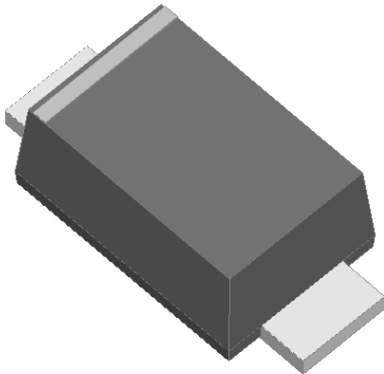


## Surface Mount High Efficient Rectifier

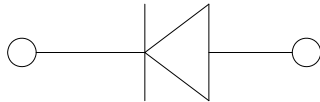


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Fast switching for high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Part no. with suffix "Q" means AEC-Q101 qualified

### Typical Applications

For use in high efficient switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer automotive and telecommunication.



### Mechanical Data

- **Package:** SOD-123FL  
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 | H1MQ       |
|---------------------------------------------------------------------------------------------------|------------------|------|------------|
| Device marking code                                                                               |                  |      | H1M        |
| Maximum Repetitive Peak Reverse Voltage                                                           | V <sub>RRM</sub> | V    | 1000       |
| Average rectified output current<br>@60Hz Half-sine wave, Resistance load, T <sub>L</sub> (Fig.1) | I <sub>O</sub>   | A    | 1.0        |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>J</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                                                       | H1MQ |
|---------------------------------------------------------------------------------------------------------|-----------------|------|-----------------------------------------------------------------------|------|
| Maximum instantaneous forward voltage                                                                   | V <sub>F</sub>  | V    | I <sub>F</sub> =1.0A                                                  | 1.7  |
| Maximum reverse recovery time                                                                           | T <sub>RR</sub> | ns   | I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A,<br>I <sub>rr</sub> =0.25A | 75   |
| Maximum DC reverse current at<br>rated DC blocking voltage per diode@ V <sub>RM</sub> =V <sub>RRM</sub> | I <sub>R</sub>  | μA   | T <sub>J</sub> =25°C                                                  | 5    |
|                                                                                                         |                 |      | T <sub>J</sub> =125°C                                                 | 100  |
| Typical junction capacitance                                                                            | C <sub>J</sub>  | pF   | V <sub>R</sub> =4V, f=1Mhz                                            | 7    |



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

| PARAMETER                  | SYMBOL            | UNIT | H1MQ              |
|----------------------------|-------------------|------|-------------------|
| Typical Thermal resistance | R <sub>θJ-A</sub> | °C/W | 85 <sup>(1)</sup> |
|                            | R <sub>θJ-L</sub> |      | 35 <sup>(1)</sup> |

Note:

(1) Thermal resistance between junction and ambient and between junction and lead mounted on P.C.B with 3mm\*3mm copper pad areas.

## ■ Characteristics(Typical)

Fig.1:Forward Current Derating Curve

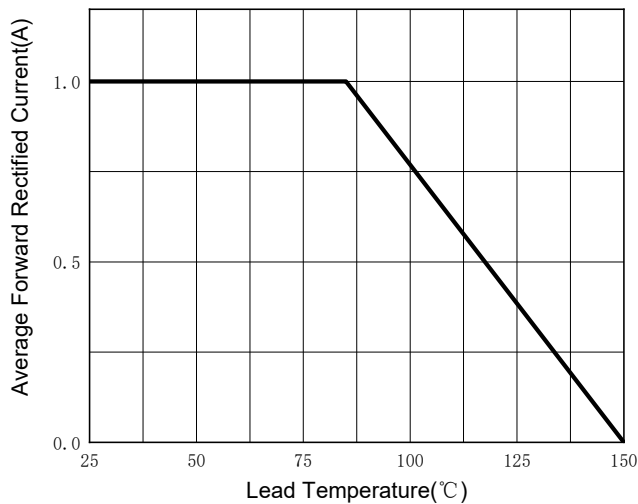


Fig.2:Maximum Non-Repetitive Peak Forward Surge Current

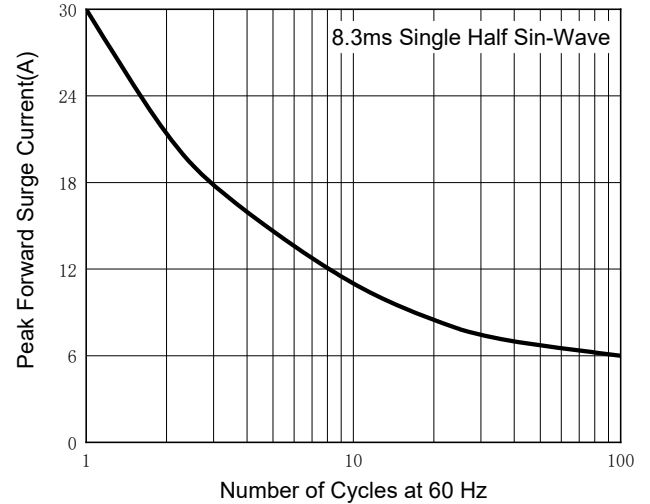


Fig.3:Typical Instantaneous Forward Characteristics

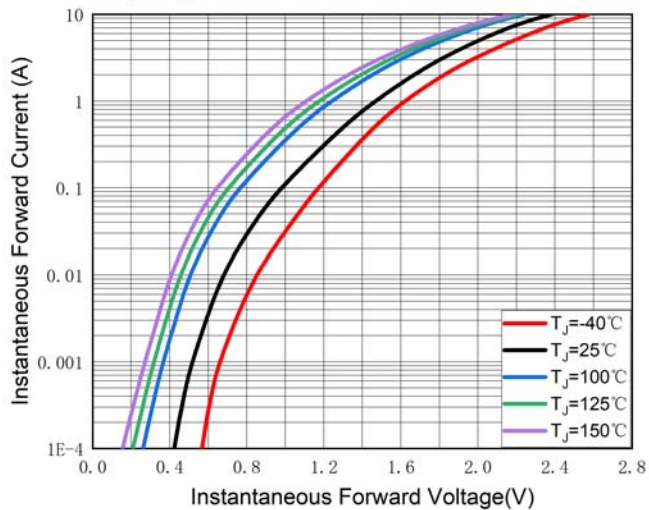


Fig.4:Typical Reverse Leakage Characteristics

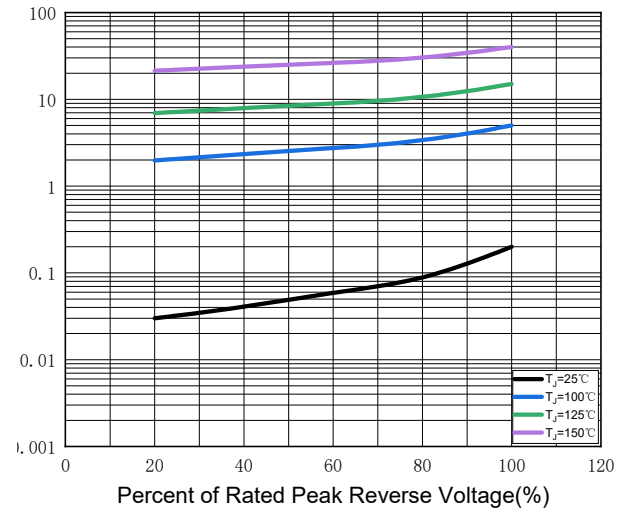
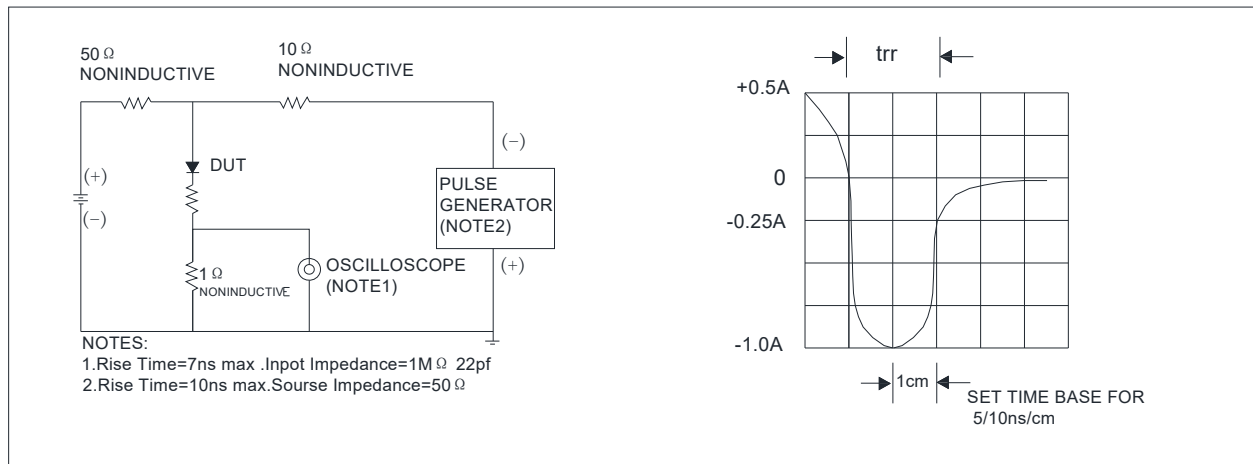


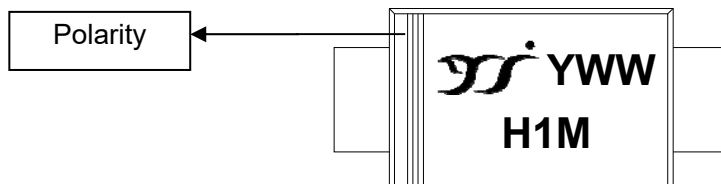
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## ■ Ordering Information (Example)

| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g)     | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| H1MQ         | F1           | Approximate 0.0169 | 3000                 | 30000                   | 120000                     | 7" reel       |

## ■ Marking Information



### Note:

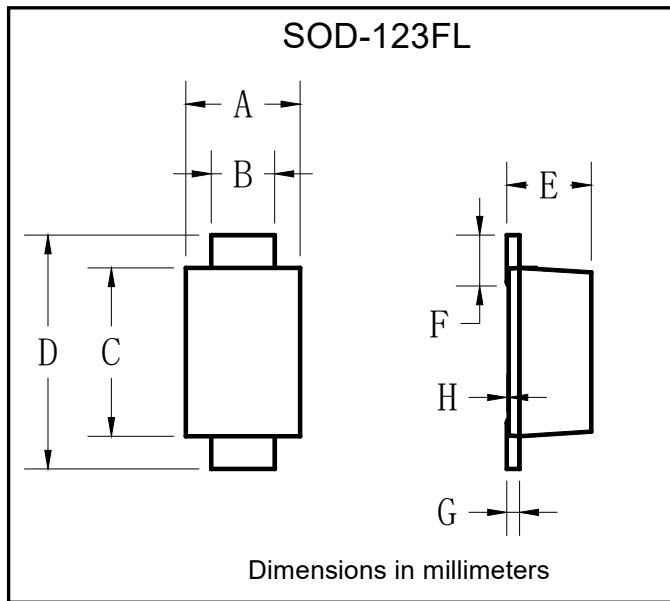
1. All marking is at middle of the product body
2. All marking is in laser printing
3. Body color: Black
4. YWW is date code, "Y" is year. "WW" is week.

For instance:

The 17<sup>th</sup> week of 2021, date code is 117

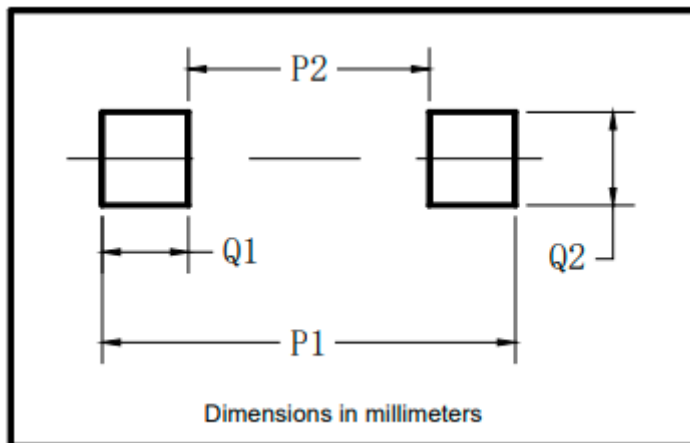
The 17<sup>th</sup> week of 2022, date code is 217

## ■ Outline Dimensions



| SOD-123FL |      |      |
|-----------|------|------|
| Dim       | Min  | Max  |
| A         | 1.60 | 1.90 |
| B         | 0.90 | 1.10 |
| C         | 2.55 | 2.85 |
| D         | 3.60 | 3.90 |
| E         | 1.00 | 1.20 |
| F         | 0.40 | 0.90 |
| G         | 0.10 | 0.25 |
| H         | 0    | 0.05 |

## ■ Suggested pad layout



| SOD-123FL |             |
|-----------|-------------|
| Dim       | Millimeters |
| P1        | 3.90        |
| P2        | 1.90        |
| Q1        | 1.00        |
| Q2        | 1.50        |



# H1MQ

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