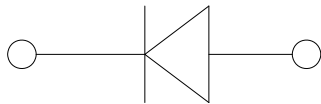


Surface Mount High Efficient Rectifier



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_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | HS1A | HS1B | HS1D | HS1F | HS1G | HS1J | HS1K | HS1M |
|---|------------------|------------------|------------|------|------|------|------|------|------|------|
| Device marking code | | | HS1A | HS1B | HS1D | HS1F | HS1G | HS1J | HS1K | HS1M |
| Maximum Repetitive Peak Reverse Voltage | VRRM | V | 50 | 100 | 200 | 300 | 400 | 600 | 800 | 1000 |
| Maximum RMS Voltage | VRMS | V | 35 | 70 | 140 | 210 | 280 | 420 | 560 | 700 |
| Maximum DC blocking Voltage | VDC | V | 50 | 100 | 200 | 300 | 400 | 600 | 800 | 1000 |
| Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1) | I _O | A | 1.0 | | | | | | | |
| Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T _j =25°C | I _{FSM} | A | 30 | | | | | | | |
| Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T _j =25°C | | | 60 | | | | | | | |
| Current squared time @1ms≤t≤8.3ms T _j =25°C | I ² t | A ² s | 3.735 | | | | | | | |
| Storage temperature | T _{stg} | °C | -55 ~ +150 | | | | | | | |
| Junction temperature | T _j | °C | -55 ~ +150 | | | | | | | |

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | HS1A | HS1B | HS1D | HS1F | HS1G | HS1J | HS1K | HS1M |
|---|----------------|------|--|------|------|------|------|------|------|------|------|
| Maximum instantaneous forward voltage | V _F | V | I _F =1.0A | 1.0 | | | 1.3 | | 1.7 | | |
| Maximum reverse recovery time | t _r | ns | I _F =0.5A, I _R =1.0A, I _r =0.25A | 50 | | | | | 75 | | |
| Maximum DC reverse current at rated DC blocking voltage | I _R | μA | T _j =25°C | 5 | | | | | | | |
| | | | T _j =125°C | 100 | | | | | | | |
| Typical junction capacitance | C _j | pF | Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C | 17 | | | 12 | | 7 | | |



HS1A THRU HS1M

■ Thermal Characteristics (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | HS1A | HS1B | HS1D | HS1F | HS1G | HS1J | HS1K | HS1M |
|----------------------------|----------------------------------|------|------|------|------|------|------|------|------|------|
| Typical Thermal resistance | R _{θJ-A} ⁽¹⁾ | °C/W | 75 | | | | | | | |
| | R _{θJ-L} ⁽¹⁾ | | 28 | | | | | | | |
| | R _{θJ-C} ⁽¹⁾ | | 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_o-T_L Cure

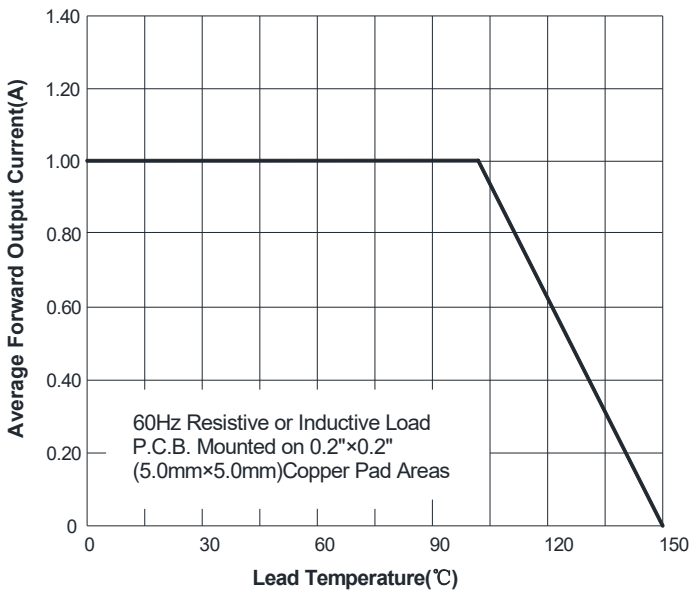


FIG.2: Forward Surge Current Capability

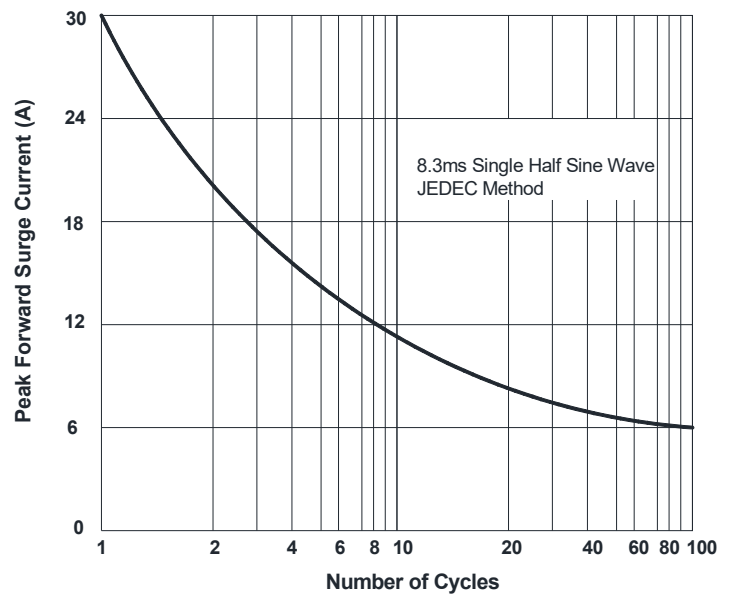


FIG.3: Typical Forward Characteristics

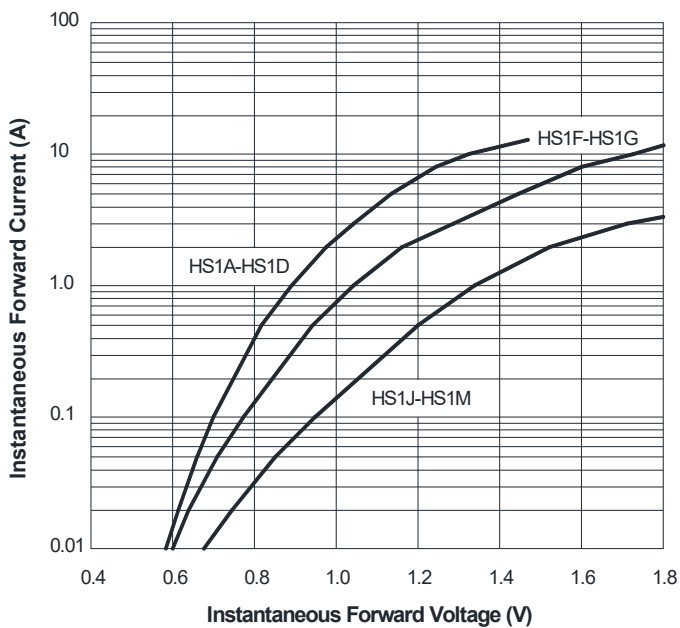


FIG.4: Typical Reverse Characteristics

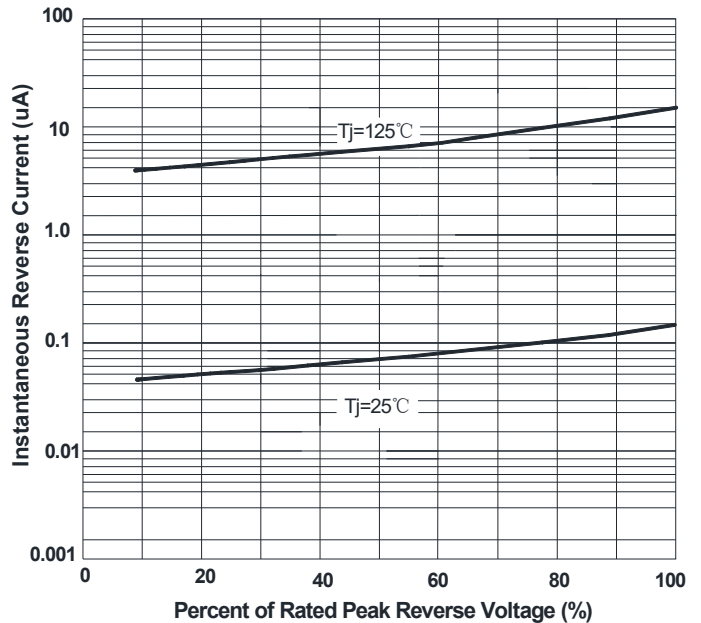
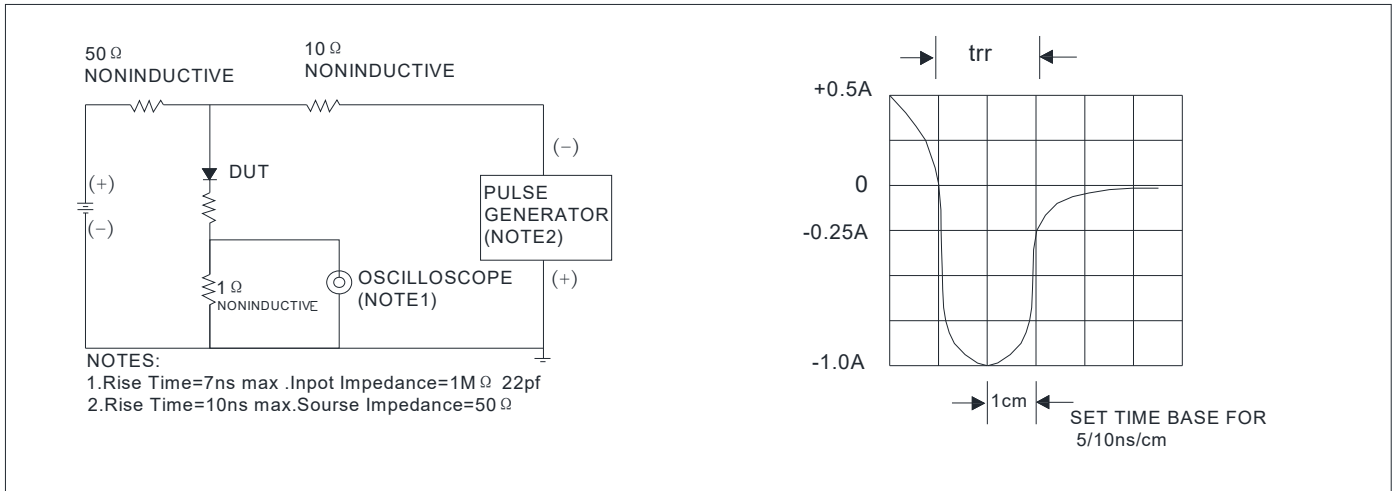


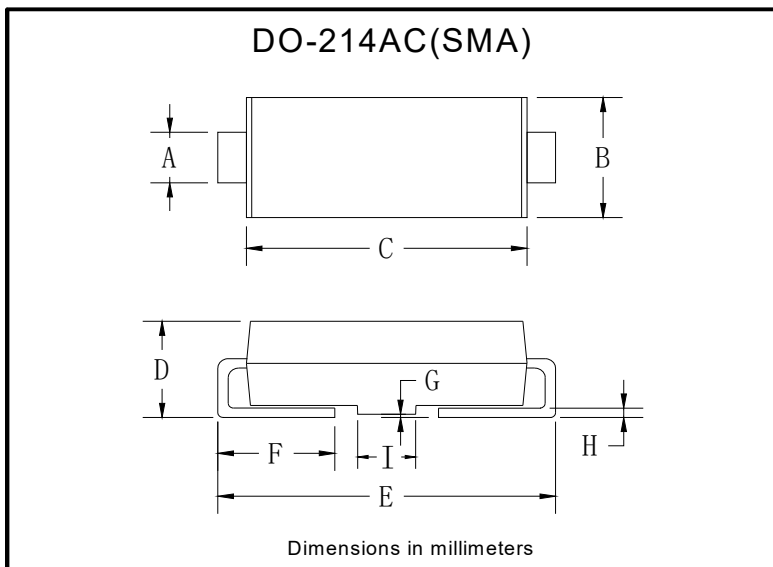
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



Ordering Information (Example)

| PREFERED P/N | PACKAGE CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| HS1A-HS1M | F1 | Approximate 0.059 | 5000 | / | 80000 | 13" reel |
| HS1A-HS1M | F2 | Approximate 0.059 | 7500 | / | 120000 | 13" reel |
| HS1A-HS1M | F3 | Approximate 0.059 | 7500 | / | 60000 | 13" reel |
| HS1A-HS1M | F4 | Approximate 0.059 | 1800 | 14400 | 57600 | 7" reel |
| HS1A-HS1M | F5 | Approximate 0.059 | 2000 | 16000 | 64000 | 7" reel |
| HS1A-HS1M | F6 | Approximate 0.059 | 5000 | / | 100000 | 13" reel |

Outline Dimensions

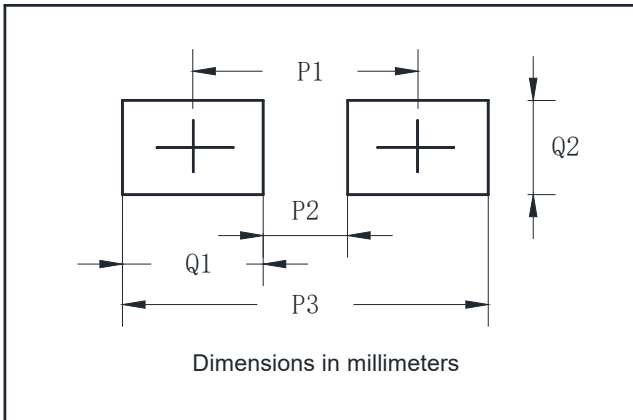


| DO-214AC(SMA) | | |
|---------------|------|------|
| Dim | Min | Max |
| A | 1.25 | 1.58 |
| B | 2.40 | 2.83 |
| C | 4.00 | 4.75 |
| D | 1.90 | 2.30 |
| E | 4.93 | 5.28 |
| F | 0.76 | 1.41 |
| G | 0.05 | 0.20 |
| H | 0.15 | 0.31 |
| I | 1.70 | 2.10 |



HS1A THRU HS1M

■ Suggested Pad Layout



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



HS1A THRU HS1M

Disclaimer

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