

## 5A, 400V - 1000V Standard Surface Mount Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

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

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.090g (approximately)

| KEY PARAMETERS |                |      |
|----------------|----------------|------|
| PARAMETER      | VALUE          | UNIT |
| $I_F$          | 5              | A    |
| $V_{RRM}$      | 400 - 1000     | V    |
| $I_{FSM}$      | 200            | A    |
| $T_{J\ MAX}$   | 150            | °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                    | S5GB         | S5JB | S5KB | S5MB | UNIT |
| Marking code on the device                                                         |                           | S5GB         | S5JB | S5KB | S5MB |      |
| Repetitive peak reverse voltage                                                    | $V_{RRM}$                 | 400          | 600  | 800  | 1000 | V    |
| Reverse voltage, total rms value                                                   | $V_{R(RMS)}$              | 280          | 420  | 560  | 700  | V    |
| Forward current                                                                    | $I_F$                     | 5            |      |      |      | A    |
| Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load | $T_J = 25^\circ\text{C}$  | 200          |      |      |      | A    |
|                                                                                    | $T_J = 125^\circ\text{C}$ | 150          |      |      |      | A    |
| Surge peak forward current, 1.0ms single half sine-wave superimposed on rated load | $T_J = 25^\circ\text{C}$  | 540          |      |      |      | A    |
|                                                                                    | $T_J = 125^\circ\text{C}$ | 290          |      |      |      | A    |
| Junction temperature                                                               | $T_J$                     | - 55 to +150 |      |      |      | °C   |
| Storage temperature                                                                | $T_{STG}$                 | - 55 to +150 |      |      |      | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | TYP | UNIT |
|----------------------------------------|-----------------|-----|------|
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 47  | °C/W |
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 13  | °C/W |

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

| PARAMETER                                    | CONDITIONS                                   | SYMBOL | TYP | MAX | UNIT          |
|----------------------------------------------|----------------------------------------------|--------|-----|-----|---------------|
| Forward voltage <sup>(1)</sup>               | $I_F = 5\text{A}$ , $T_J = 25^\circ\text{C}$ | $V_F$  | -   | 1.1 | V             |
| Reverse current @ rated $V_R$ <sup>(2)</sup> | $T_J = 25^\circ\text{C}$                     | $I_R$  | -   | 10  | $\mu\text{A}$ |
|                                              | $T_J = 125^\circ\text{C}$                    |        | -   | 250 | $\mu\text{A}$ |
| Junction capacitance                         | 1MHz, $V_R = 4.0\text{V}$                    | $C_J$  | 40  | -   | pF            |

**Notes:**

- Pulse test with  $PW = 0.3\text{ms}$
- Pulse test with  $PW = 30\text{ms}$

**ORDERING INFORMATION**

| ORDERING CODE <sup>(1)</sup> | PACKAGE        | PACKING             |
|------------------------------|----------------|---------------------|
| S5xB                         | DO-214AA (SMB) | 3,000 / Tape & Reel |

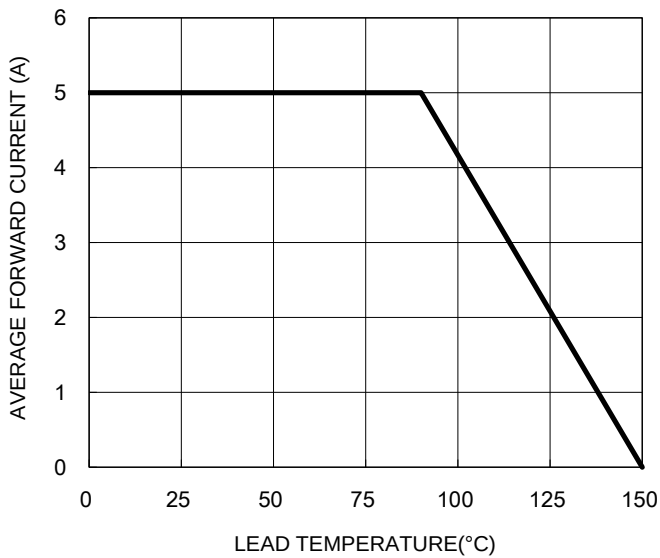
**Notes:**

- "x" defines voltage from 400V(S5GB) to 1000V(S5MB)

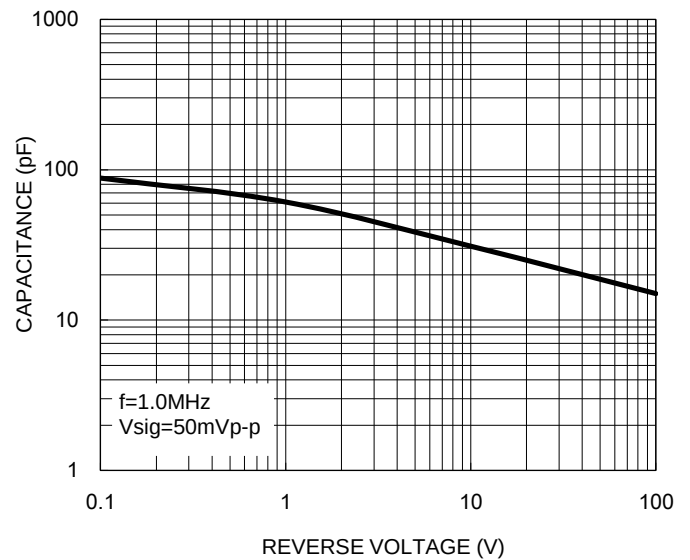
## CHARACTERISTICS CURVES

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

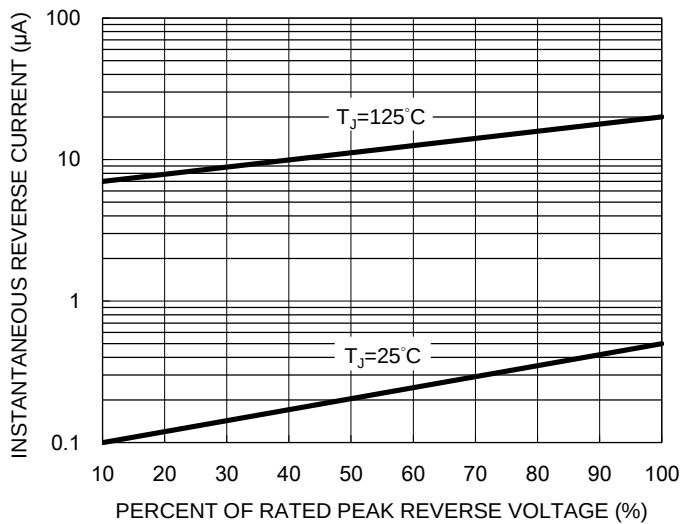
**Fig.1 Forward Current Derating Curve**



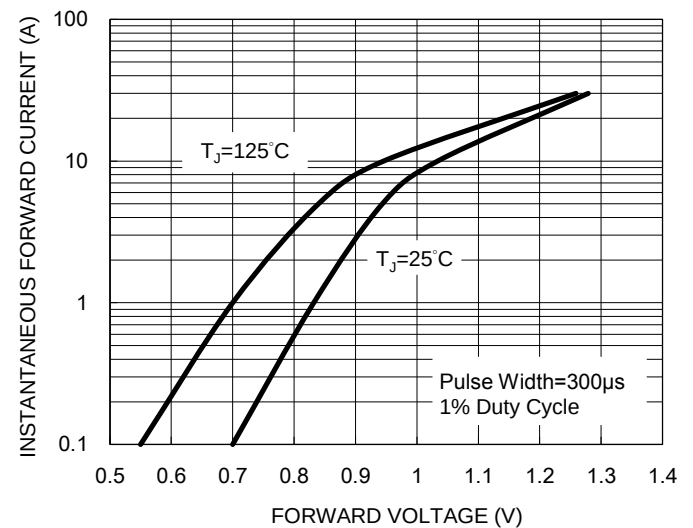
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



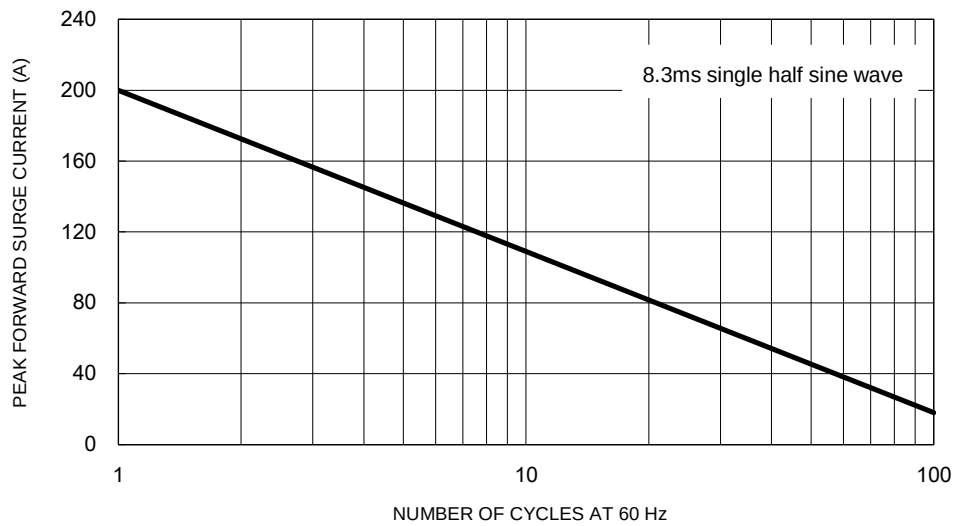
**Fig.4 Typical Forward Characteristics**



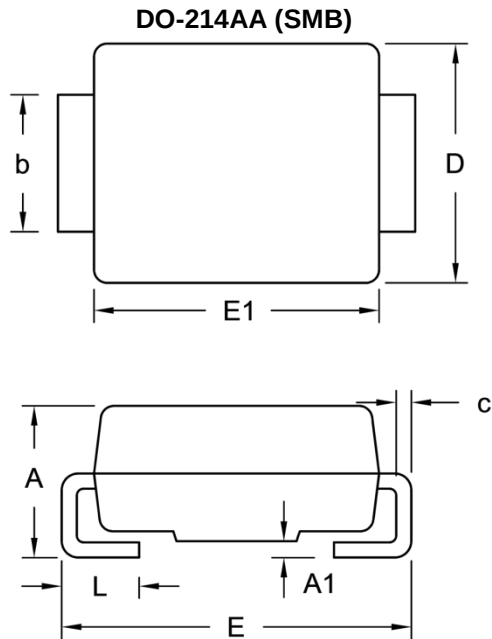
## CHARACTERISTICS CURVES

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

**Fig.5 Maximum Non-Repetitive Forward Surge Current**

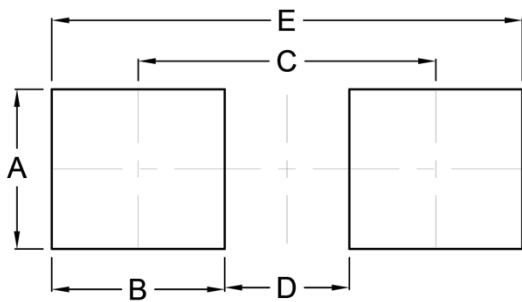


## PACKAGE OUTLINE DIMENSIONS



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min.      | Max. | Min.        | Max.  |
| A    | 1.95      | 2.65 | 0.077       | 0.104 |
| A1   | 0.05      | 0.20 | 0.002       | 0.008 |
| b    | 1.95      | 2.20 | 0.077       | 0.087 |
| c    | 0.15      | 0.31 | 0.006       | 0.012 |
| D    | 3.30      | 3.95 | 0.130       | 0.156 |
| E    | 5.10      | 5.60 | 0.201       | 0.220 |
| E1   | 4.05      | 4.60 | 0.159       | 0.181 |
| L    | 0.75      | 1.60 | 0.030       | 0.063 |

## SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 2.30      | 0.091       |
| B      | 2.50      | 0.098       |
| C      | 4.30      | 0.169       |
| D      | 1.80      | 0.071       |
| E      | 6.80      | 0.268       |

## MARKING DIAGRAM



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

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