

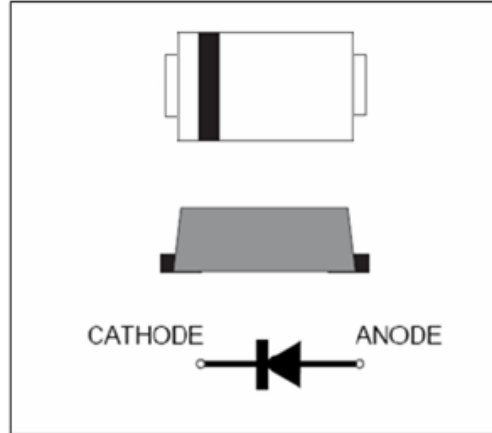
# FMAF401 thru FMAF407

## Surface Mount Glass Passivated Junction Rectifiers

### Reverse Voltage 50 to 1000V Forward Current 1.0A

#### FEATURES

- \* Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- \* High temperature metallurgically bonded construction
- \* Cavity-free glass passivated junction
- \* Capable of meeting environmental standards of MIL-S-19500
- \* Typical IR less than 1.0 $\mu$ A
- \* High temperature soldering guaranteed: 260°C/10 seconds



We declare that the material of product is Halogen free (green epoxy compound)

#### Mechanical Data

**Case:** JEDEC SMA-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:** 0.0327g

**Handling precaution:** None

#### Electrical Characteristic

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

| Parameter Symbol   | symbol                             | FMAF 401    | FMAF 402 | FMAF 403 | FMAF 404 | FMAF 405 | FMAF 406 | FMAF 407 | Unit               |
|--|------------------------------------|-------------|----------|----------|----------|----------|----------|----------|--------------------|
| Device marking code  |                                    | M01         | M02      | M03      | M04      | M05      | M06      | M07      |                    |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$                          | 50          | 100      | 200      | 400      | 600      | 800      | 1000     | V                  |
| Maximum RSM voltage  | $V_{RMS}$                          | 35          | 70       | 140      | 280      | 420      | 560      | 700      | V                  |
| Maximum DC blocking voltage  | $V_{DC}$                           | 50          | 100      | 200      | 400      | 600      | 800      | 1000     | V                  |
| Maximum average forward rectified current lead length at $T_c = 75^\circ\text{C}$ (Note 1)       | $I_{F(AV)}$                        | 1.0         |          |          |          |          |          |          | A                  |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$                          | 30          |          |          |          |          |          |          | A                  |
| Typical thermal resistance (Note1)   | $R_{\theta JA}$<br>$R_{\theta Jc}$ | 150<br>25   |          |          |          |          |          |          | $^\circ\text{C/W}$ |
| Operating junction temperature range   | $T_J$                              | -55 to +150 |          |          |          |          |          |          | $^\circ\text{C}$   |
| storage temperature range  | $T_{STG}$                          | -65 to +175 |          |          |          |          |          |          | $^\circ\text{C}$   |

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

| Parameter Symbol   | symbol | FMAF 401   | FMAF 402 | FMAF 403 | FMAF 404 | FMAF 405 | FMAF 406 | FMAF 407 | Unit          |
|--|--------|------------|----------|----------|----------|----------|----------|----------|---------------|
| Maximum instantaneous forward voltage at 1.0A  | $V_F$  | 1.1        |          |          |          |          |          |          | V             |
| Maximum DC reverse current $T_J = 25^\circ\text{C}$ at rated DC blocking voltage $T_J = 125^\circ\text{C}$ | $I_R$  | 5.0<br>100 |          |          |          |          |          |          | $\mu\text{A}$ |
| Typical junction capacitance at 4.0V, 1MHz (Note 1)  | $C_J$  | 15.0       |          |          |          |          |          |          | PF            |

NOTES:

1. 8.0mm<sup>2</sup> (.013mm thick) land areas

## FMAF401 thru FMAF407

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

Fig. 1 - Forward Current Derating Curve

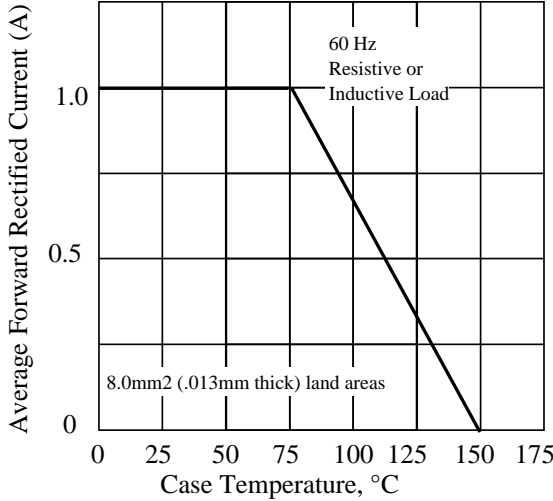


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

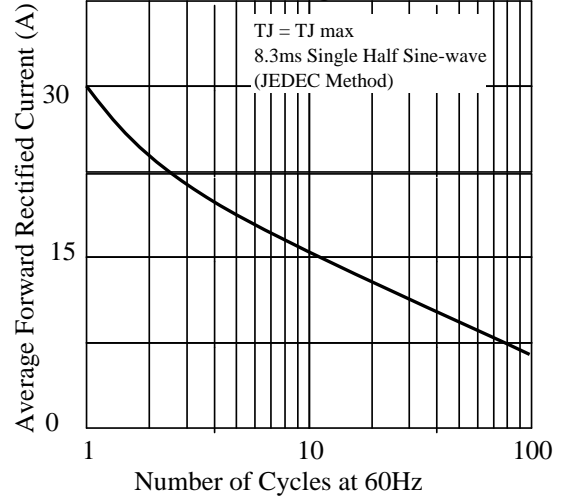


Fig 3. - Typical Instantaneous Forward Characteristics

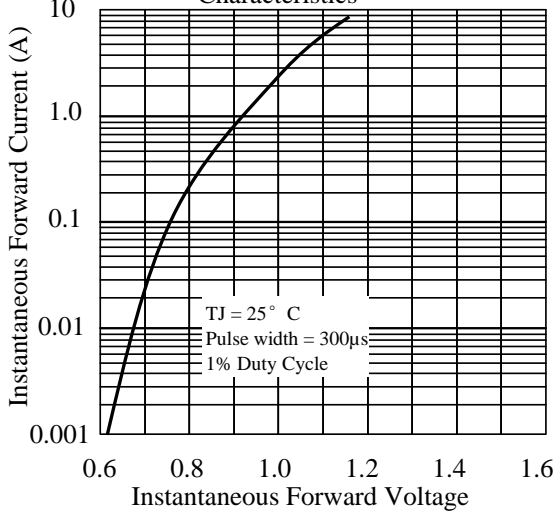


Fig 4. - Typical Reverse Characteristics

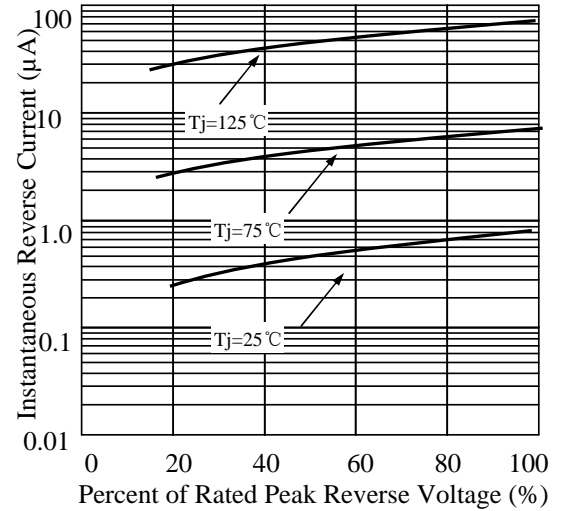


Fig 5. - typical transient thermal impedance

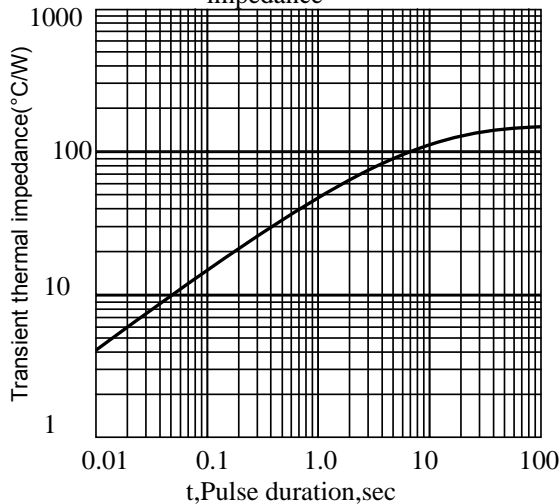
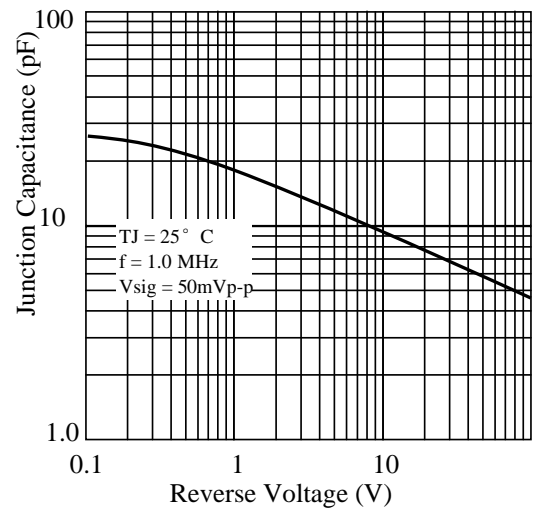


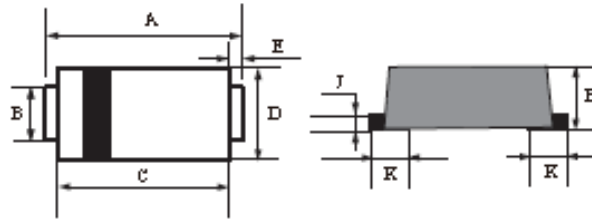
Fig 6. - Typical Junction Capacitance



## FMAF401 thru FMAF407

### 3. dimension:

SMA-FL

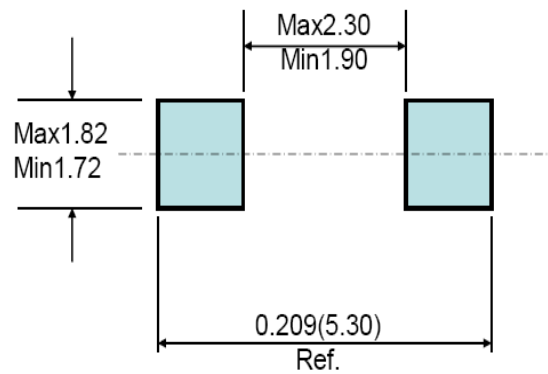


| DIM | MILLIMETERS |      | INCHES   |       |
|-----|-------------|------|----------|-------|
|     | MIN         | MAX  | MIN      | MAX   |
| A   | 4.4         | 4.8  | 0.173    | 0.189 |
| B   | 1.3         | 1.5  | 0.051    | 0.059 |
| C   | 3.3         | 3.7  | 0.130    | 0.146 |
| D   | 2.3         | 2.7  | 0.091    | 0.106 |
| E   | 0.90Typ     |      | 0.035Typ |       |
| H   | 0.9         | 1.2  | 0.036    | 0.047 |
| J   | 0.11        | 0.21 | 0.005    | 0.009 |

Suggested solder pad layout

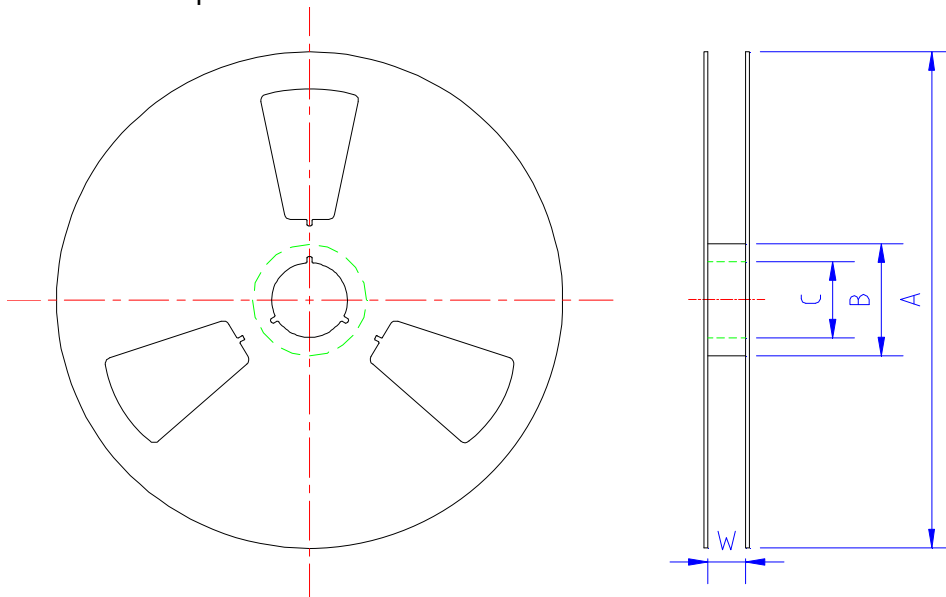
Mounting Pad Layout

SMA-FL



5.1 、 SMD Packing Reel Spec & Packing Quantity

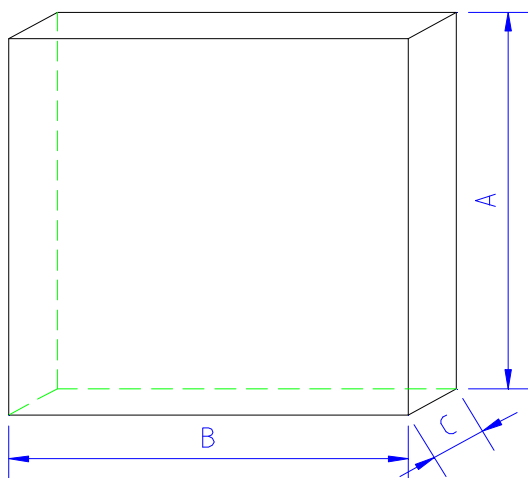
5.1.1 Reel Packing  
A. Reel Spec



unit: mm

| SPEC             | A         | B        | C        | W        | Quantity/Reel |
|------------------|-----------|----------|----------|----------|---------------|
| SMA 7" reel      | 177.0±2.0 | 54.0±0.5 | 13.0±0.5 | 13.2±0.2 | 2K            |
| SMA13" reel      | 330.0±2.0 | 75.0±0.5 | 13.0±0.5 | 13.2±0.2 | 5K            |
| SMA-FL13" reel   | 330.0±2.0 | 75.0±0.5 | 13.0±0.5 | 13.2±0.2 | 5K            |
| 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 |
|-----------------|-----------|
| SMA13" reel     | 10K       |
| TO277 13" reel  | 10K       |
| SMB-FL 13" reel | 10K       |

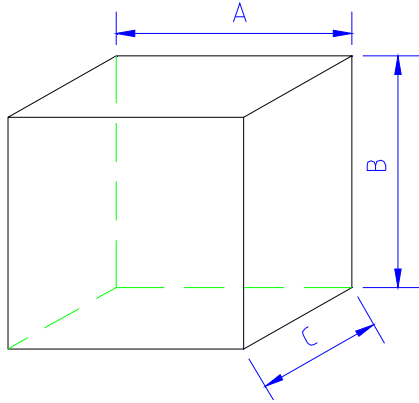
Title:  
Power Diode SMD Package Packing Spec

DOC NO.: WI-258

DOC NO.: WI-258

Page: 3

C. 7" reel packing box



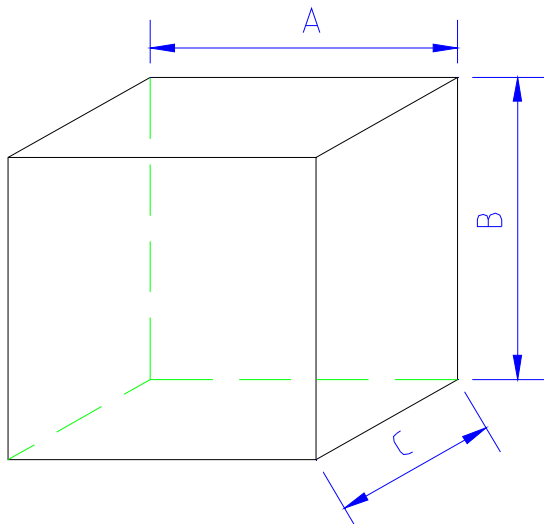
unit: mm

|                      | A       | B       | C       |
|----------------------|---------|---------|---------|
| SMA/SMA-FL           | 188±2.0 | 188±2.0 | 138±2.0 |
| SOD123FL<br>SOD323HE | 186±2.0 | 139±2.0 | 185±2.0 |

as per above packing

|            | Q' ty/Box |
|------------|-----------|
| SMA/SMA-FL | 16K       |
| 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 |
|--------------------|--------------|
| SMA/SMA-FL 7" reel | 80K          |
| SMA13"reel         | 80K          |
| SMA-FL13"reel      | 80K          |
| TO277 13" reel     | 80K          |
| SMB-FL 13" reel    | 80K          |

unit: mm

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

as per above packing

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

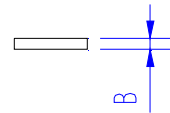
5.1.2 Tape Spec

A. Cover Tape



unit: mm

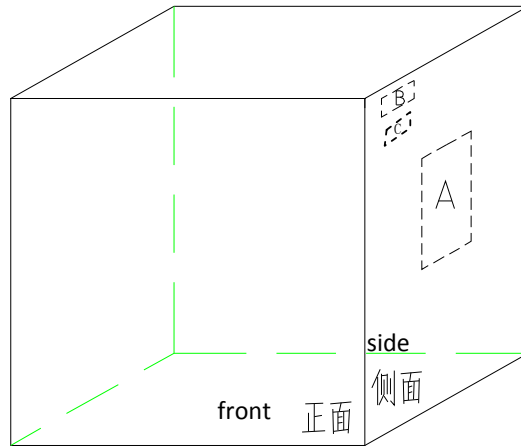
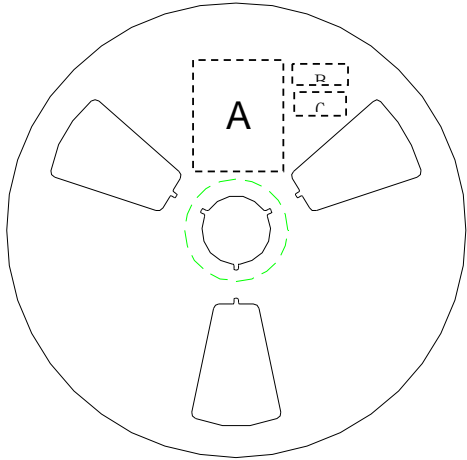
|                                    | A        | B           |
|------------------------------------|----------|-------------|
| SMA<br>/SMA-FL<br>SMB-FL<br>/TO277 | 9.5±0.10 | 0.062±0.007 |
| SOD123FL<br>SOD323HE               | 5.4±0.10 |             |





5.2、SMD Power Diode General Packing Spec

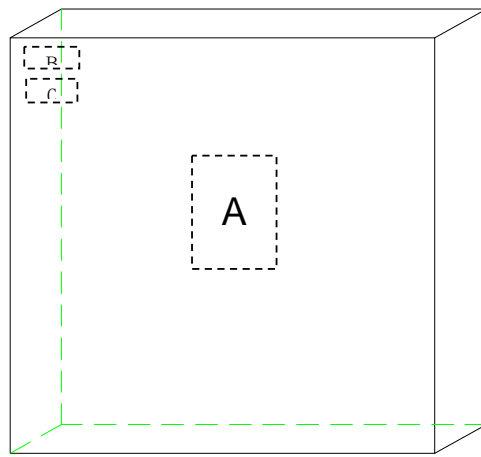
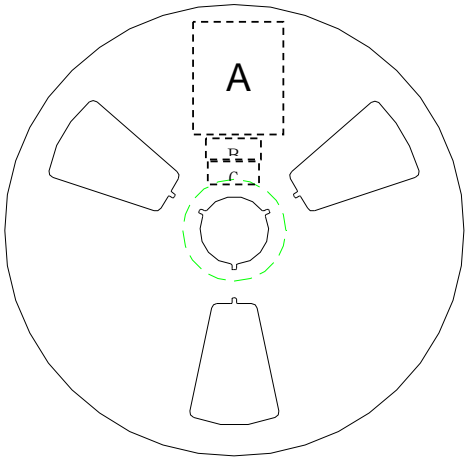
A. 7" reel all labels will be at cathode side of reel ;



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

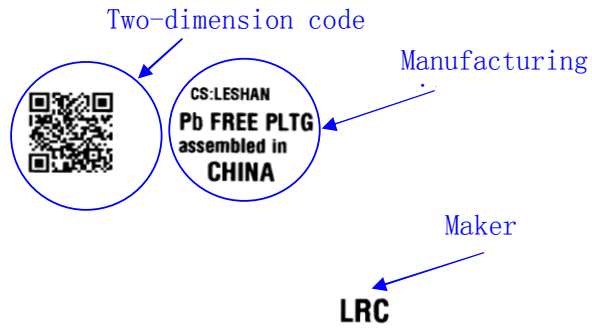
DOC NO.: WI-258

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





## FMAF401 thru FMAF407

### 4. Update Record

| 版次 | 更新记录 | 更新作者 | 更新日期       |
|----|------|------|------------|
| 1  | 第一版  | 周杰   | 2014.05.09 |