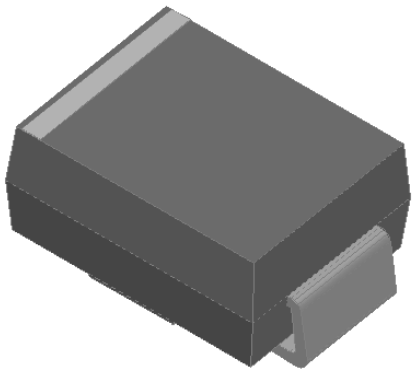
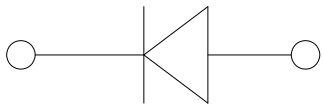
# Surface Mount High Efficient Rectifier





## 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-214AA (SMB)
  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 (Ta=25℃ Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | HS1AB | HS1BB | HS1DB | HS1FB | HS1GB | HS1JB | HS1KB | HS1MB |
|---|---|---|---|---|---|---|---|---|---|---|
| Device marking code | | | HS1AB | HS1BB | HS1DB | HS1FB | HS1GB | HS1JB | HS1KB | HS1MB |
| Maximum Repetitive Peak Reverse Voltage | $V_{RRM}$ | V | 50 | 100 | 200 | 300 | 400 | 600 | 800 | 1000 |
| Maximum RMS Voltage | $V_{RMS}$ | V | 35 | 70 | 140 | 210 | 280 | 420 | 560 | 700 |
| Maximum DC blocking Voltage | $V_{DC}$ | 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, Tj=25℃ | $I_{FSM}$ | A | 30 | | | | | | | |
| Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25℃ | | | 60 | | | | | | | |
| Current squared time @1ms≤t≤8.3ms Tj=25℃ | $I^2t$ | $A^2s$ | 3.735 | | | | | | | |
| Storage temperature | $T_{stg}$ | ℃ | -55 ~ +150 | | | | | | | |
| Junction temperature | $T_j$ | ℃ | -55 ~ +150 | | | | | | | |

## ■Electrical Characteristics（$T_a$=25℃ Unless otherwise specified）

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | HS1AB | HS1BB | HS1DB | HS1FB | HS1GB | HS1JB | HS1KB | HS1MB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage | $V_F$ | V | $I_{FM}$=1.0A | 1.0 | | | 1.3 | | 1.7 | | |
| Maximum reverse recovery time | $t_{rr}$ | ns | $I_F$=0.5A,$I_R$=1.0A, $I_{rr}$=0.25A | 50 | | | | | 75 | | |
| Maximum DC reverse current at rated DC blocking voltage | IR | μA | $T_j$ =25℃ | 5.0 | | | | | | | |
| | | | $T_j$ =125℃ | 100 | | | | | | | |
| Typical junction capacitance | Cj | pF | Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C | 17 | | | 12 | | 7 | | |

## ■Thermal Characteristics （$T_a$=25℃ Unless otherwise specified）

| PARAMETER | SYMBOL | UNIT | HS1AB | HS1BB | HS1DB | HS1FB | HS1GB | HS1JB | HS1KB | HS1MB |
|---|---|---|---|---|---|---|---|---|---|---|
| Typical Thermal resistance | $R_{\theta J-A}$(1) | ℃/W | 60 | | | | | | | |
| | $R_{\theta J-L}$(1) | | 20 | | | | | | | |
| | $R_{\theta J-C}$(1) | | 15 | | | | | | | |

Note:
(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

## ■ Characteristics (Typical)

FIG.1: Io-TL Cure

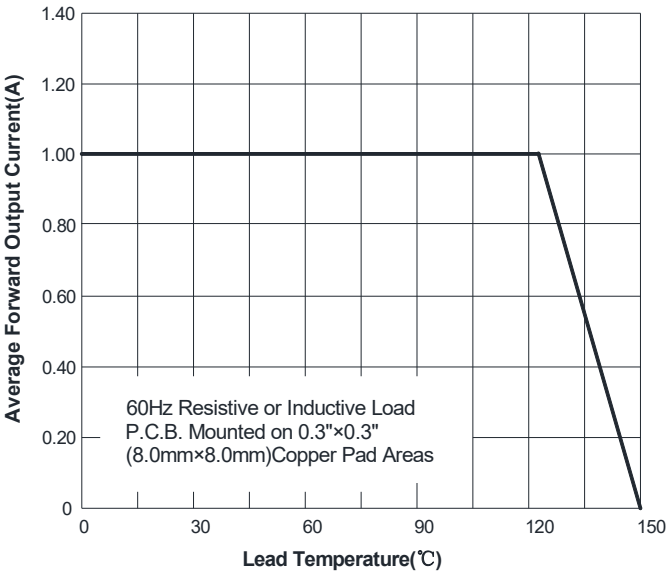



FIG.2: Forward Surge Current Capability

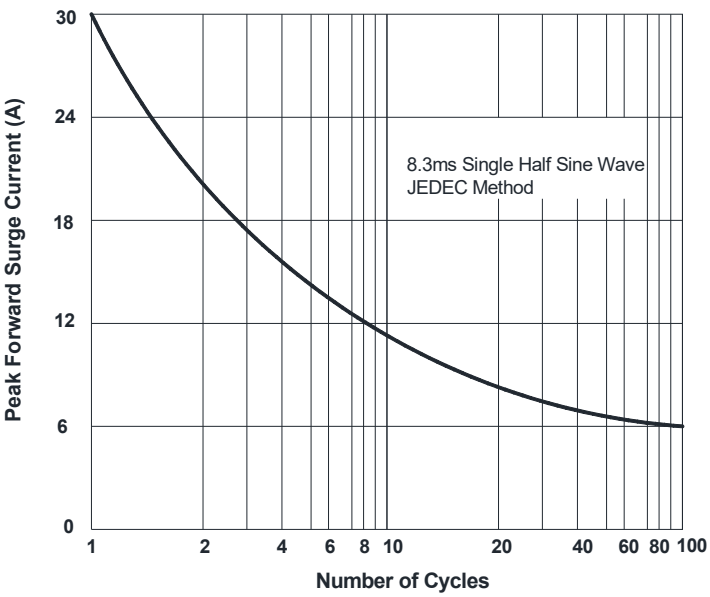


FIG.3: Typical Forward Characteristics

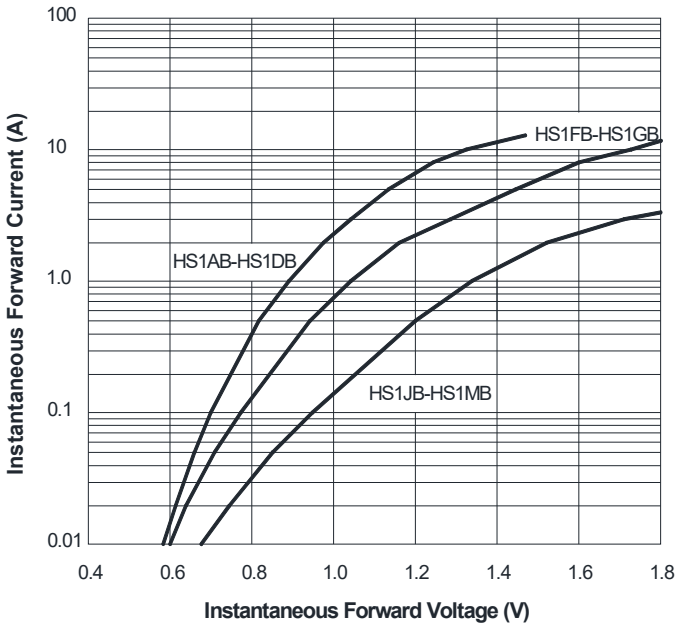



FIG.4: Typical Reverse Characteristics

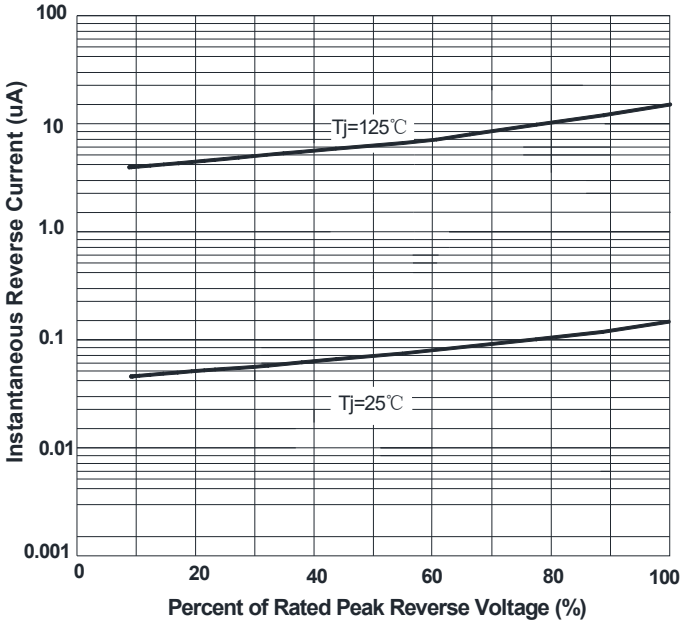
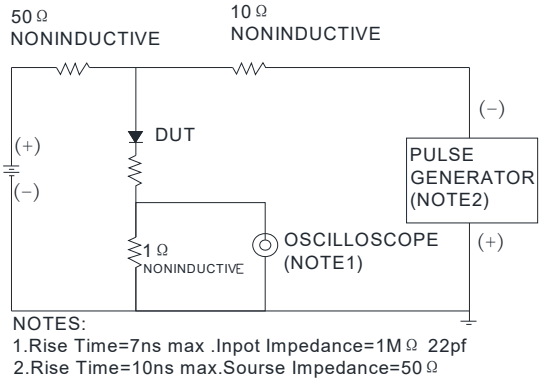
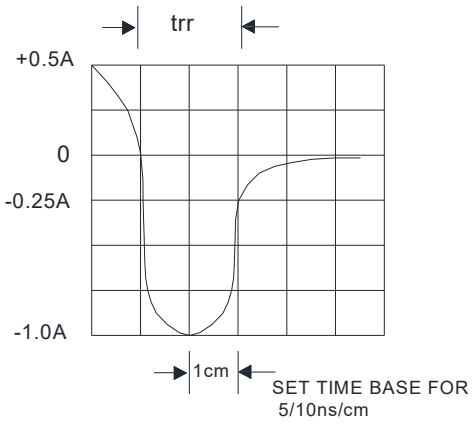



FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

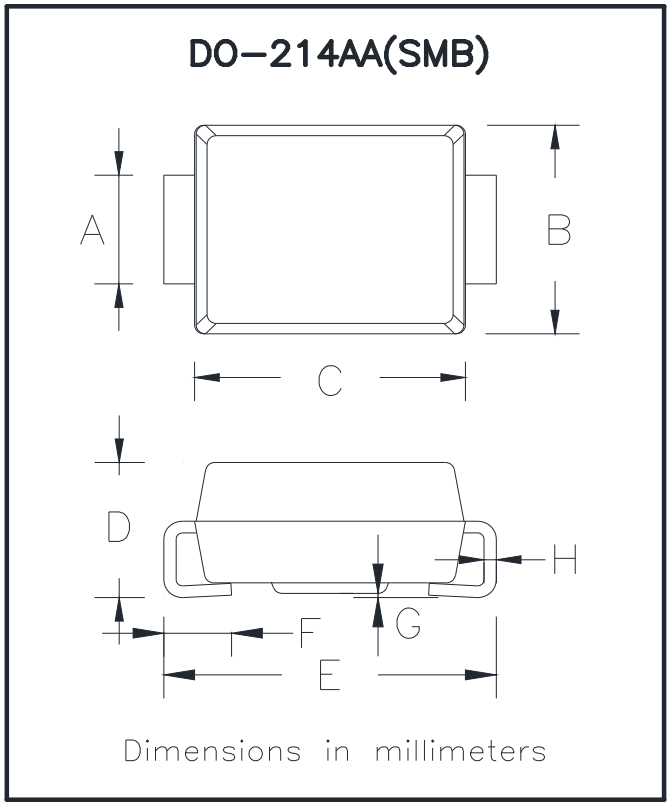



## ■Ordering Information (Example)

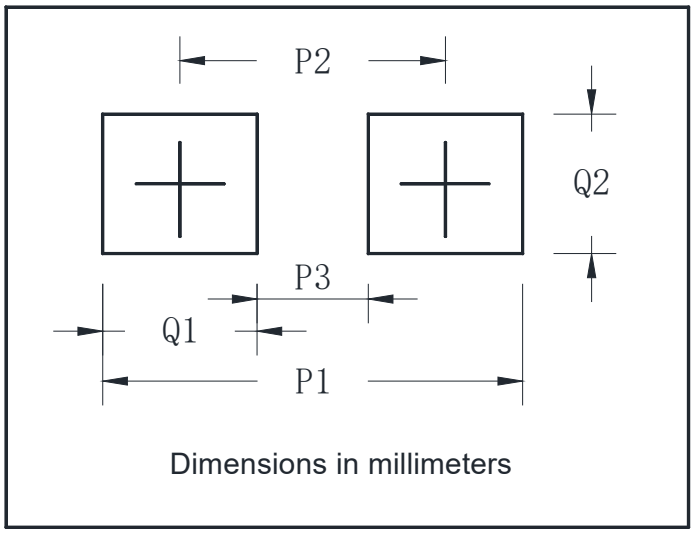
| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| **HS1AB-HS1MB** | F1 | Approximate 0.096 | 3000 | / | 48000 | 13” reel |
| **HS1AB-HS1MB** | F2 | Approximate 0.096 | 750 | 6000 | 24000 | 7” reel |
| **HS1AB-HS1MB** | F3 | Approximate 0.096 | 500 | 4000 | 16000 | 7” reel |

## ■ Outline Dimensions




| DO-214AA(SMB) | | |
|---|---|---|
| Dim | Min | Max |
| A | 1.85 | 2.15 |
| B | 3.30 | 3.94 |
| C | 4.05 | 4.75 |
| D | 1.99 | 2.61 |
| E | 5.21 | 5.59 |
| F | 0.90 | 1.41 |
| G | 0.05 | 0.20 |
| H | 0.15 | 0.31 |

## ■ Suggested pad layout




| DO-214AA(SMB) | |
|---|---|
| Dim | Millimeters |
| P1 | 6.8 |
| P2 | 4.3 |
| P3 | 1.8 |
| Q1 | 2.5 |
| Q2 | 2.3 |

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