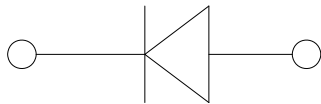
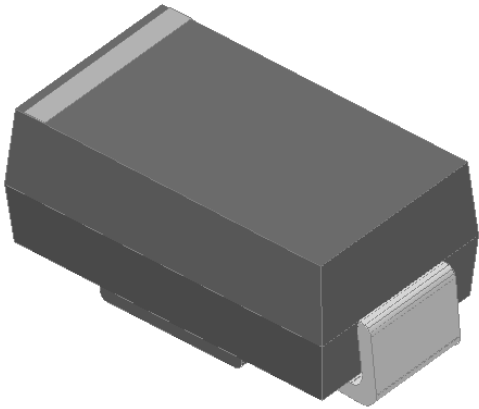


## Surface Mount High Efficient Rectifier



### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Super 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:** DO-214AC (SMA)  
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             | HS1Y       |
|---|------------------|------------------|------------|
| Device marking code   |                  |                  | HS1Y       |
| Maximum Repetitive Peak Reverse Voltage   | V <sub>RRM</sub> | V                | 1600       |
| Maximum RMS Voltage   | V <sub>RMS</sub> | V                | 1120       |
| Maximum DC blocking Voltage   | V <sub>DC</sub>  | V                | 1600       |
| Average rectified output current<br>@60Hz sine wave, Resistance load, TL (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         |
| Forward Surge Current (Non-repetitive)<br>@1ms, square wave, 1 cycle, T <sub>j</sub> =25°C    |                  |                  | 60         |
| Current squared time<br>@1ms≤t≤8.3ms T <sub>j</sub> =25°C                                     | I <sup>2</sup> t | A <sup>2</sup> s | 3.735      |
| Storage temperature   | T <sub>stg</sub> | °C               | -55 ~ +150 |
| Junction temperature  | T <sub>j</sub>   | °C               | -55 ~ +150 |
| E.S.D HBM:100pF, 1500 Ω   | VR               | kV               | 2          |

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

| PARAMETER   | SYMBOL         | UNIT | TEST CONDITIONS  | HS1Y |
|---|----------------|------|--|------|
| Maximum instantaneous forward voltage                   | V <sub>F</sub> | V    | I <sub>FM</sub> =1.0A  | 3.0  |
| Maximum reverse recovery time                           | t <sub>r</sub> | ns   | I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A,<br>I <sub>r</sub> =0.25A | 75   |
| Maximum DC reverse current at rated DC blocking voltage | 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   | Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C            | 11   |



# HS1Y

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

| PARAMETER                  | SYMBOL                           | UNIT | HS1Y |
|----------------------------|----------------------------------|------|------|
| Typical Thermal resistance | R <sub>θJ-A</sub> <sup>(1)</sup> | °C/W | 75   |
|                            | R <sub>θJ-L</sub> <sup>(1)</sup> |      | 28   |
|                            | R <sub>θJ-C</sub> <sup>(1)</sup> |      | 22   |

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)

FIG.1: I<sub>o</sub>-T<sub>L</sub> Curve

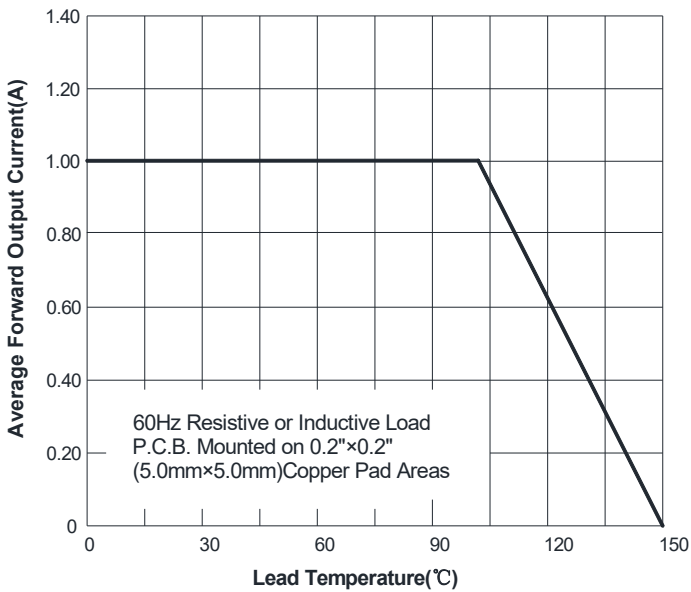


FIG.2: Forward Surge Current Capability

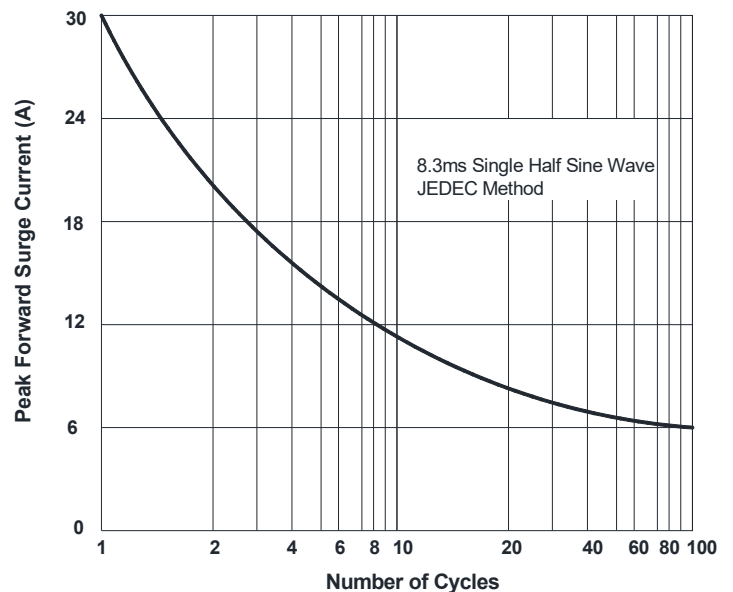


FIG.3: Typical Forward Characteristics

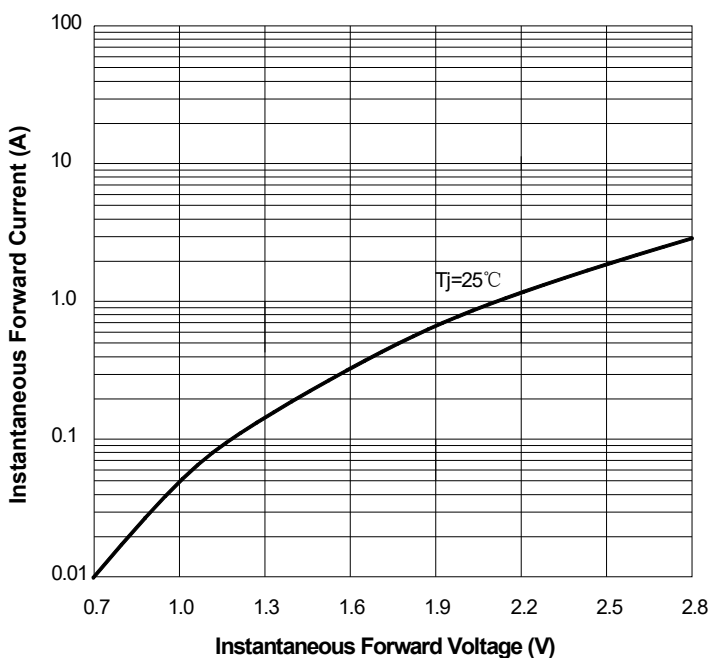


FIG.4: Typical Reverse Characteristics

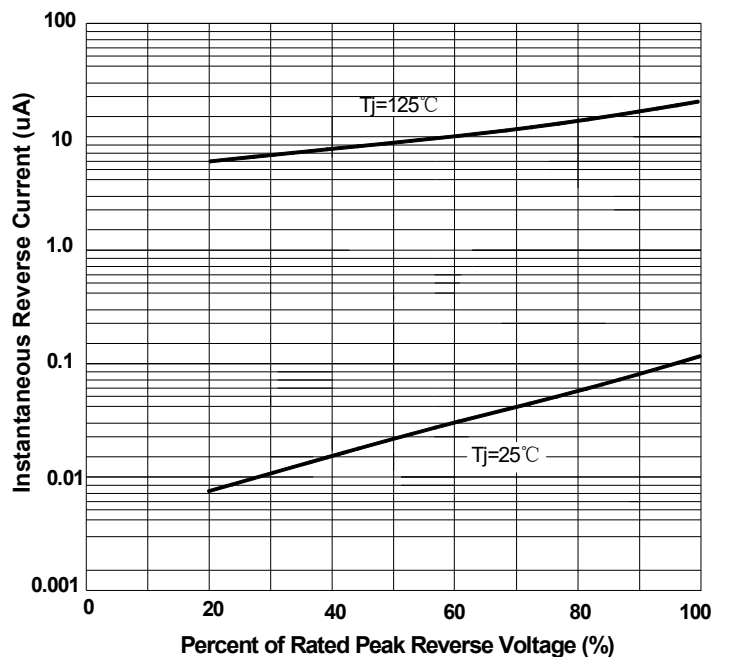
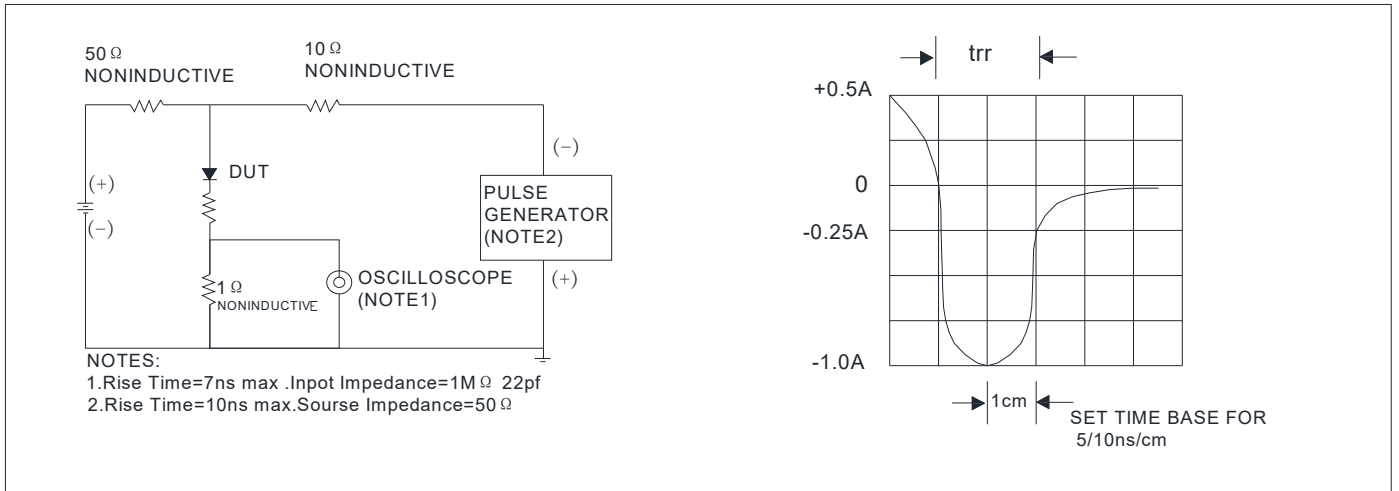


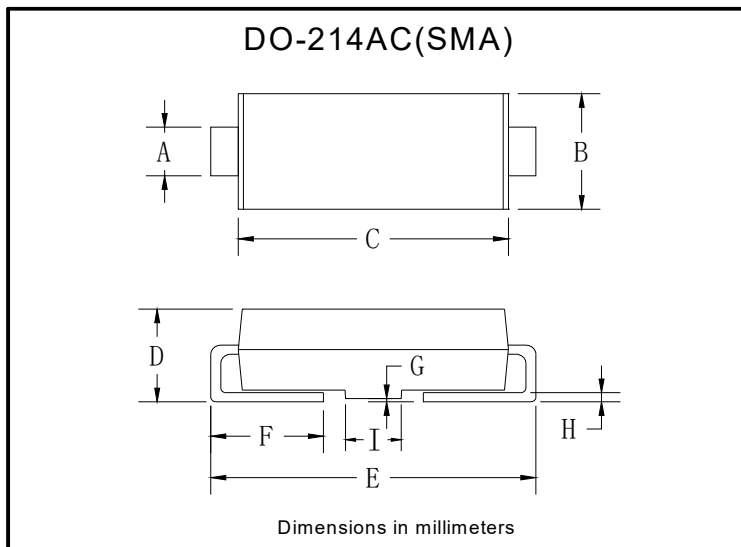
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## Ordering Information (Example)

| PREFERRED P/N | PACKAGE CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| HS1Y          | F1           | Approximate 0.059 | 5000                 | /                       | 80000                      | 13" reel      |
| HS1Y          | F2           | Approximate 0.059 | 7500                 | /                       | 120000                     | 13" reel      |
| HS1Y          | F3           | Approximate 0.059 | 7500                 | /                       | 60000                      | 13" reel      |
| HS1Y          | F4           | Approximate 0.059 | 1800                 | 14400                   | 57600                      | 7" reel       |
| HS1Y          | F5           | Approximate 0.059 | 2000                 | 16000                   | 64000                      | 7" reel       |
| HS1Y          | F6           | Approximate 0.059 | 5000                 | /                       | 100000                     | 13" reel      |

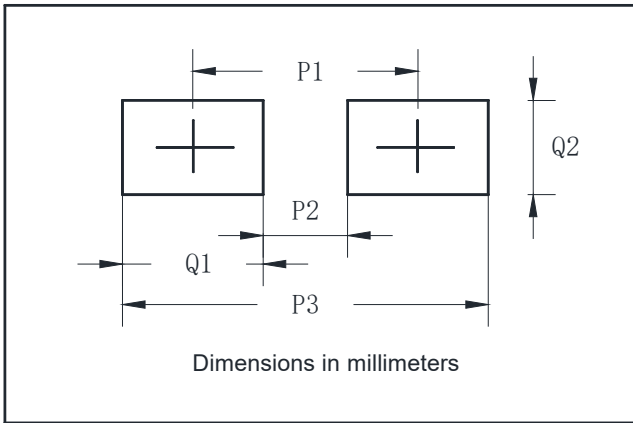
## Outline Dimensions



| DO-214AC(SMA) |      |      |
|---------------|------|------|
| Dim           | Min  | Max  |
| A             | 1.25 | 1.58 |
| B             | 2.40 | 2.83 |
| C             | 4.00 | 4.75 |
| D             | 1.90 | 2.30 |
| E             | 4.93 | 5.28 |
| F             | 0.76 | 1.41 |
| G             | 0.05 | 0.20 |
| H             | 0.15 | 0.31 |
| I             | 1.70 | 2.10 |



## ■Suggested Pad Layout



| DO-214AC(SMA) |             |
|---------------|-------------|
| Dim           | Millimeters |
| P1            | 4.00        |
| P2            | 1.50        |
| P3            | 6.50        |
| Q1            | 2.50        |
| Q2            | 1.70        |



# HS1Y

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