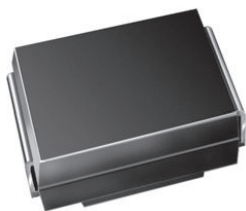


## Surface-Mount Ultrafast Plastic Rectifier


**SMB (DO-214AA)**

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



### FEATURES

- Glass passivated pallet 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)


**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

### 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         |
| $T_J$ max.            | 175 °C         |
| Package               | SMB (DO-214AA) |
| Circuit configuration | Single         |

### MAXIMUM RATINGS ( $T_A = 25$ °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 $T_L = 125$ °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 | $I_F = 2.0\text{ A}$                                                                                       | $V_F^{(1)}$ | 1.45    |         | V             |
|                                       | $T_J = 125\text{ }^{\circ}\text{C}$                                                                        |             | 1.20    |         |               |
| Maximum instantaneous reverse current | Rated $V_R$                                                                                                | $I_R^{(2)}$ | 5.0     |         | $\mu\text{A}$ |
|                                       |                                                                                                            |             | 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         | $I_F = 1.0\text{ A}$ , $dI/dt = 50\text{ A}/\mu\text{s}$ ,<br>$V_R = 30\text{ V}$ , $I_{rr} = 10\% I_{RM}$ | $t_{rr}$    | 75      |         | ns            |
| Maximum forward recovery time         | $I_F = 1.0\text{ A}$ , $dI/dt = 100\text{ A}/\mu\text{s}$ ,<br>recovery to $1.0\text{ V}$                  | $t_{fr}$    | 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-E3/52T                | 0.093           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| MURS240-E3/5BT                | 0.093           | 5BT                    | 3200          | 13" diameter plastic tape and reel |
| MURS240HE3_A/H <sup>(1)</sup> | 0.093           | H                      | 750           | 7" diameter plastic tape and reel  |
| MURS240HE3_A/I <sup>(1)</sup> | 0.093           | I                      | 3200          | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified



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

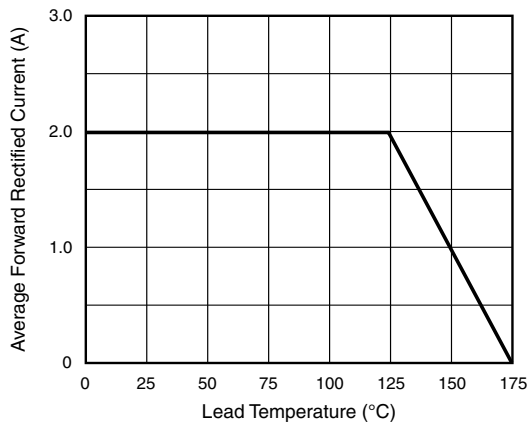


Fig. 1 - Forward Current Derating Curve

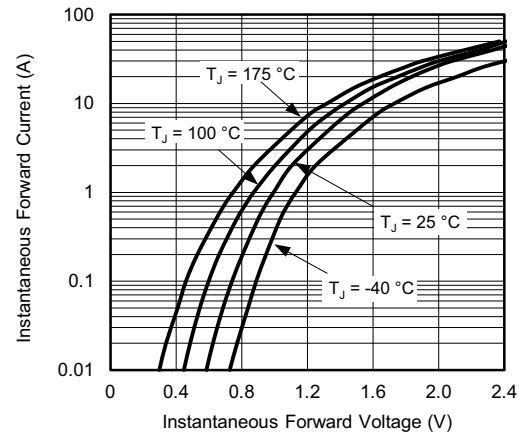


Fig. 4 - Typical Instantaneous Forward Characteristics

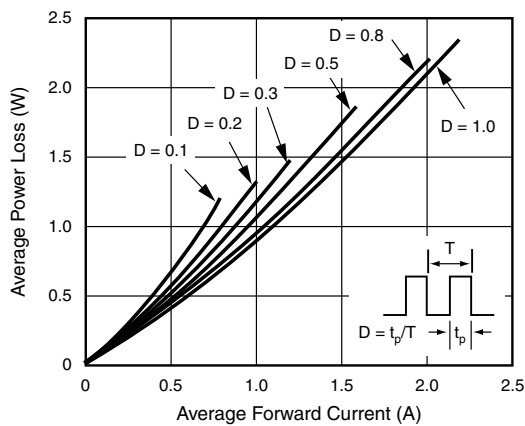


Fig. 2 - Forward Power Loss Characteristics

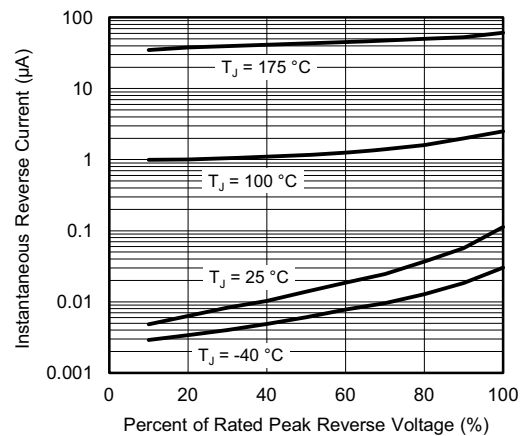


Fig. 5 - Typical Reverse Leakage Characteristics

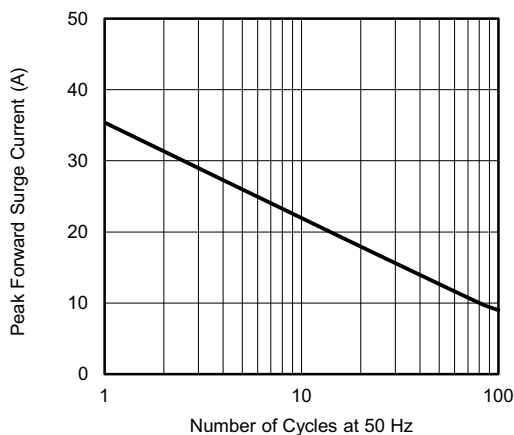


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

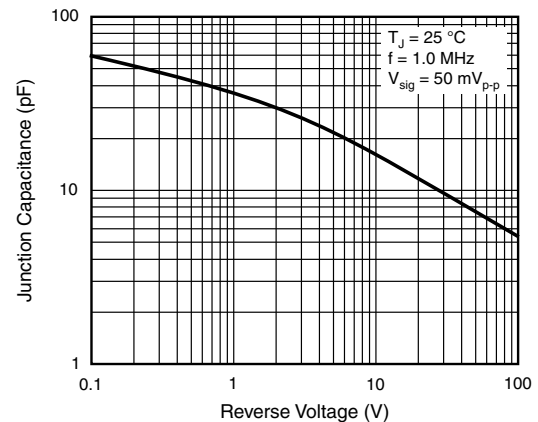
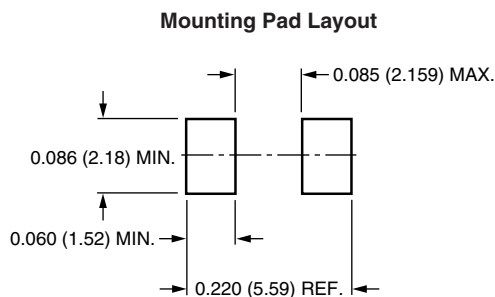
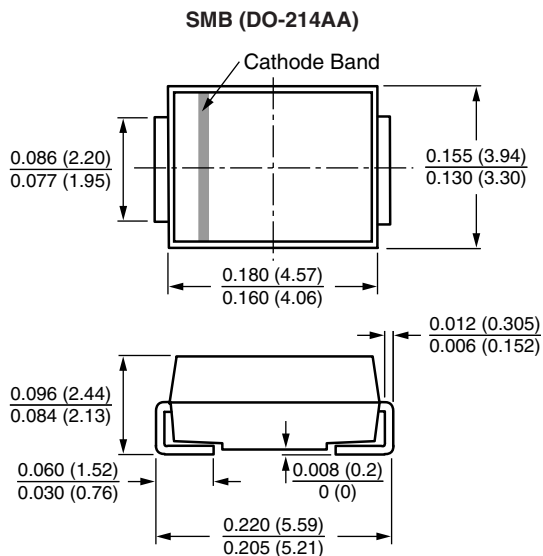


Fig. 6 - Typical Junction Capacitance



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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