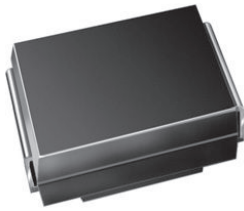


## Surface-Mount Ultrafast Plastic Rectifier


**SMB (DO-214AA)**

 Cathode  Anode 

### LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

| 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         |

### 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](http://www.vishay.com/doc?99912)

 AUTOMOTIVE  
GRADE  
Available

**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:** 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

| 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   |



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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     | $\mu\text{A}$ |
|  |             |  | $T_J = 150\text{ }^\circ\text{C}$ | 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  | $t_{fr}$    | $I_F = 1.0\text{ A}, dI/dt = 100\text{ A}/\mu\text{s},$<br>recovery to 1.0 V                   |                                   | 50      |               |

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

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

| <b>ORDERING INFORMATION</b> (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 <sup>(1)</sup>         | 0.096           | H                      | 750           | 7" diameter plastic tape and reel  |
| MURS160HE3_A/I <sup>(1)</sup>         | 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)

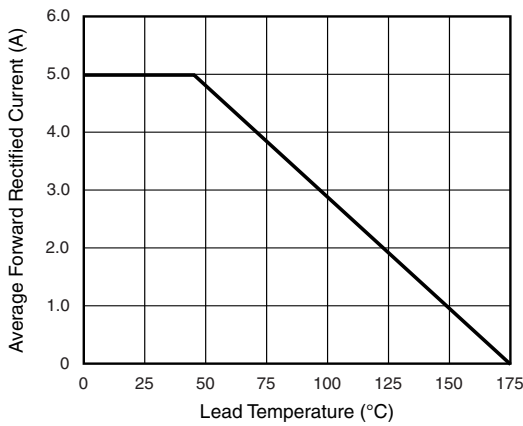


Fig. 1 - Forward Current Derating Curve

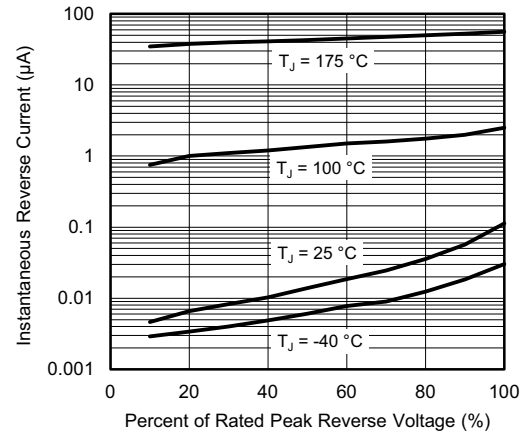


Fig. 4 - Typical Reverse Leakage Characteristics

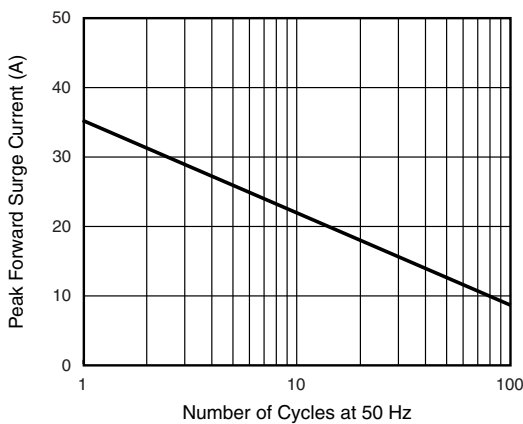


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

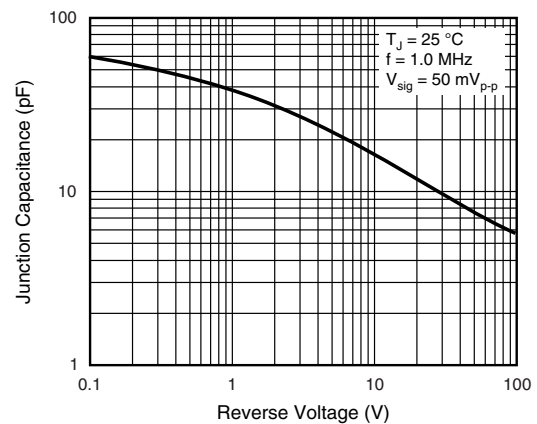


Fig. 5 - Typical Junction Capacitance

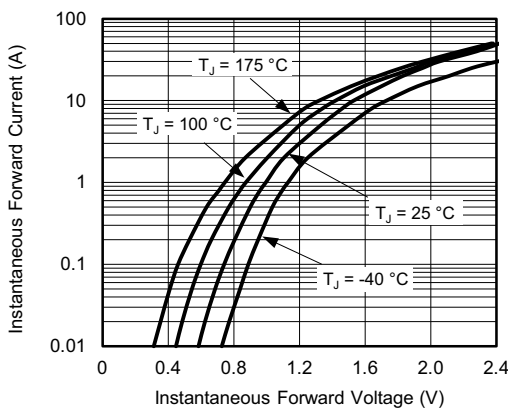
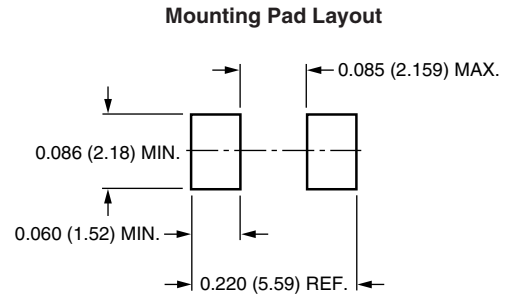
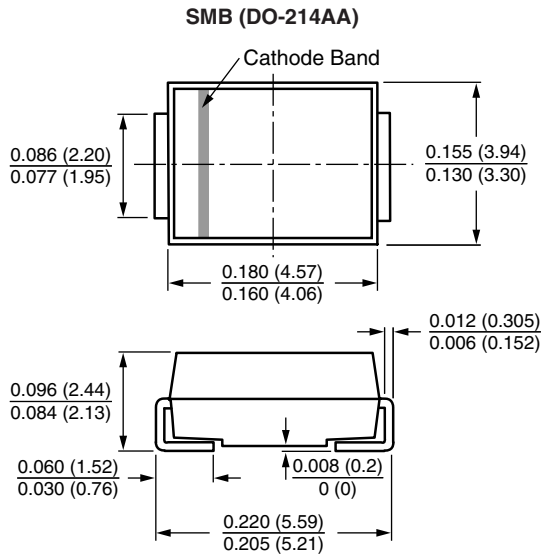


Fig. 3 - Typical Instantaneous Forward Characteristics



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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