

SM520BF-E thru SM5100BF-E

Schottky Barrier Rectifiers

Reverse Voltage 20 to 100V Forward Current 5.0A

FEATURES

- * Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- * Low power loss, high efficiency
- * For use in low voltage high frequency inverters, free wheeling, and polarity protection applications
- * Guardring for over voltage protection
- * High temperature soldering guaranteed: 260°C/10 seconds at terminals
- * IEC61000-4-2 ESD Air Contact $\geq \pm 15$ KV

Mechanical Data

Case: JEDEC SMB-FL

molded plastic over glass die

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

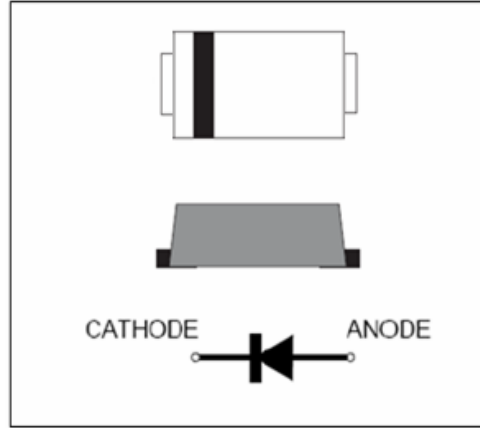
| Parameter Symbol | symbol | SM520 BF-E | SM530 BF-E | SM540 BF-E | SM550 BF-E | SM560 BF-E | SM580 BF-E | SM5100 BF-E | Unit |
|--|--------------------------------|-------------|------------|------------|------------|------------|------------|-------------|------|
| device marking code | | S52• | S53• | S54• | S55• | S56• | S58• | S510• | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| Maximum RSM voltage | V_{RSM} | 14 | 21 | 28 | 35 | 42 | 56 | 70 | V |
| Maximum DC blocking voltage | V_{DC} | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| Maximum average forward rectified current lead length at TC = 75°C | IF(AV) | 5.0 | | | | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 100 | | | | | | | A |
| Typical thermal resistance (Note1) | R θ JA R θ JC | 135 25 | | | | | | | °C/W |
| Operating junction and storage temperature range | TJ, TSTG | -40 to +150 | | | | | | | °C |

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|--|--------|-------------|------------|------------|------------|------------|------------|-------------|------|
| Maximum instantaneous forward voltage at 5.0A | V_F | 0.50 | | | 0.70 | | 0.85 | | V |
| Maximum DC reverse current TA = 25°C at rated DC blocking voltage TJ = 100°C | IR | 0.5 10.0 | | | | | mA | | |
| Typical junction capacitance at 4.0V, 1MHz | CJ | 110 | | | | | | | PF |

NOTES:

- 8.0mm² (.013mm thick) land areas



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

SM520BF-E thru SM5100BF-E

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

Fig. 1 - Forward Current Derating Curve

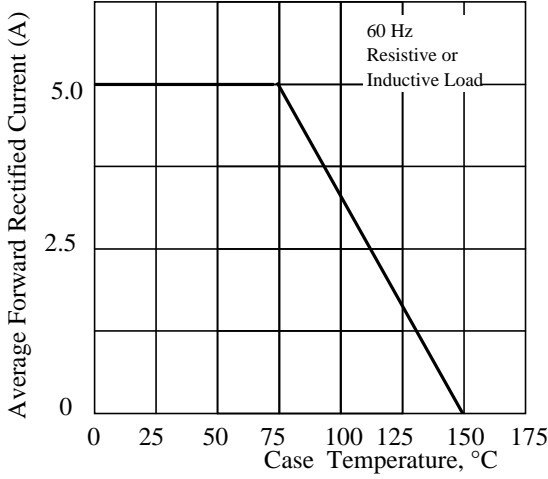


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

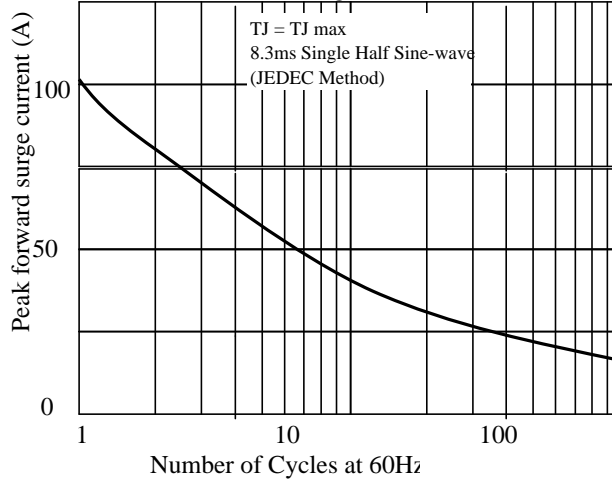


Fig 3. - Typical Instantaneous Forward Characteristics

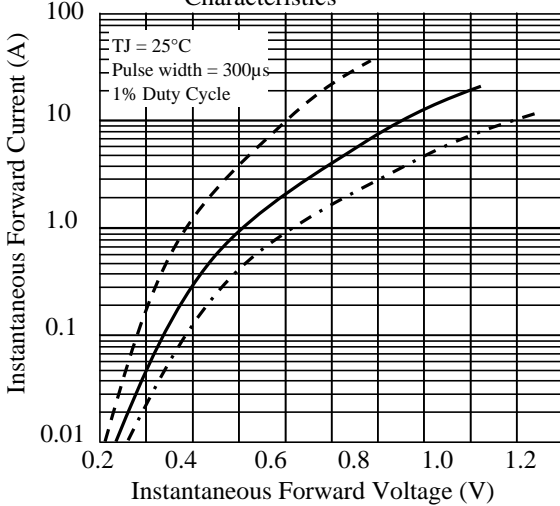


Fig 4. - Typical Reverse Characteristics

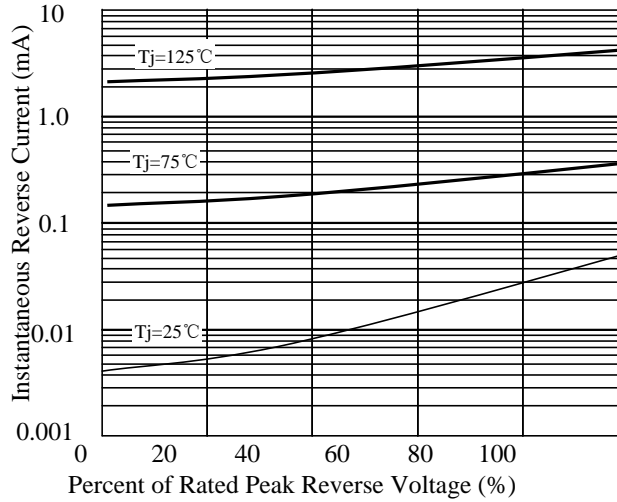


Fig 5. - typical transient thermal impedance

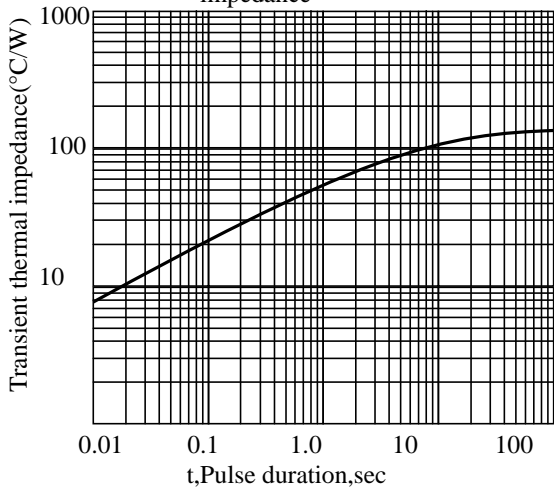
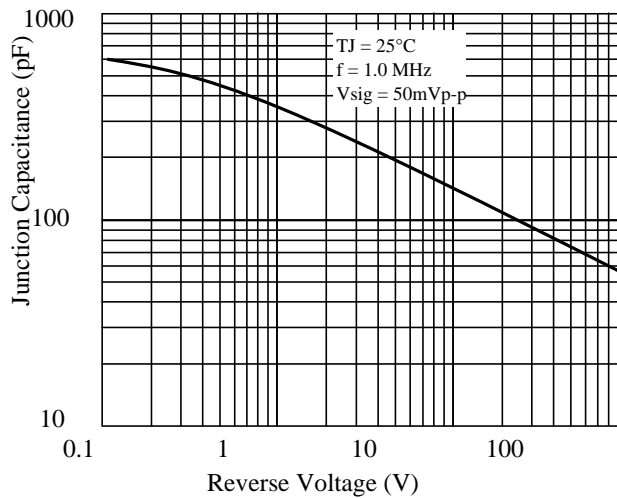


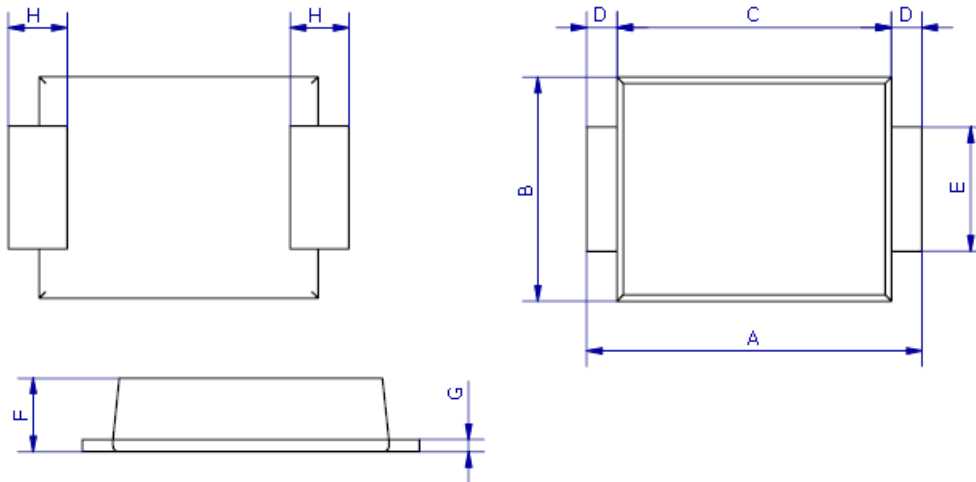
Fig 6. - Typical Junction Capacitance



SM520BF-E thru SM5100BF-E

3. dimension:

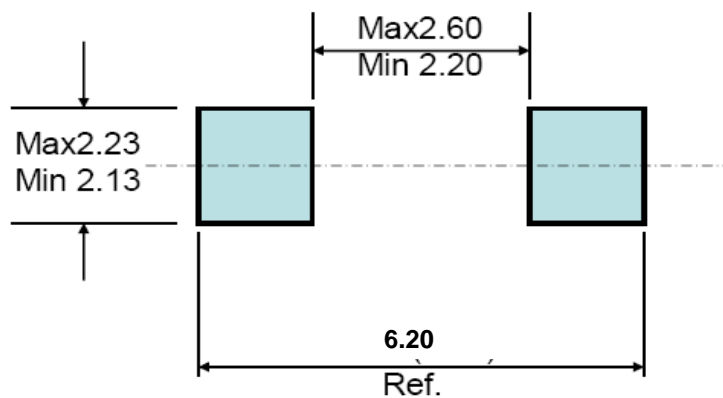
SMB-FL



| 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

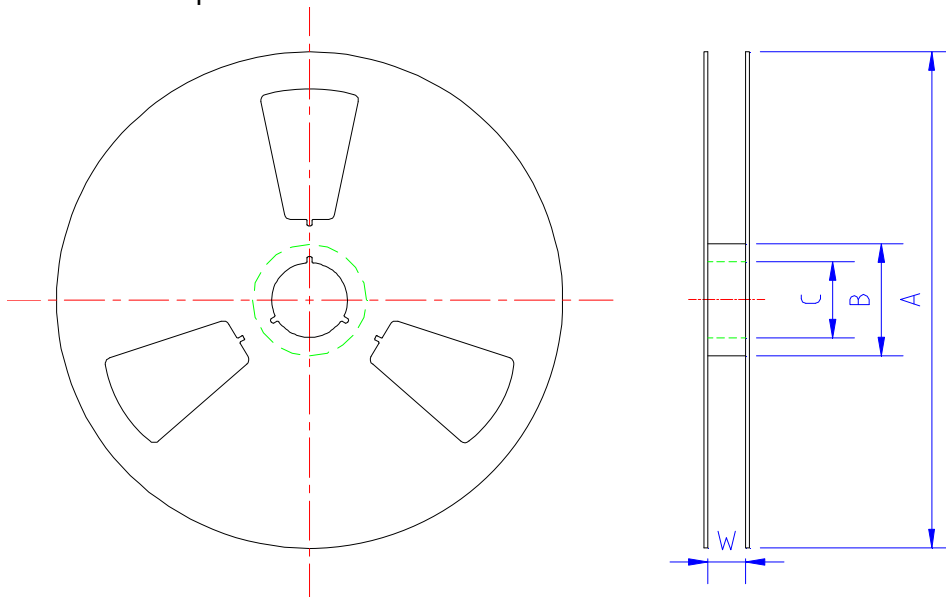
--- SMB-FL



5.1 、 SMD Packing Reel Spec & Packing Quantity

5.1.1 Reel Packing

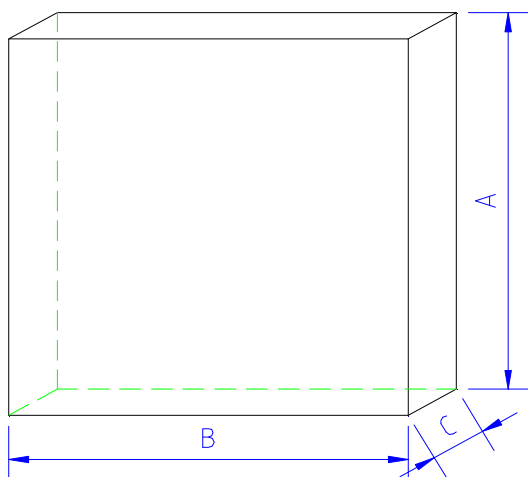
A. Reel Spec



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



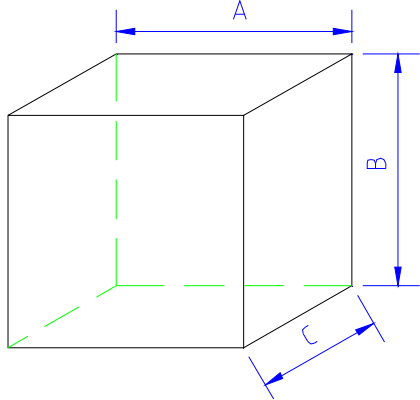
unit: mm

| size | A | B | C |
|------|---------|---------|--------|
| | 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 |

C. 7" reel packing box



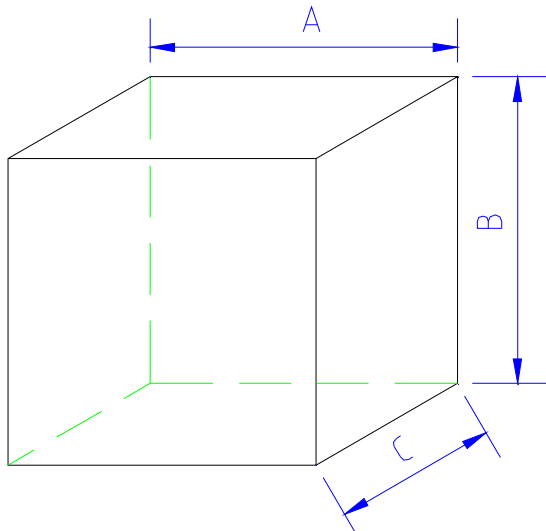
unit: mm

| | A | B | C |
|--------------------------------|---------|---------|---------|
| SMA-FL SOD123FL 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 SOD123FL 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 |

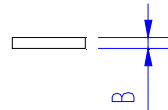
5.1.2 Tape Spec

A. Cover Tape

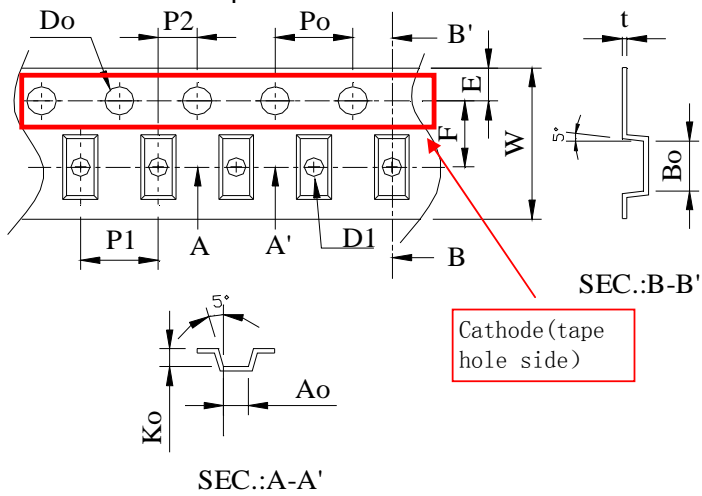


unit: mm

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



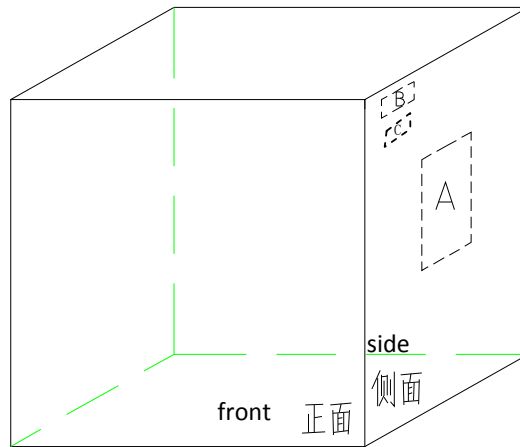
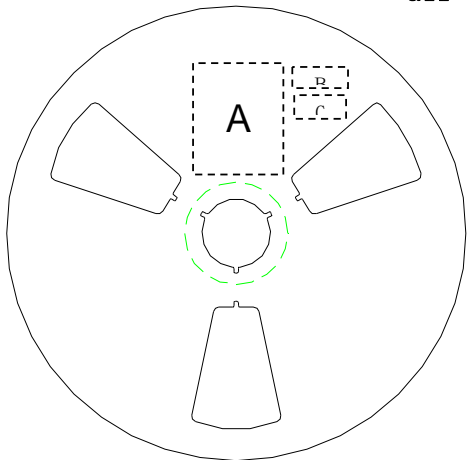
B. Carrier Tape



| 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 |

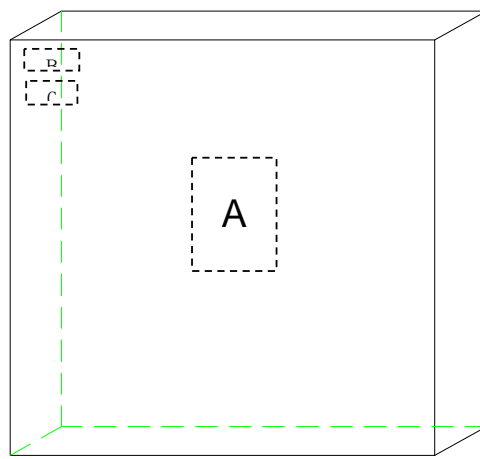
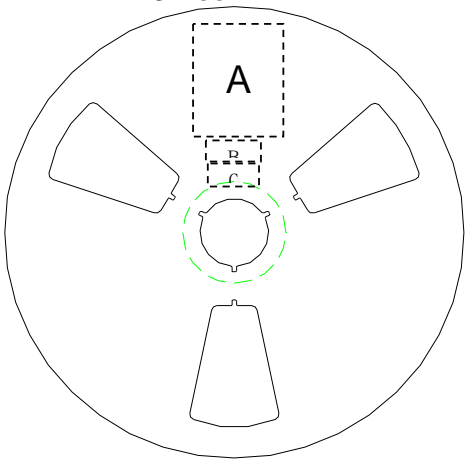
5.2、SMD Power Diode General Packing Spec

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

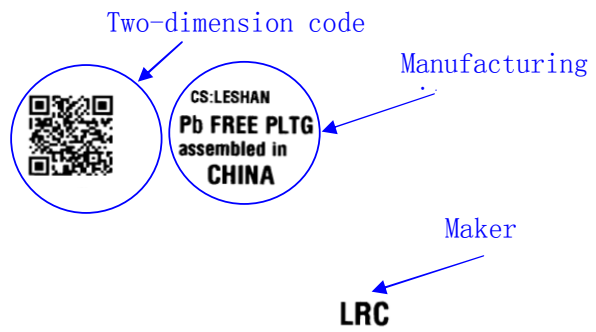
C. Tape lead: face anode side of the reel, upper side is the tape lead position. All labels are at cathode side of the reel.



| | |
|---|-------------------------------|
| 标题: Power Diode SMD Package Packing Spec | DOC NO.: WI-258 |
| | Version: 5 Modification: 0 |
| | Page: 6 |

C. Label Content :
LRC Label

P/N → (1P) LPN: SM140A
 Lot No. → (1T) LOT: 140106049X
 Date code → (9D) DTE: 1403
 Quantity → (Q) QTY: 10000



lot: 140106049X: 140106---2014/1/6; 049----lot number:49; X: product code

Environment Label



Halide-free Label



SM520BF-E thru SM5100BF-E

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 |