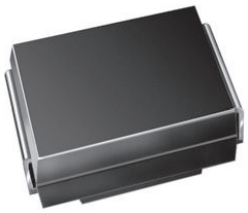
# Surface-Mount Ultrafast Plastic Rectifier



**SMB (DO-214AA)**

Cathode ○—◀—○ Anode

## 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

RoHS COMPLIANT

HALOGEN FREE

## LINKS TO ADDITIONAL RESOURCES

3D Models

## TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 1.0 A |
| $V_{RRM}$ | 200 V |
| $I_{FSM}$ | 40 A |
| $t_{rr}$ | 25 ns |
| $V_F$ | 0.71 V |
| $T_J$ max. | 175 °C |
| Package | SMB (DO-214AA) |
| Circuit configuration | Single |

## MECHANICAL DATA

**Case:** SMB (DO-214AA)
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

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | | SYMBOL | VALUE | 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) | $T_L$ = 155 °C | $I_{F(AV)}$ | 1.0 | A |
| | $T_L$ = 145 °C | | 2.0 | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | | $I_{FSM}$ | 40 | A |
| Operating junction and storage temperature range | | $T_J$, $T_{STG}$ | -65 to +175 | °C |



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| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **VALUE** | **UNIT** |
| Maximum instantaneous forward voltage | $I_F$ = 1.0 A | $T_J$ = 25 °C | $V_F$ (1) | 0.875 | V |
| | | $T_J$ = 150 °C | | 0.71 | |
| Maximum instantaneous reverse current at rated DC blocking voltage | | $T_J$ = 25 °C | $I_R$ (1) | 2.0 | μA |
| | | $T_J$ = 150 °C | | 50 | |
| Maximum reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 25 | ns |
| Maximum reverse recovery time | $I_F$ = 1.0 A, dI/dt = 50 A/μs, $V_R$ = 30 V, $I_{rr}$ = 10 % $I_{RM}$ | | $t_{rr}$ | 35 | ns |
| Maximum forward recovery time | $I_F$ = 1.0 A, dI/dt = 100 A/μs, recovery to 1.0 V | | $t_{fr}$ | 25 | ns |

**Note**

(1) Pulse test: $t_p$ = 300 μs, duty cycle ≤ 2 %

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

| **ORDERING INFORMATION** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| MURS120-M3/52T | 0.096 | 52T | 750 | 7" diameter plastic tape and reel |
| MURS120-M3/5BT | 0.096 | 5BT | 3200 | 13" diameter plastic tape and reel |


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

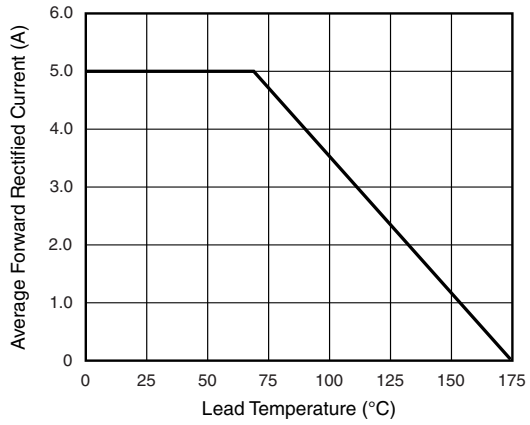



Fig. 1 - Forward Current Derating Curve

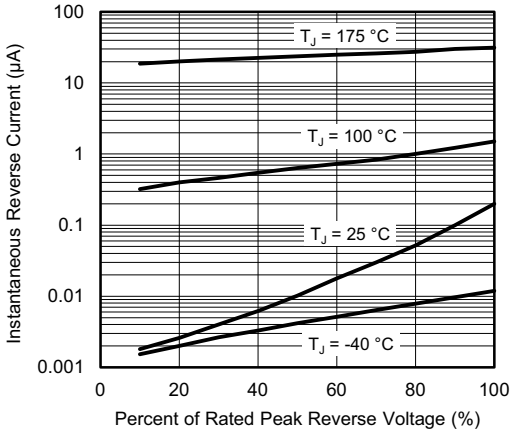



Fig. 4 - Typical Reverse Leakage Characteristics

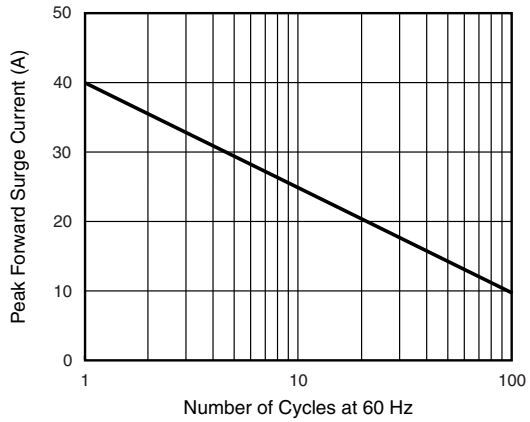



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

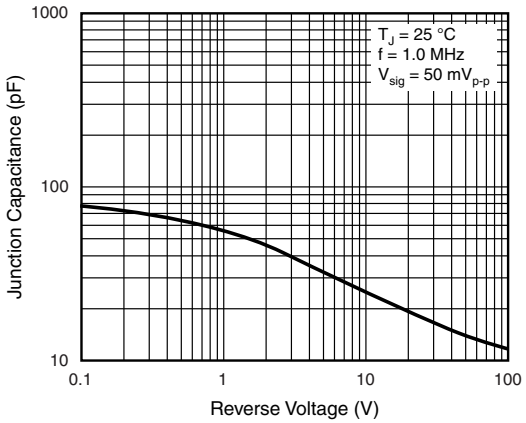



Fig. 5 - Typical Junction Capacitance

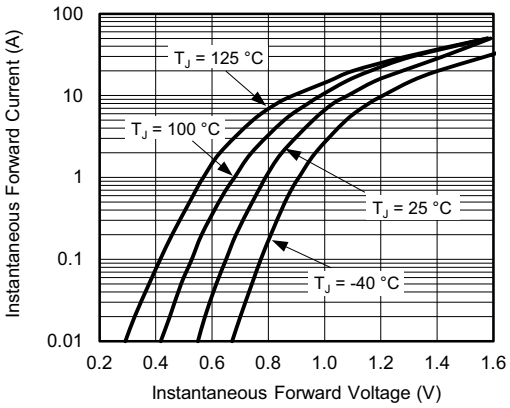
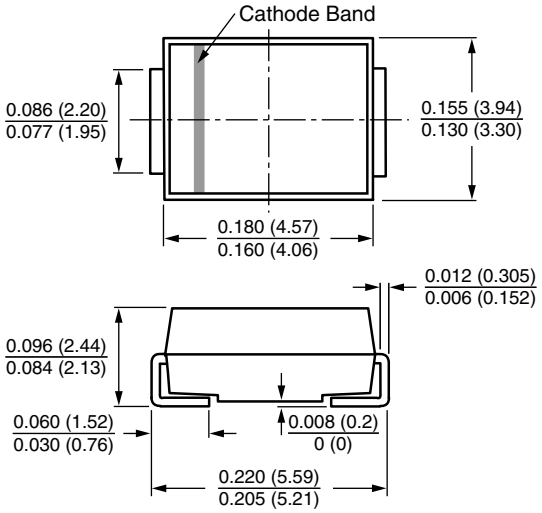



Fig. 3 - Typical Instantaneous Forward Characteristics

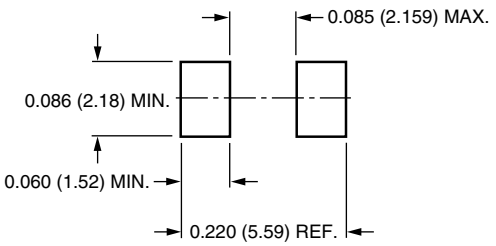

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**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**SMB (DO-214AA)**




**Mounting Pad Layout**





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