

## 3A, 400V-600V High Efficient Recovery Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Ultrafast recovery time for high efficiency
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Monitor
- TV

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Part No. with suffix "H" means AEC-Q101 qualified
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.11 g (approximately)

| KEY PARAMETERS |                |      |
|----------------|----------------|------|
| PARAMETER      | VALUE          | UNIT |
| $I_{F(AV)}$    | 3              | A    |
| $V_{RRM}$      | 400 - 600      | V    |
| $I_{FSM}$      | 75             | A    |
| $T_{J\ MAX}$   | 175            | °C   |
| Package        | DO-214AA (SMB) |      |
| Configuration  | Single Die     |      |



DO-214AA (SMB)

| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)                   |              |              |          |      |
|-----------------------------------------------------------------------------------------------|--------------|--------------|----------|------|
| PARAMETER                                                                                     | SYMBOL       | MUR340SB     | MUR360SB | UNIT |
| Marking code on the device                                                                    |              | MUR340SB     | MUR360SB |      |
| Repetitive peak reverse voltage                                                               | $V_{RRM}$    | 400          | 600      | V    |
| Reverse voltage, total rms value                                                              | $V_{R(RMS)}$ | 280          | 420      | V    |
| Maximum DC blocking voltage                                                                   | $V_{DC}$     | 400          | 600      | V    |
| Forward current                                                                               | $I_{F(AV)}$  | 3            |          | A    |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$    | 75           |          | A    |
| Junction temperature                                                                          | $T_J$        | - 55 to +175 |          | °C   |
| Storage temperature                                                                           | $T_{STG}$    | - 55 to +175 |          | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | LIMIT | UNIT |
|----------------------------------------|-----------------|-------|------|
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 42    | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 76    | °C/W |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 45    | °C/W |

**Thermal Performance Note:** Units mounted on recommended PCB (10mm x 10mm Cu pad test board)

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| PARAMETER                                              | CONDITIONS                                                        | SYMBOL   | TYP  | MAX  | UNIT          |
|--------------------------------------------------------|-------------------------------------------------------------------|----------|------|------|---------------|
| Forward voltage per diode <sup>(1)</sup>               | $I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$                       | $V_F$    | 1.01 | 1.10 | V             |
|                                                        | $I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$                       |          | 1.12 | 1.25 | V             |
|                                                        | $I_F = 1.5\text{A}, T_J = 150^\circ\text{C}$                      |          | 0.92 | 1.00 | V             |
|                                                        | $I_F = 3.0\text{A}, T_J = 150^\circ\text{C}$                      |          | 1.05 | 1.05 | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | $T_J = 25^\circ\text{C}$                                          | $I_R$    | -    | 10   | $\mu\text{A}$ |
|                                                        | $T_J = 150^\circ\text{C}$                                         |          | -    | 250  | $\mu\text{A}$ |
| Junction capacitance                                   | 1 MHz, $V_R = 4.0\text{V}$                                        | $C_J$    | 40   | -    | pF            |
| Reverse recovery time                                  | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$<br>$I_{RR} = 0.25\text{A}$ | $t_{rr}$ | -    | 50   | ns            |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

**ORDERING INFORMATION**

| PART NO.                | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING                  |
|-------------------------|-----------------|--------------|---------------------|---------|--------------------------|
| MUR3xxSB<br>(Note 1, 2) | H               | R5           | G                   | SMB     | 850 / 7" Plastic reel    |
|                         |                 | R4           |                     | SMB     | 3,000 / 13" Paper reel   |
|                         |                 | M4           |                     | SMB     | 3,000 / 13" Plastic reel |

**Notes:**

1. "xx" defines voltage from 400V (MUR340SB) to 600V (MUR360SB)
2. Whole series with green compound (halogen-free)

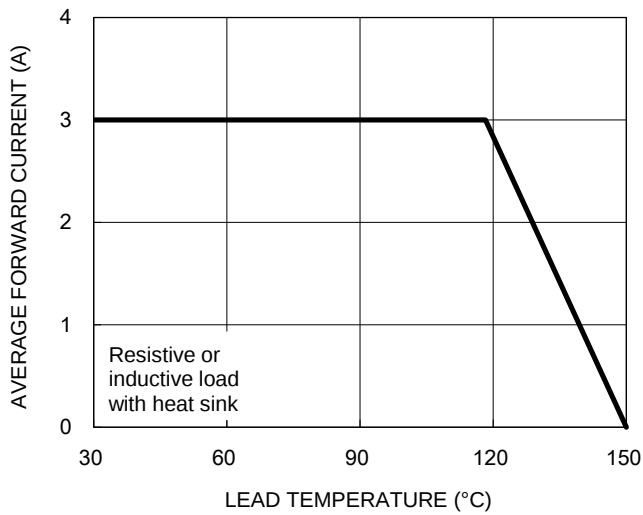
**EXAMPLE P/N**

| EXAMPLE P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
|-------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| MUR340SBHR5 | MUR340SB | H               | R5           | G                   | Green compound<br>AEC-Q101 qualified |

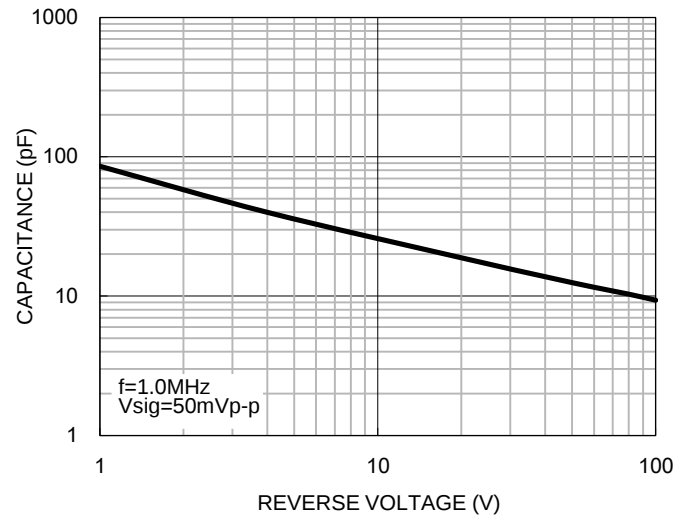
## CHARACTERISTICS CURVES

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

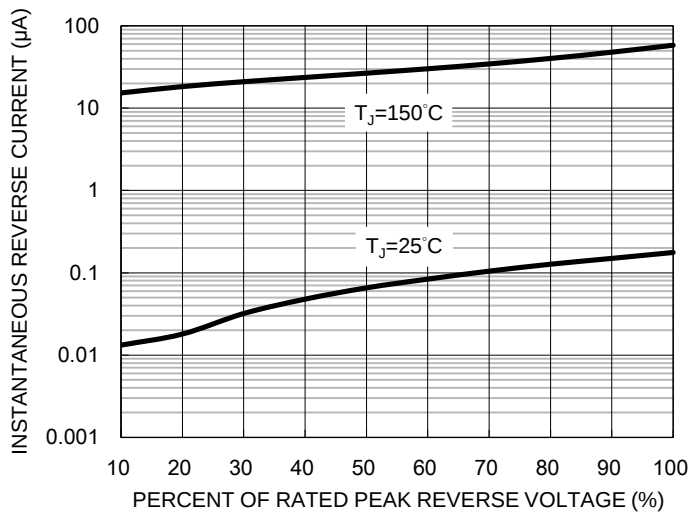
**Fig.1 Forward Current Derating Curve**



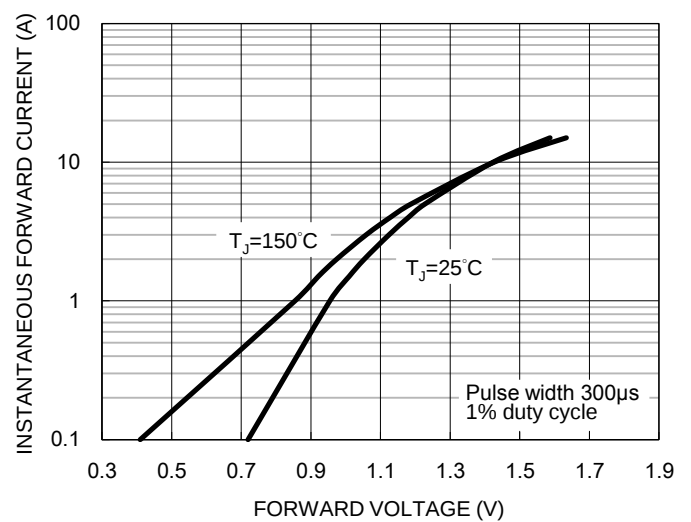
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**

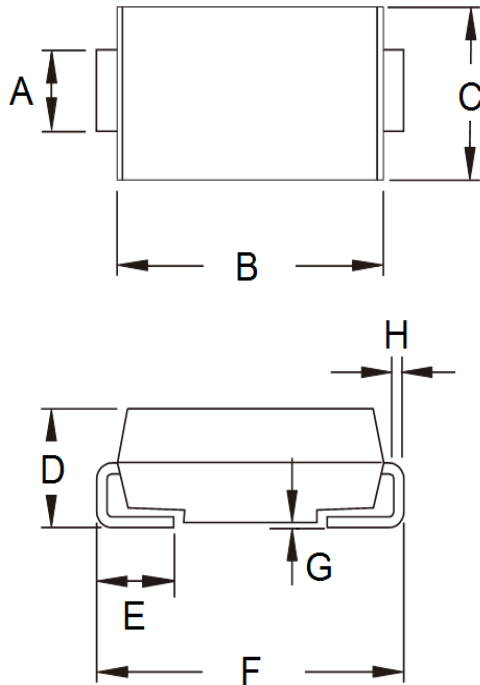


**Fig.4 Typical Forward Characteristics**



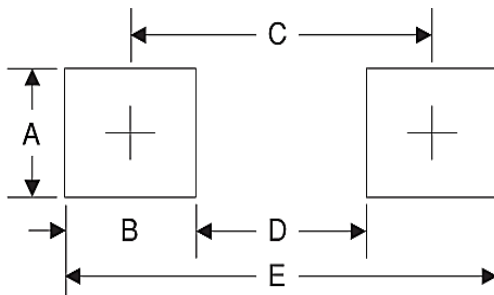
## PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 1.95      | 2.20 | 0.077       | 0.087 |
| B    | 4.05      | 4.60 | 0.159       | 0.181 |
| C    | 3.30      | 3.95 | 0.130       | 0.156 |
| D    | 1.95      | 2.65 | 0.077       | 0.104 |
| E    | 0.75      | 1.60 | 0.030       | 0.063 |
| F    | 5.10      | 5.60 | 0.201       | 0.220 |
| G    | 0.05      | 0.20 | 0.002       | 0.008 |
| H    | 0.15      | 0.31 | 0.006       | 0.012 |

## SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 2.3       | 0.091       |
| B      | 2.5       | 0.098       |
| C      | 4.3       | 0.169       |
| D      | 1.8       | 0.071       |
| E      | 6.8       | 0.268       |

## MARKING DIAGRAM



P/N = Marking Code  
G = Green Compound  
YW = Date Code  
F = Factory Code

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