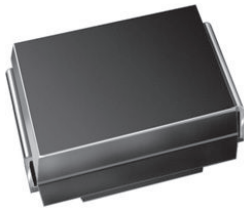




Surface-Mount Ultrafast Plastic Rectifier



SMB (DO-214AA)

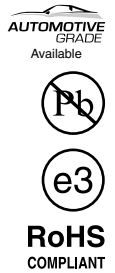


LINKS TO ADDITIONAL RESOURCES



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 available
- Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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: SMB (DO-214AA)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/NHE3_X - RoHS-compliant, 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

| PRIMARY CHARACTERISTICS | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 400 V, 600 V |
| I_{FSM} | 35 A |
| t_{rr} | 50 ns |
| V_F | 1.05 V |
| T_J max. | 175 °C |
| Package | SMB (DO-214AA) |
| Circuit configuration | Single |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|-----------------------|---------|------|
| PARAMETER | SYMBOL | MURS140 | MURS160 | UNIT |
| Device marking code | | MG | MJ | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 400 | 600 | V |
| Working peak reverse voltage | V_{RWM} | 400 | 600 | |
| Maximum DC blocking voltage | V_{DC} | 400 | 600 | |
| Maximum average forward rectified current at (Fig. 1) | $I_{F(AV)}$ | $T_L = 150\text{ °C}$ | | A |
| | | $T_L = 125\text{ °C}$ | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 35 | | |
| 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 | SYMBOL | TEST CONDITIONS | MURS140 | MURS160 | UNIT |
| Maximum instantaneous forward voltage | $V_F^{(1)}$ | $I_F = 1.0\text{ A}$ | $T_J = 25\text{ }^\circ\text{C}$ | 1.25 | V |
| | | | $T_J = 150\text{ }^\circ\text{C}$ | 1.05 | |
| Maximum instantaneous reverse current at DC blocking voltage | $I_R^{(2)}$ | Rated V_R | $T_J = 25\text{ }^\circ\text{C}$ | 5.0 | μA |
| | | | $T_J = 150\text{ }^\circ\text{C}$ | 150 | |
| Maximum reverse recovery time | t_{rr} | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$ | | 50 | ns |
| | | $I_F = 1.0\text{ A}, dI/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$ | | 75 | |
| Maximum forward recovery time | t_{fr} | $I_F = 1.0\text{ A}, dI/dt = 100\text{ A}/\mu\text{s},$ recovery to 1.0 V | | 50 | |

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|---|-----------------|---------|---------|---------------------------|
| PARAMETER | SYMBOL | MURS140 | MURS160 | UNIT |
| Typical thermal resistance, junction to lead | $R_{\theta JL}$ | | 13 | $^\circ\text{C}/\text{W}$ |

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| MURS160-E3/52T | 0.096 | 52T | 750 | 7" diameter plastic tape and reel |
| MURS160-E3/5BT | 0.096 | 5BT | 3200 | 13" diameter plastic tape and reel |
| MURS160HE3_A/H ⁽¹⁾ | 0.096 | H | 750 | 7" diameter plastic tape and reel |
| MURS160HE3_A/I ⁽¹⁾ | 0.096 | I | 3200 | 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)

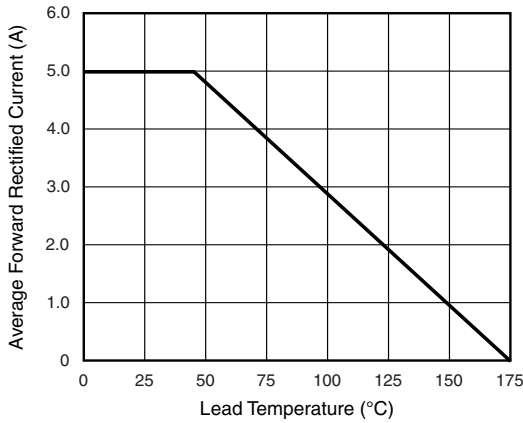


Fig. 1 - Forward Current Derating Curve

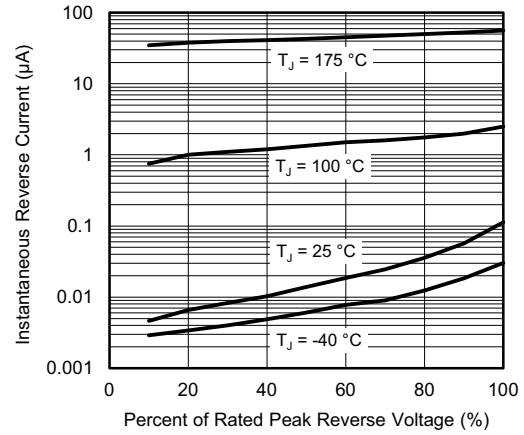


Fig. 4 - Typical Reverse Leakage Characteristics

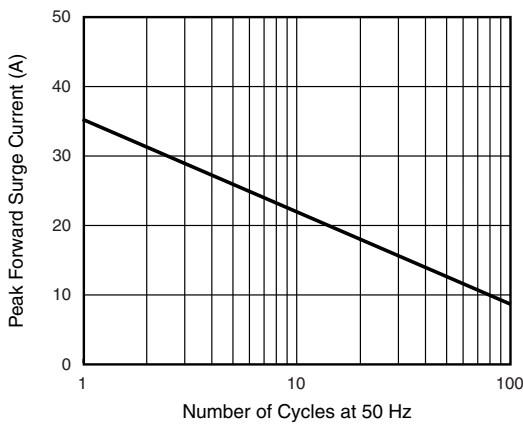


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

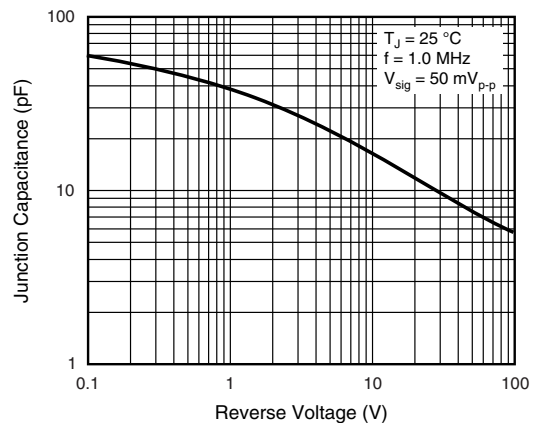


Fig. 5 - Typical Junction Capacitance

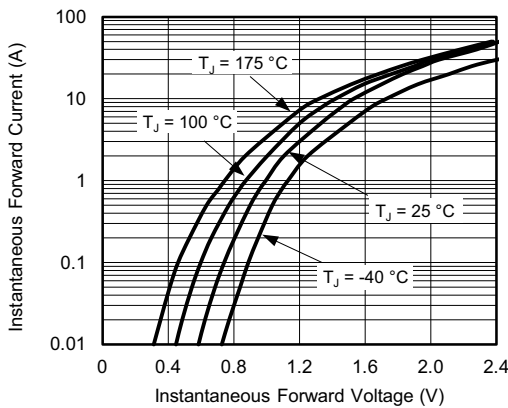
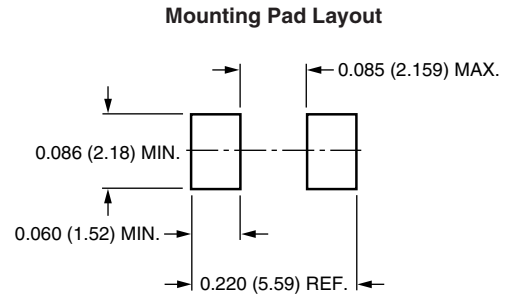
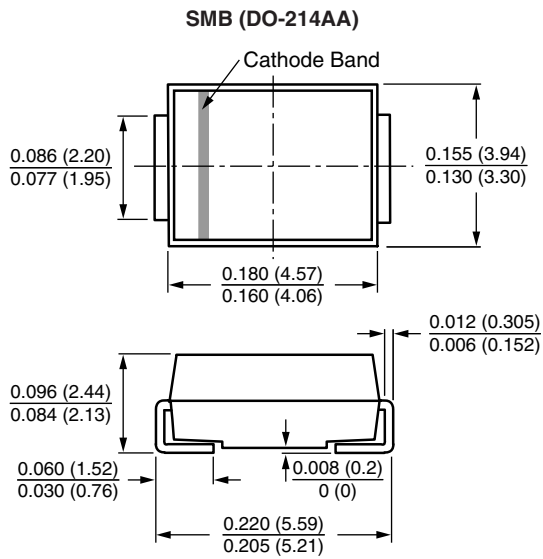


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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