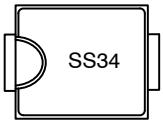
# SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

DO-214AB (SMC)


**MARKING DIAGRAMS**




| PRODUCT SUMMARY | |
|---|---|
| Package | SMC |
| $I_{F(AV)}$ | 3.0 A |
| $V_R$ | 40 V |
| $V_F$ at $I_F$ | 0.43 V |
| $I_{RM}$ max. | 35 mA at 125 °C |
| $T_J$ max. | 150 °C |
| Diode variation | Single die |
| $E_{AS}$ | 6.0 mJ |

**ORDERING INFORMATION**

| Device | Package | Shipping† |
|---|---|---|
| SS34 | SMC (Pb–Free) | 3000 / Tape & Reel |

| MAJOR RATINGS AND CHARACTERISTICS | | | |
|---|---|---|---|
| **SYMBOL** | **CHARACTERISTICS** | **VALUES** | **UNITS** |
| $I_{F(AV)}$ | Rectangular waveform | 3.0 | A |
| $V_{RRM}$ | | 40 | V |
| $I_{FSM}$ | $t_p$ = 5 µs sine | 1580 | A |
| $V_F$ | 3.0 $A_{pk}$, $T_J$ = 125 °C | 0.43 | V |
| $T_J$ | Range | -55 to +150 | °C |

| VOLTAGE RATINGS | | | |
|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **VS-MBRS340-M3** | **UNITS** |
| Maximum DC reverse voltage | $V_R$ | 40 | V |
| Maximum working peak reverse voltage | $V_{RWM}$ | | |

| ABSOLUTE MAXIMUM RATINGS | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | | **VALUES** | **UNITS** |
| Maximum average forward current | $I_{F(AV)}$ | 50 % duty cycle at $T_L$ = 118 °C, rectangular waveform | | 3.0 | A |
| | | 50 % duty cycle at $T_L$ = 110 °C, rectangular waveform | | 4.0 | |
| Maximum peak one cycle non-repetitive surge current | $I_{FSM}$ | 5 µs sine or 3 µs rect. pulse | Following any rated load condition and with rated $V_{RRM}$ applied | 1580 | |
| | | 10 ms sine or 6 ms rect. pulse | | 80 | |
| Non-repetitive avalanche energy | $E_{AS}$ | $T_J$ = 25 °C, $I_{AS}$ = 1.0 A, L = 12 mH | | 6 | mJ |
| Repetitive avalanche current | $I_{AR}$ | Current decaying linearly to zero in 1 µs<br>Frequency limited by $T_J$ maximum $V_A$ = 1.5 x $V_R$ typical | | 1.0 | A |

| ELECTRICAL SPECIFICATIONS | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | | **VALUES** | **UNITS** |
| Maximum forward voltage drop | $V_{FM}$ (1) | 3 A | $T_J$ = 25 °C | 0.525 | V |
| | | 6 A | | 0.68 | |
| | | 3 A | $T_J$ = 125 °C | 0.43 | |
| | | 6 A | | 0.57 | |
| Maximum reverse leakage current | $I_{RM}$ (1) | $T_J$ = 25 °C | $V_R$ = Rated $V_R$ | 2.0 | mA |
| | | $T_J$ = 100 °C | | 20 | |
| | | $T_J$ = 125 °C | | 35 | |
| Maximum junction capacitance | $C_T$ | $V_R$ = 5 $V_{DC}$ (test signal range 100 kHz to 1 MHz), 25 °C | | 230 | pF |
| Typical series inductance | $L_S$ | Measured lead to lead 5 mm from package body | | 3.0 | nH |
| Maximum voltage rate of change | dV/dt | Rated $V_R$ | | 10 000 | V/µs |

**Note**

(1) Pulse width < 300 µs, duty cycle < 2 %

| THERMAL - MECHANICAL SPECIFICATIONS | | | | |
|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | **VALUES** | **UNITS** |
| Maximum junction and storage temperature range | $T_J$ (1), $T_{Stg}$ | | -55 to +150 | °C |
| Maximum thermal resistance, junction to lead | $R_{thJL}$ (2) | DC operation | 12 | °C/W |
| Maximum thermal resistance, junction to ambient | $R_{thJA}$ | | 46 | |
| Approximate weight | | | 0.24 | g |
| | | | 0.008 | oz. |
| Marking device | | Case style SMC (similar to DO-214AB) | 34 | |

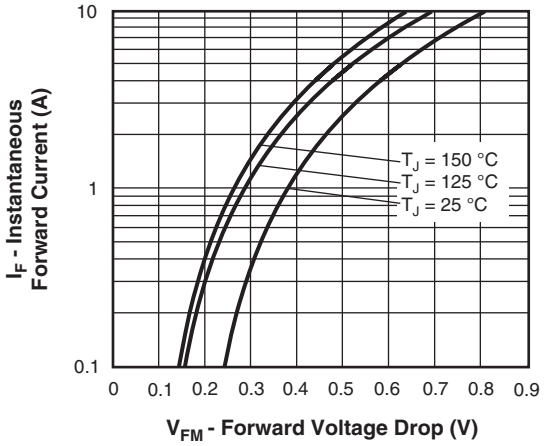



Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

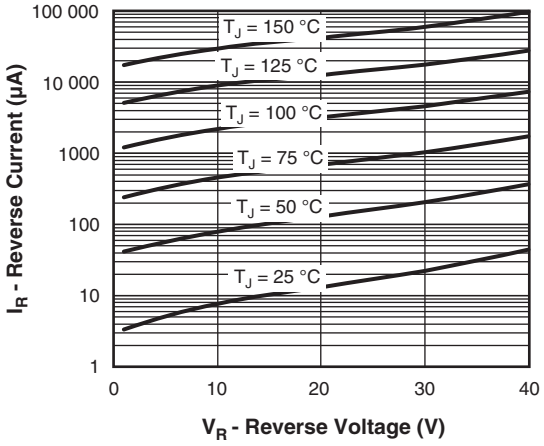



Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

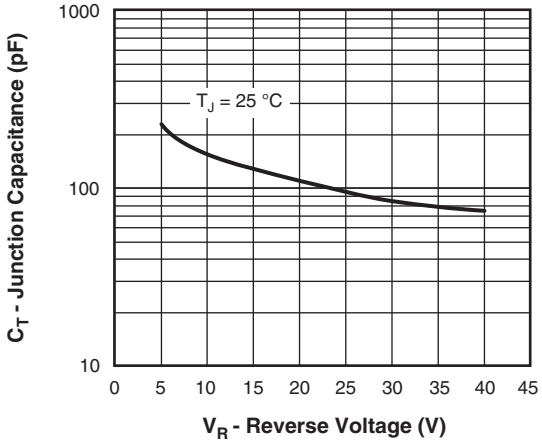



Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

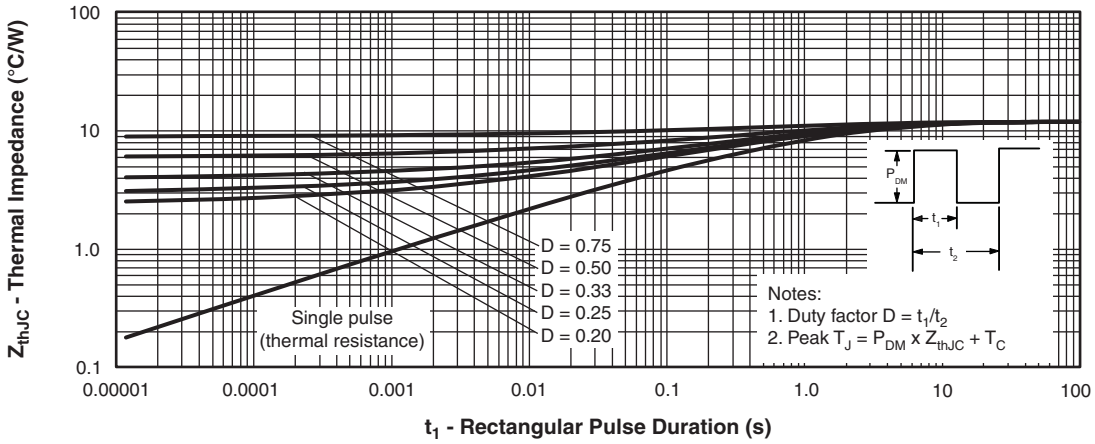



Fig. 4 - Maximum Thermal Impedance $Z_{thJC}$ Characteristics (Per Leg)

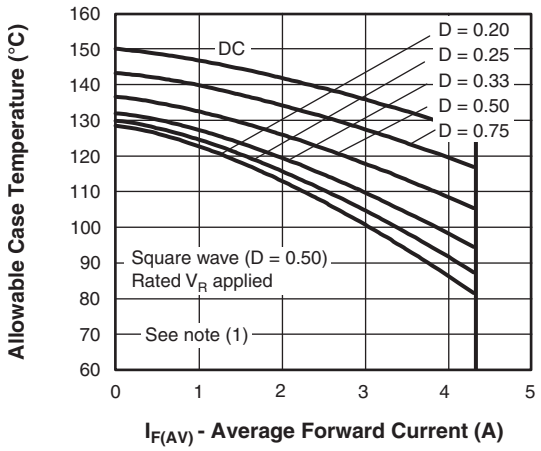



Fig. 5 - Maximum Average Forward Current vs. Allowable Lead Temperature

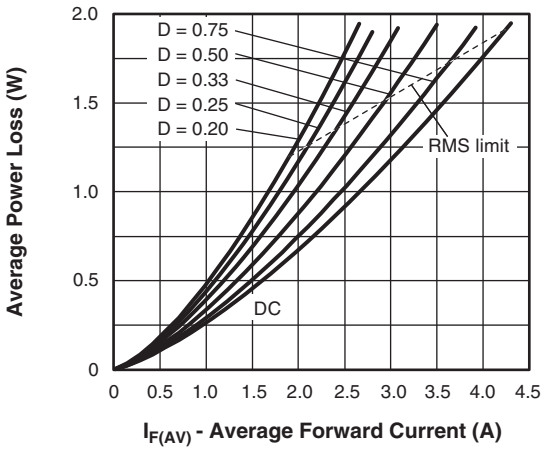



Fig. 6 - Maximum Average Forward Dissipation vs. Average Forward Current

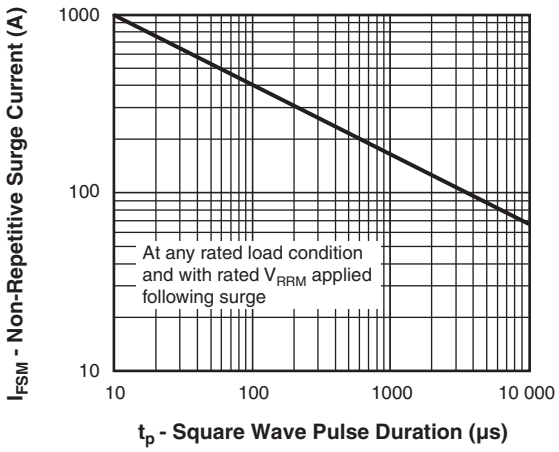
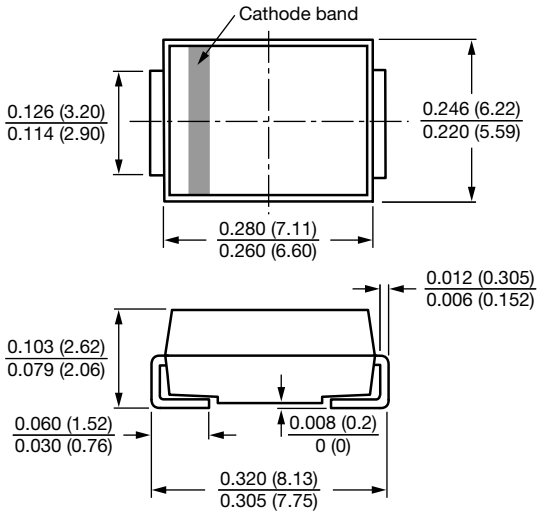



Fig. 7 - Maximum Peak Surge Forward Current vs. Pulse Duration

**DIMENSIONS** in inches (millimeters)

**DO-214AB (SMC)**




**Mounting Pad Layout**