESHAN</div> <div>Pb FREE PLTG</div> <div>assembled in CHINA</div> </div> </div> <div> <div>Manufacturing</div> <div>→</div> <div>CS:LESHAN</div> </div> <div> <div>Maker</div> <div>→</div> <div>LRC</div> </div> </div> <div> <div>lot: 140106049X: 140106---2014/1/6; 049----lot number:49; X: product code</div> </div> <div> <div>Environment Label</div> <div>  </div> </div> <div> <div>Halide-free Label</div> <div>  </div> </div> </div> </div> |                                 |

## LUMBF205 thru LUMBF260

### 4. Update Record

| 版次 | 更新记录 | 更新作者 | 更新日期         |
|----|------|------|--------------|
| 1  | 第一版  | 周杰   | 2014. 04. 30 |