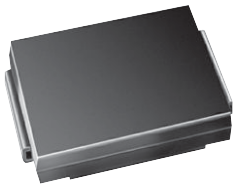
# THE DATASHEET OF

# S5M-E3/57T

## Surface Mount Glass Passivated Rectifier



SMC (DO-214AB)

### DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 5.0 A |
| $V_{RRM}$ | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$ | 100 A |
| $I_R$ | 10 µA |
| $V_F$ | 1.15 V |
| $T_J$ max. | 150 °C |
| Package | SMC (DO-214AB) |
| Circuit configuration | Single |

### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated pellet chip junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

HALOGEN FREE Available

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

### MECHANICAL DATA

**Case:** SMC (DO-214AB)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade
Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,.....)

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3, M3, and HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** color band denotes cathode end

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | S5A | S5B | S5D | S5G | S5J | S5K | S5M | UNIT |
|---|---|---|---|---|---|---|---|---|---|
| Device marking code | | 5A | 5B | 5D | 5G | 5J | 5K | 5M | |
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current at $T_L$ = 75 °C | $I_{F(AV)}$ | 5.0 | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 100 | | | | | | | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +150 | | | | | | | °C |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| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | **SYMBOL** | **S5A** | **S5B** | **S5D** | **S5G** | **S5J** | **S5K** | **S5M** | **UNIT** |
| Maximum instantaneous forward voltage | 5.0 A | $V_F$ | 1.15 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A$ = 25 °C | $I_R$ | 10 | | | | | | | µA |
| | $T_A$ = 125 °C | | 250 | | | | | | | |
| Typical reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | $t_{rr}$ | 2.5 | | | | | | | µs |
| Typical junction capacitance | 4.0 V, 1 MHz | $C_J$ | 40 | | | | | | | pF |

| **THERMAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **S5A** | **S5B** | **S5D** | **S5G** | **S5J** | **S5K** | **S5M** | **UNIT** |
| Typical thermal resistance (1) | $R_{\theta JL}$ | 10 | | | | | | | °C/W |

**Note**

(1) Thermal resistance from junction to lead mounted on PCB with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad area

| **ORDERING INFORMATION** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| S5J-E3/57T | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| S5J-E3/9AT | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |
| S5J-M3/57T | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| S5J-M3/9AT | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |
| S5JHE3_A/H (1) | 0.211 | H | 850 | 7" diameter plastic tape and reel |
| S5JHE3_A/I (1) | 0.211 | I | 3500 | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

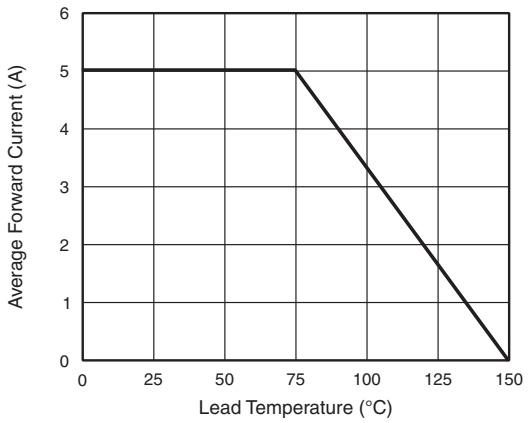


Fig. 1 - Forward Current Derating Curve

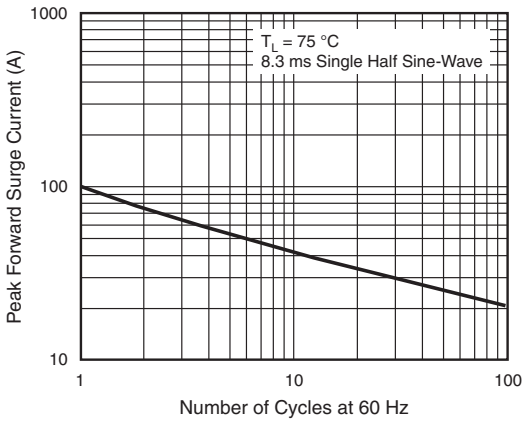


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current


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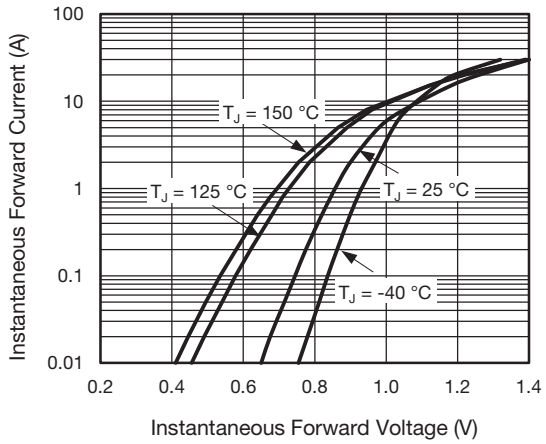



Fig. 3 - Typical Instantaneous Forward Characteristics

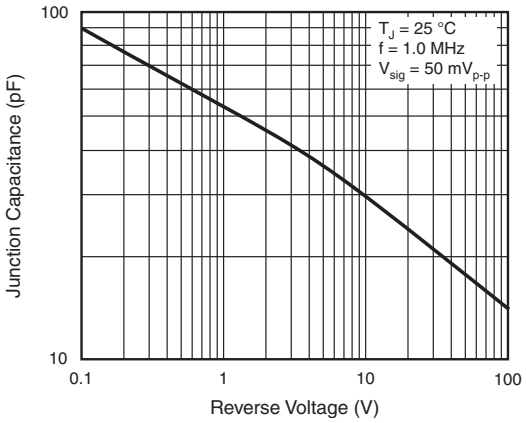



Fig. 5 - Typical Junction Capacitance

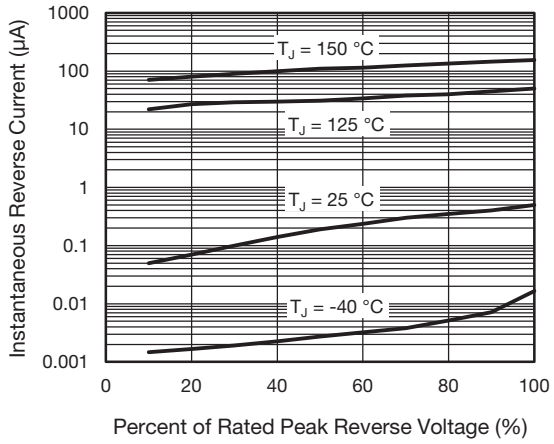
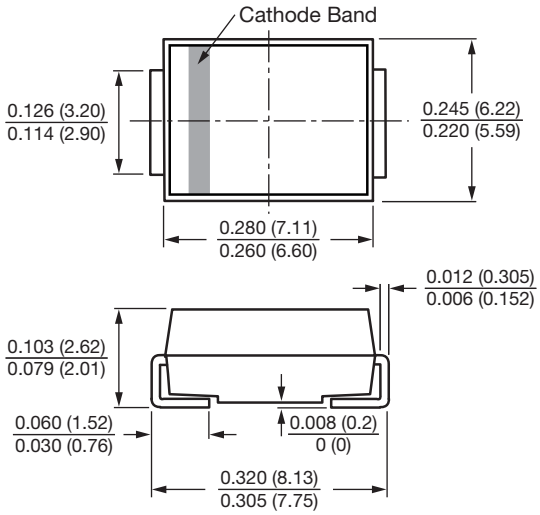


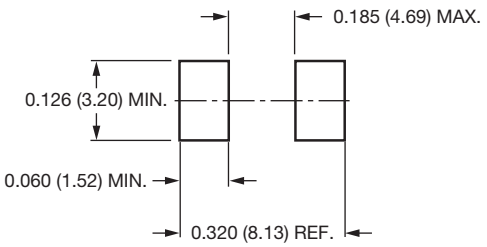

Fig. 4 - Typical Reverse Characteristics

## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**SMC (DO-214AB)**




**Mounting Pad Layout**





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