HALOGEN FREE



Vishay General Semiconductor

Surface Mount Trench MOS Barrier Schottky Rectifier



DO-214AB (SMC)

| PRIMARY CHARACTERISTICS | | | | |
|--|----------------|--|--|--|
| I _{F(AV)} | 8.0 A | | | |
| V _{RRM} | 45 V | | | |
| I _{FSM} | 140 A | | | |
| V _F at I _F = 8.0 A (T _A = 125 °C) | 0.39 V | | | |
| T _J max. | 150 °C | | | |
| Package | DO-214AB (SMC) | | | |
| Diode variation | Single die | | | |

FEATURES

- Low profile package
- · Ideal for automated placement
- Trench MOS Schottky technology
- Low power losses, high efficiency
- Low forward voltage drop
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency converters, freewheeling diodes, DC/DC converters and polarity protection applications.

MECHANICAL DATA

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free and RoHS-compliant, commercial grade

Terminals: Matte tin plated

leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | |
|---|-----------------------------------|-------------|------|--|
| PARAMETER | SYMBOL | VSSC8L45 | UNIT | |
| Device marking code | | 8L45 | | |
| Maximum repetitive peak reverse voltage | V _{RRM} | 45 | V | |
| Maximum DC forward current | I _F ⁽¹⁾ | 8.0 | Α | |
| Maximum DC forward current | I _F ⁽²⁾ | 4.9 | | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I _{FSM} | 140 | А | |
| Operating junction and storage temperature range | T _J , T _{STG} | -40 to +150 | °C | |

Notes

- (1) Units mounted on 3 cm x 3 cm Aluminum, 2 oz. PCB
- (2) Free air, mounted on recommended copper pad area



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| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|--|---------------------------|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage | $I_F = 4.0 A$ | T _A = 25 °C | V _F ⁽¹⁾ | 0.42 | - | V |
| | I _F = 8.0 A | | | 0.48 | 0.56 | |
| | I _F = 4.0 A | - T _A = 125 °C | | 0.32 | - | |
| | I _F = 8.0 A | | | 0.39 | 0.48 | |
| Reverse current | V _R = 45 V | T _A = 25 °C | I _R ⁽²⁾ | - | 1.85 | - mA |
| | V _R = 45 V T _A = 125 °C | T _A = 125 °C | | 13 | 40 | |
| Typical junction capacitance | 4.0 V, 1 MHz | | CJ | 1216 | - | pF |

Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

 $\ensuremath{^{(2)}}$ Pulse test: Pulse width $\leq 5~ms$

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|----------------------|----------|------|--|
| PARAMETER | SYMBOL | VSSC8L45 | UNIT | |
| Typical thermal resistance | R _{0JA} (1) | 70 | °C/W | |
| Typical thermal resistance | R _{0JM} (2) | 8 | | |

Notes

- $^{(1)}\,$ Free air, mounted on recommended PCB 2 oz. pad area; thermal resistance $R_{\theta JA}$ junction to ambient
- Units mounted on 3 cm x 3 cm Aluminum, 2 oz. pad area; thermal resistance $R_{\theta JM}$ junction to mount

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|--|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | |
| VSSC8L45-M3/57T | 0.235 | 57T | 850 | 7" diameter plastic tape and reel | |
| VSSC8L45-M3/9AT | 0.235 | 9AT | 3500 | 13" diameter plastic tape and reel | |

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

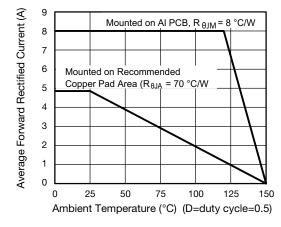


Fig. 1 - Maximum Forward Current Derating Curve

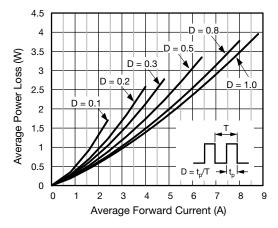


Fig. 2 - Forward Power Loss Characteristics



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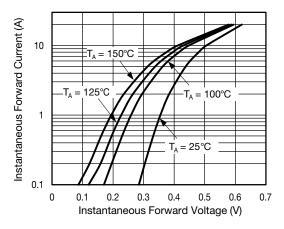
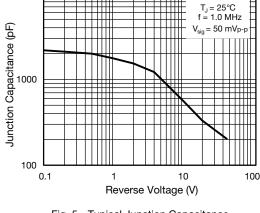


Fig. 3 - Typical Instantaneous Forward Characteristics



10 000

Fig. 5 - Typical Junction Capacitance

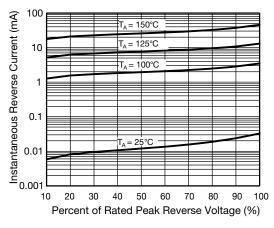


Fig. 4 - Typical Reverse Characteristics

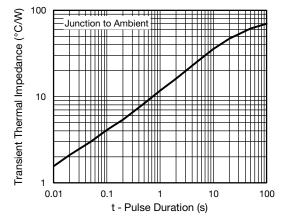
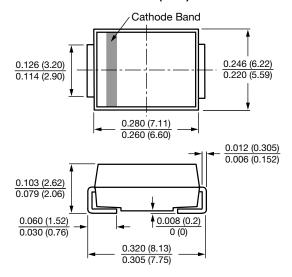


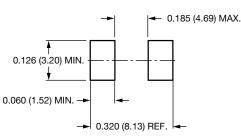
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AB (SMC)



Mounting Pad Layout





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