



**THE DATASHEET OF
S3K-E3/57T**



Surface-Mount Glass Passivated Rectifier


SMC (DO-214AB)

 Cathode  Anode

LINKS TO ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS | |
|-------------------------|---|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| I_{FSM} | 100 A |
| I_R | 10 μ A |
| V_F | 1.15 V |
| T_J max. | 175 °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

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

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

Base P/NHM3_X - halogen-free, 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, HE3, and HM3 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 | S3A | S3B | S3D | S3G | S3J | S3K | S3M | UNIT |
| Device marking code | | SA | SB | SD | SG | SJ | SK | SM | |
| Maximum recurrent 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 $T_L = 133$ °C | $I_{F(AV)}$ | 3.0 | | | | | | | 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 +175 | | | | | | | °C |



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | |
|--|--|-----------------|------|-----|-----|-----|-----|-----|-----|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | S3A | S3B | S3D | S3G | S3J | S3K | S3M | UNIT |
| Maximum instantaneous forward voltage | 2.5 A | V _F | 1.15 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | T _J = 25 °C | I _R | 10 | | | | | | | μA |
| | T _J = 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 | 60 | | | | | | | pF |

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | |
|---|------------------|-----|-----|-----|-----|-----|-----|-----|------|--|
| PARAMETER | SYMBOL | S3A | S3B | S3D | S3G | S3J | S3K | S3M | UNIT | |
| Typical thermal resistance ⁽¹⁾ | R _{θJA} | 47 | | | | | | | °C/W | |
| | R _{θJL} | 13 | | | | | | | | |

Note

⁽¹⁾ Thermal resistance from junction to ambient and 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 |
| S3J-E3/57T | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| S3J-E3/9AT | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |
| S3JHE3_A/H ⁽¹⁾ | 0.211 | H | 850 | 7" diameter plastic tape and reel |
| S3JHE3_A/I ⁽¹⁾ | 0.211 | I | 3500 | 13" diameter plastic tape and reel |
| S3J-M3/57T | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| S3J-M3/9AT | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |
| S3JHM3_A/H ⁽¹⁾ | 0.211 | H | 850 | 7" diameter plastic tape and reel |
| S3JHM3_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)

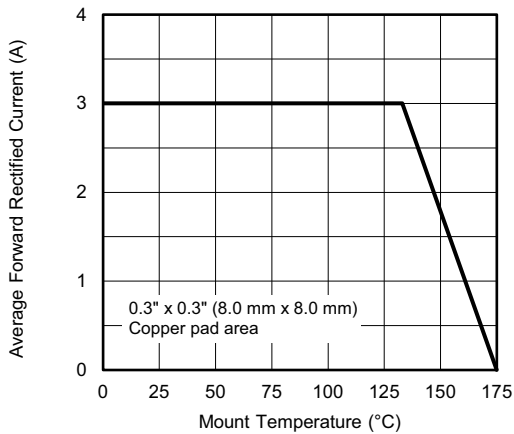


Fig. 1 - Forward Current Derating Curve



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



Fig. 3 - Typical Instantaneous Forward Characteristics



Fig. 5 - Typical Junction Capacitance

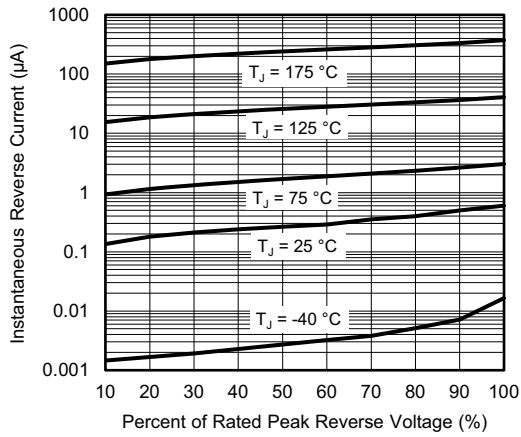


Fig. 4 - Typical Reverse Characteristics

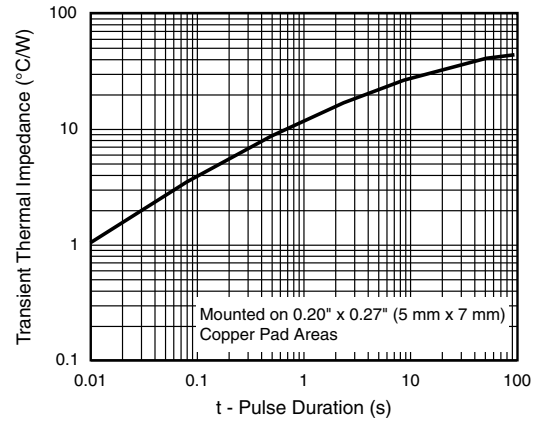


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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