

Surface-Mount Ultrafast Plastic Rectifier


SMC (DO-214AB)

Cathode  Anode

LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 200 V |
| I_{FSM} | 125 A |
| t_{rr} | 25 ns |
| V_F | 0.71 V |
| T_J max. | 175 °C |
| Package | SMC (DO-214AB) |
| Circuit configuration | Single |

FEATURES

- Glass passivated pellet chip junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer 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/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 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | |
|--|--|-------------|------|
| PARAMETER | SYMBOL | MURS320 | UNIT |
| Device marking code | | MD | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 200 | V |
| Working peak reverse voltage | V_{RWM} | 200 | V |
| Maximum DC blocking voltage | V_{DC} | 200 | V |
| Maximum average forward rectified current at: (fig. 1) | $T_L = 140\text{ °C}$ $T_L = 130\text{ °C}$ | $I_{F(AV)}$ | A |
| | | 3.0 4.0 | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 125 | A |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +175 | °C |

**ELECTRICAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER | TEST CONDITIONS | SYMBOL | MURS320 | UNIT |
|--|---|-------------|---------|---------------|
| Maximum instantaneous forward voltage | $I_F = 3.0\text{ A}$ | $V_F^{(1)}$ | 0.875 | V |
| | $I_F = 4.0\text{ A}$ | | 0.890 | |
| | $I_F = 3.0\text{ A}$ | | 0.710 | |
| Maximum instantaneous reverse current at rated DC blocking voltage | $T_J = 25\text{ }^{\circ}\text{C}$ | $I_R^{(1)}$ | 5.0 | μA |
| | $T_J = 150\text{ }^{\circ}\text{C}$ | | 150 | |
| Maximum reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | 25 | ns |
| Maximum reverse recovery time | $I_F = 1.0\text{ A}$, $dI/dt = 50\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 10\% I_{RM}$ | t_{rr} | 35 | ns |
| Maximum forward recovery time | $I_F = 1.0\text{ A}$, $dI/dt = 100\text{ A}/\mu\text{s}$, recovery to 1.0 V | t_{fr} | 25 | ns |

Note

⁽¹⁾ Pulse test: $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | MURS320 | UNIT |
|---|-----------------|---------|-----------------------------|
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 11 | $^{\circ}\text{C}/\text{W}$ |

ORDERING INFORMATION (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-------------------------------|-----------------|------------------------|---------------|------------------------------------|
| MURS320-E3/57T | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| MURS320-E3/9AT | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |
| MURS320HE3_A/H ⁽¹⁾ | 0.211 | H | 850 | 7" diameter plastic tape and reel |
| MURS320HE3_A/I ⁽¹⁾ | 0.211 | I | 3500 | 13" diameter plastic tape and reel |

Note

⁽¹⁾ AEC-Q101 qualified

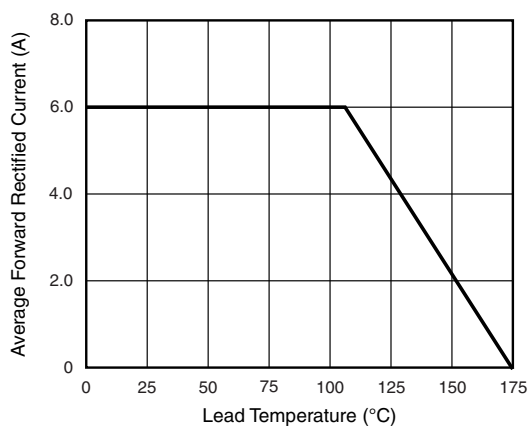
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

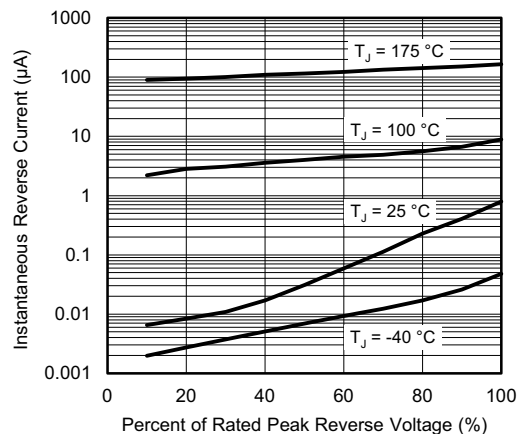


Fig. 4 - Typical Reverse Leakage Characteristics

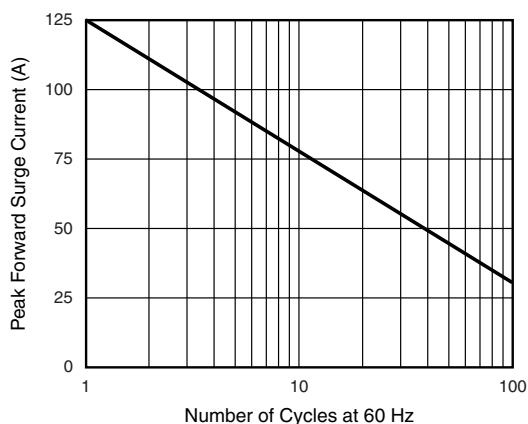


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

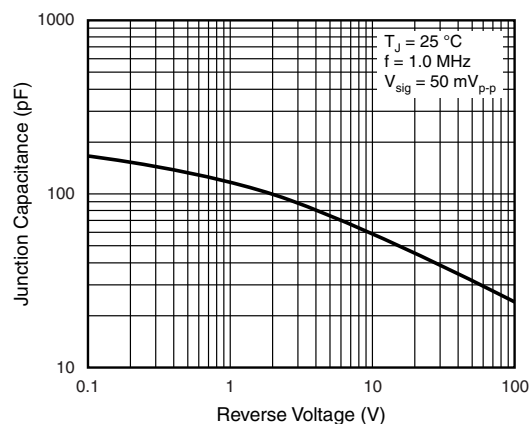


Fig. 5 - Typical Junction Capacitance

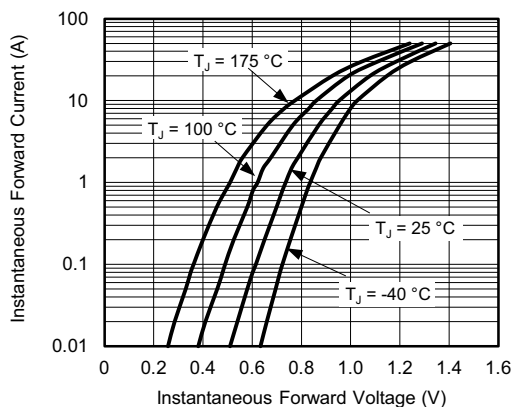
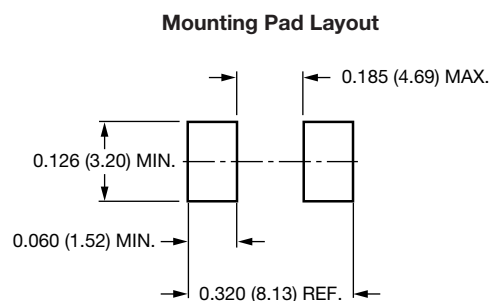
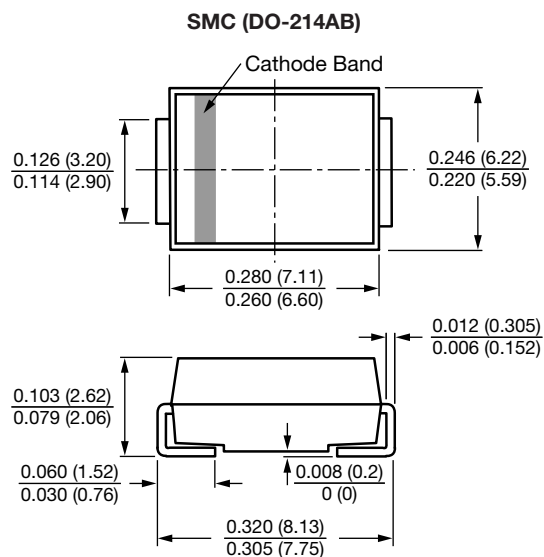


Fig. 3 - Typical Forward Voltage



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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