

Surface Mount Ultrafast Plastic Rectifier


DO-214AA (SMB)

RoHS
 COMPLIANT
 HALOGEN
FREE

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
- 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: DO-214AA (SMB)

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

| PRIMARY CHARACTERISTICS | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 400 V, 600 V |
| I_{FSM} | 35 A |
| t_{rr} | 50 ns |
| V_F | 1.20 V |
| $T_J \text{ max.}$ | 175 °C |
| Package | DO-214AA (SMB) |
| Diode variations | Single die |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|-------------|---------|------|
| PARAMETER | SYMBOL | MURS240 | MURS260 | UNIT |
| Device marking codes | | M2G | M2J | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 400 | 600 | V |
| Maximum average forward rectified current at $T_L = 125\text{ °C}$ (fig. 1) | $I_{F(AV)}$ | 2.0 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 35 | | 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 | MURS240 | MURS260 | UNIT |
| Maximum instantaneous forward voltage | $I_F = 2.0\text{ A}$ | $V_F^{(1)}$ | $T_J = 25\text{ }^\circ\text{C}$ | 1.45 | V |
| | | | $T_J = 125\text{ }^\circ\text{C}$ | 1.20 | |
| Maximum instantaneous reverse current | Rated V_R | $I_R^{(2)}$ | $T_J = 25\text{ }^\circ\text{C}$ | 5.0 | μA |
| | | | $T_J = 125\text{ }^\circ\text{C}$ | 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} | 50 | | 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} | 75 | | 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} | 50 | | ns |

Notes

- (1) Pulse test: $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- (2) Pulse test: Pulse width $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|---|-----------------|---------|---------|---------------------------|
| PARAMETER | SYMBOL | MURS240 | MURS260 | UNIT |
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 15 | | $^\circ\text{C}/\text{W}$ |

Note

- (1) Units mounted on PCB with 30 mm x 30 mm copper pad areas

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| MURS240-M3/52T | 0.093 | 52T | 750 | 7" diameter plastic tape and reel |
| MURS240-M3/5BT | 0.093 | 5BT | 3200 | 13" diameter plastic tape and reel |



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

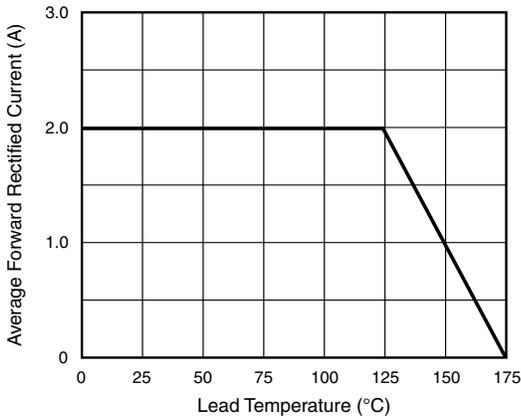


Fig. 1 - Forward Current Derating Curve

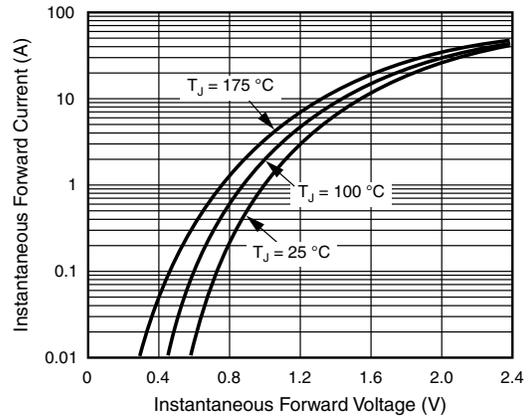


Fig. 4 - Typical Instantaneous Forward Characteristics

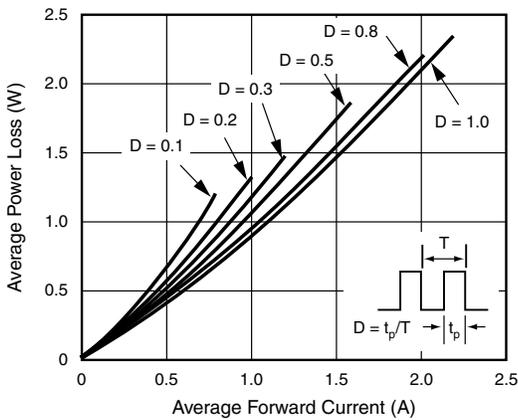


Fig. 2 - Forward Power Loss Characteristics

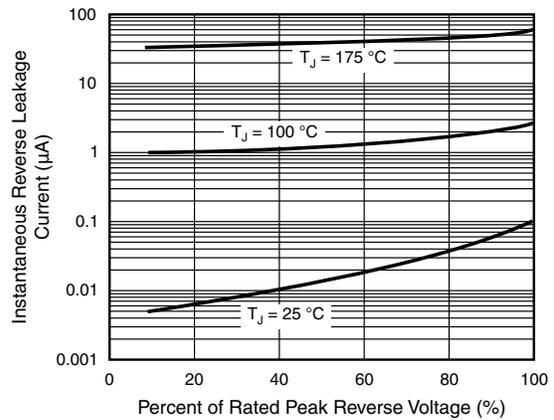


Fig. 5 - Typical Reverse Leakage Characteristics

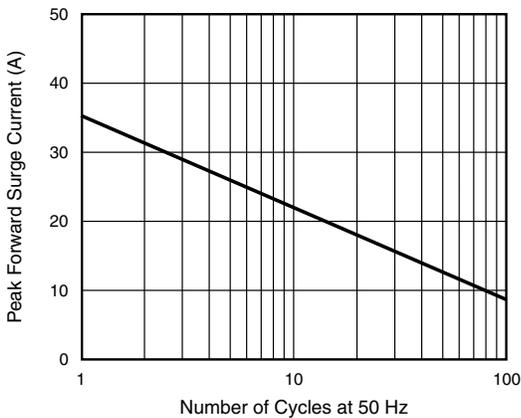


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

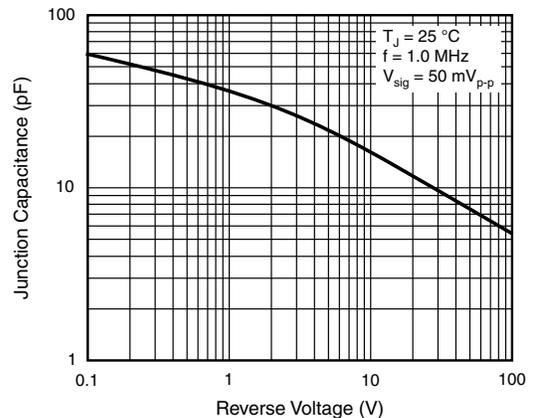
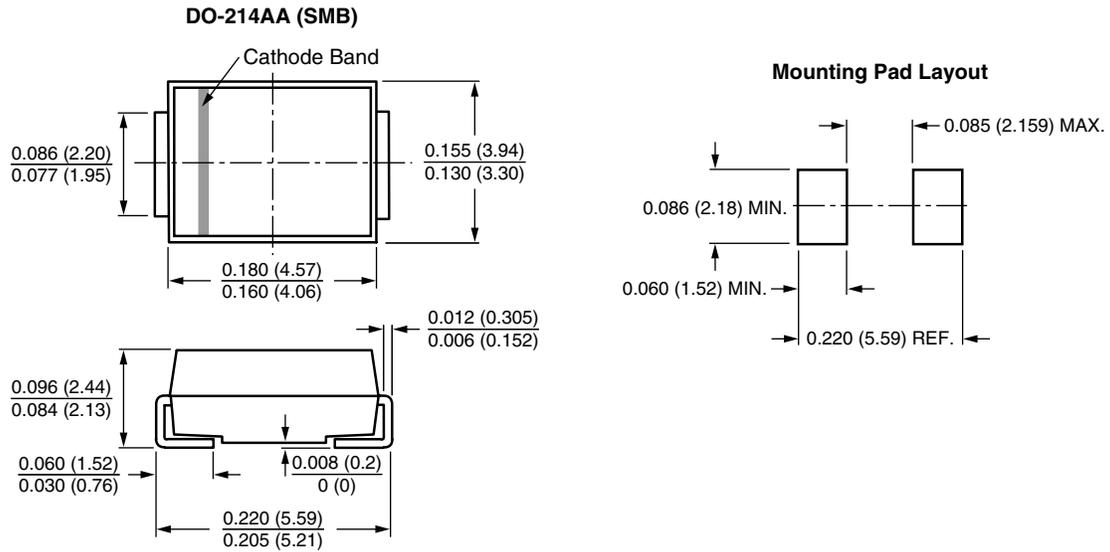


Fig. 6 - Typical Junction Capacitance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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