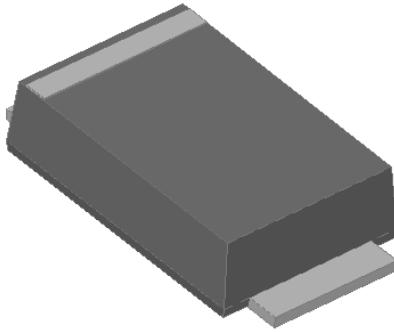


## Surface Mount Fast Recovery Rectifier

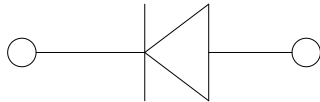


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

### Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.



### Mechanical Data

- **Package:** SMAF  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■ Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER   | SYMBOL           | UNIT | F1AFS    | F1BFS | F1DFS | F1GFS | F1JFS | F1KFS | F1MFS |
|---|------------------|------|----------|-------|-------|-------|-------|-------|-------|
| Device marking code   |                  |      | F1AFS    | F1BFS | F1DFS | F1GFS | F1JFS | F1KFS | F1MFS |
| Repetitive peak reverse voltage   | VRRM             | V    | 50       | 100   | 200   | 400   | 600   | 800   | 1000  |
| Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)           | I <sub>O</sub>   | A    | 1.0      |       |       |       |       |       |       |
| Surge(non-repetitive)forward current @60Hz half-sine wave,1 cycle, T <sub>a</sub> =25°C | I <sub>FSM</sub> | A    | 30       |       |       |       |       |       |       |
| Storage temperature   | T <sub>stg</sub> | °C   | -55~+150 |       |       |       |       |       |       |
| Junction temperature  | T <sub>j</sub>   | °C   | -55~+150 |       |       |       |       |       |       |

### ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER   | SYMBOL           | UNIT | TEST CONDITIONS   | F1AFS | F1BFS | F1DFS | F1GFS | F1JFS | F1KFS | F1MFS |
|---|------------------|------|---|-------|-------|-------|-------|-------|-------|-------|
| Maximum instantaneous forward voltage drop per diode  | V <sub>F</sub>   | V    | I <sub>FM</sub> =1.0A   | 1.3   |       |       |       |       |       |       |
| Maximum reverse recovery time   | t <sub>r</sub>   | ns   | I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>r</sub> =0.25A | 150   |       |       | 250   |       | 500   |       |
| Maximum DC reverse current at rated DC blocking voltage per diode @ V <sub>RM</sub> =V <sub>RRM</sub> | I <sub>RRM</sub> | μA   | T <sub>a</sub> =25°C  | 5.0   |       |       |       |       |       |       |
|   |                  |      | T <sub>a</sub> =125°C   | 100   |       |       |       |       |       |       |



# F1AFS THRU F1MFS

## ■ Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER          | SYMBOL                           | UNIT | F1AFS             | F1BFS | F1DFS | F1GFS | F1JFS | F1KFS | F1MFS |
|--------------------|----------------------------------|------|-------------------|-------|-------|-------|-------|-------|-------|
| Thermal resistance | R <sub>θJ-A</sub> <sup>(1)</sup> | °C/W | 70 <sup>(1)</sup> |       |       |       |       |       |       |
|                    | R <sub>θJ-L</sub> <sup>(1)</sup> |      | 25 <sup>(1)</sup> |       |       |       |       |       |       |

Note:  
 (1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

## ■ Characteristics (Typical)

FIG1: I<sub>o</sub>-T<sub>L</sub> Curve

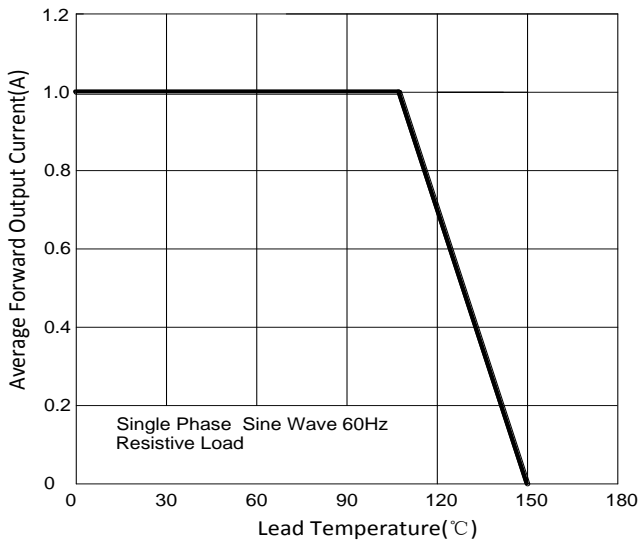


FIG2: Surge Forward Current Capability

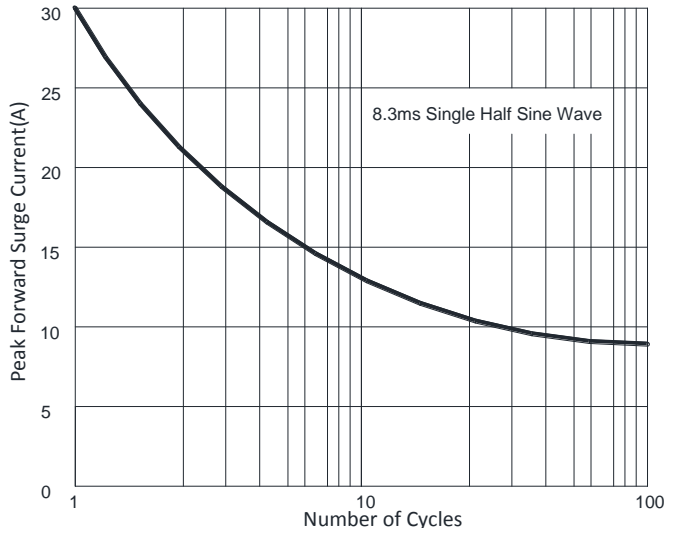


FIG3: Forward Voltage

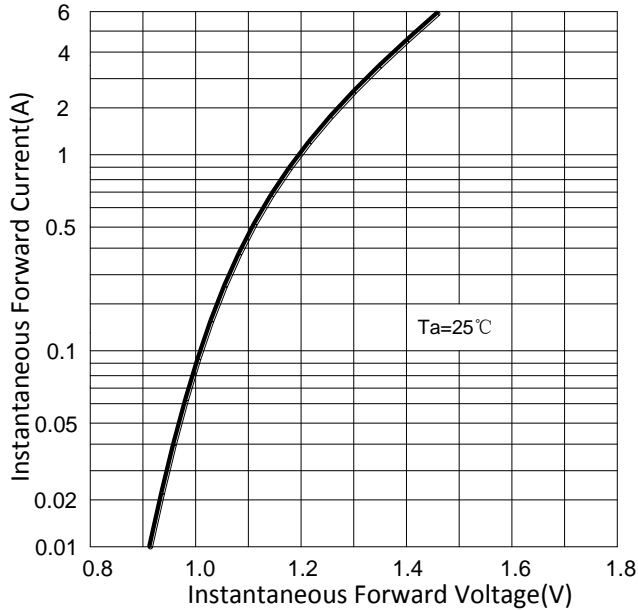
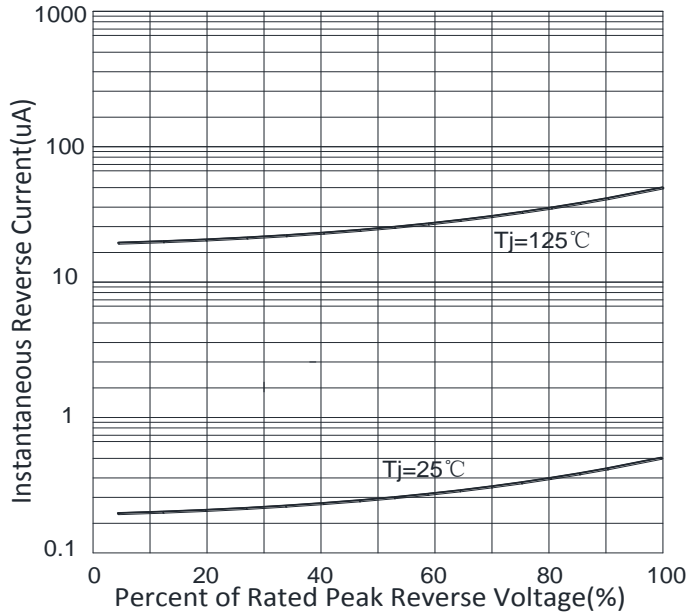


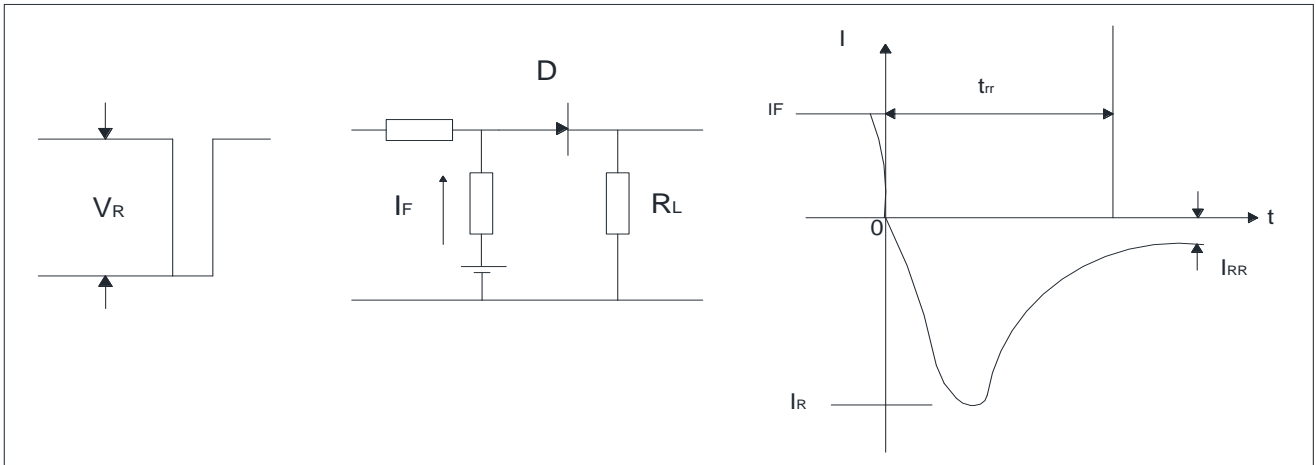
FIG4: Typical Reverse Characteristics





# F1AFS THRU F1MFS

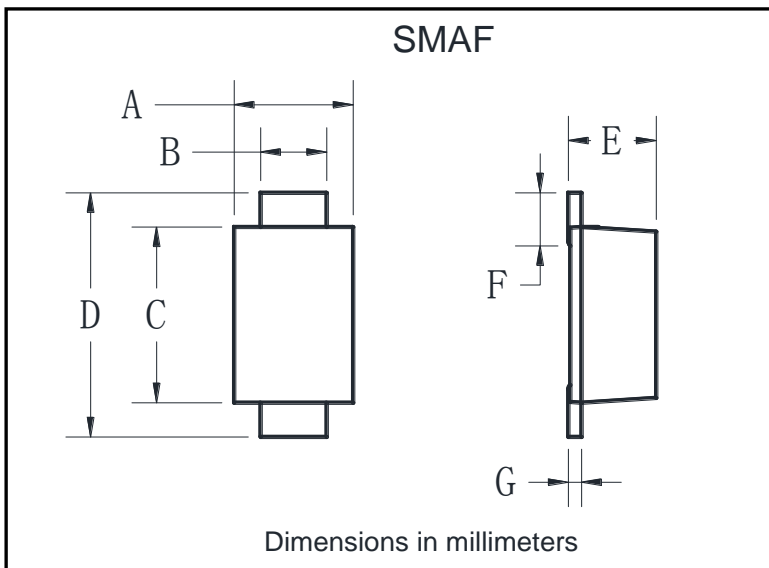
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## Ordering Information (Example)

| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| F1AFS-F1MFS  | F1           | Approximate 0.034 | 3000                 | 12000                   | 96000                      | 7" reel       |
| F1AFS-F1MFS  | F2           | Approximate 0.034 | 10000                | 20000                   | 160000                     | 13" reel      |
| F1AFS-F1MFS  | F3           | Approximate 0.034 | 10000                | 20000                   | 120000                     | 13" reel      |
| F1AFS-F1MFS  | F4           | Approximate 0.034 | 7500                 | 15000                   | 120000                     | 13" reel      |

## Outline Dimensions

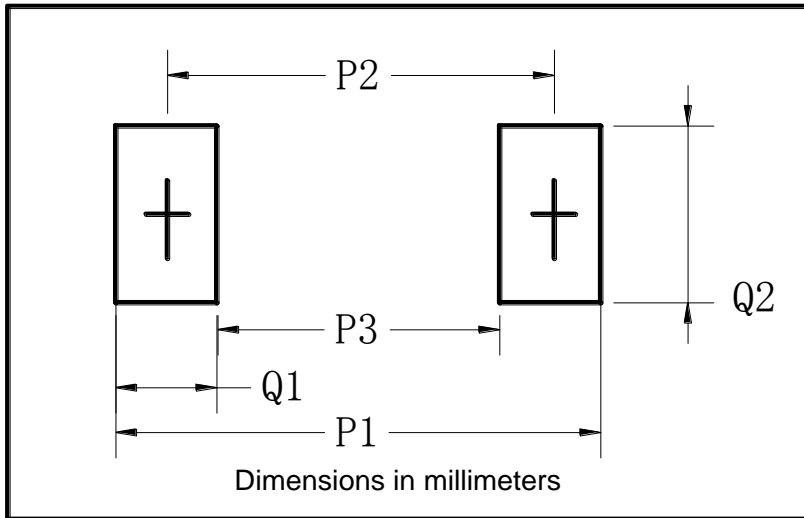


| SMAF |      |      |
|------|------|------|
| Dim  | Min  | Max  |
| A    | 2.40 | 2.80 |
| B    | 1.35 | 1.45 |
| C    | 3.40 | 3.60 |
| D    | 4.40 | 4.80 |
| E    | 1.05 | 1.25 |
| F    | 0.50 | 1.00 |
| G    | 0.15 | 0.22 |



## F1AFS THRU F1MFS

### ■ Suggested pad layout



| SMAF |             |
|------|-------------|
| Dim  | Millimeters |
| P1   | 6.50        |
| P2   | 4.00        |
| P3   | 1.50        |
| Q1   | 2.50        |
| Q2   | 1.70        |



## F1AFS THRU F1MFS

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