

## 2A, 20V - 150V Schottky Barrier Surface Mount Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for over-voltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter

### 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: 0.093g (approximately)

| KEY PARAMETERS |                |      |
|----------------|----------------|------|
| PARAMETER      | VALUE          | UNIT |
| $I_F$          | 2              | A    |
| $V_{RRM}$      | 20 - 150       | V    |
| $I_{FSM}$      | 50             | A    |
| $T_{J\ MAX}$   | 125, 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       | SS 22        | SS 23 | SS 24 | SS 25 | SS 26        | SS 29 | SS 210 | SS 215 | UNIT             |
| Marking code on the device   |              | SS 22        | SS 23 | SS 24 | SS 25 | SS 26        | SS 29 | SS 210 | SS 215 |                  |
| Repetitive peak reverse voltage  | $V_{RRM}$    | 20           | 30    | 40    | 50    | 60           | 90    | 100    | 150    | V                |
| Reverse voltage, total rms value   | $V_{R(RMS)}$ | 14           | 21    | 28    | 35    | 42           | 63    | 70     | 105    | V                |
| Forward current  | $I_F$        | 2            |       |       |       |              |       |        |        | A                |
| Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$    | 50           |       |       |       |              |       |        |        | A                |
| Critical rate of rise of off-state voltage   | $dV/dt$      | 10,000       |       |       |       |              |       |        |        | V/ $\mu\text{s}$ |
| Junction temperature   | $T_J$        | - 55 to +125 |       |       |       | - 55 to +150 |       |        |        | °C               |
| Storage temperature  | $T_{STG}$    | - 55 to +150 |       |       |       |              |       |        |        | °C               |

| <b>THERMAL PERFORMANCE</b>             |                 |            |             |
|--|-----------------|------------|-------------|
| <b>PARAMETER</b>                       | <b>SYMBOL</b>   | <b>TYP</b> | <b>UNIT</b> |
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 24         | °C/W        |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 70         | °C/W        |

| <b>ELECTRICAL SPECIFICATIONS</b> (TA = 25°C unless otherwise noted) |                                     |                              |                    |                      |                               |             |   |      |         |
|---|-------------------------------------|------------------------------|--------------------|----------------------|-------------------------------|-------------|---|------|---------|
| <b>PARAMETER</b>  |                                     | <b>CONDITIONS</b>            | <b>SYMBOL</b>      | <b>TYP</b>           | <b>MAX</b>                    | <b>UNIT</b> |   |      |         |
| Forward voltage <sup>(1)</sup>                                      | SS22<br>SS23<br>SS24                | $I_F = 2A, T_J = 25^\circ C$ | $V_F$              | -                    | 0.50                          | V           |   |      |         |
|   | SS25<br>SS26                        |                              |                    | -                    | 0.70                          | V           |   |      |         |
|   | SS29<br>SS210                       |                              |                    | -                    | 0.85                          | V           |   |      |         |
|   | SS215                               |                              |                    | -                    | 0.95                          | V           |   |      |         |
|   | Forward voltage <sup>(1)</sup>      |                              |                    | SS22<br>SS23<br>SS24 | $I_F = 2A, T_J = 100^\circ C$ | $V_F$       | - | 0.40 | V       |
|   |                                     |                              |                    | SS25<br>SS26         |                               |             | - | 0.65 | V       |
| SS29<br>SS210   |                                     | -                            | 0.70               | V                    |                               |             |   |      |         |
| SS215   |                                     | -                            | 0.80               | V                    |                               |             |   |      |         |
| Reverse current @ rated $V_R^{(2)}$                                 |                                     | SS22<br>SS23<br>SS24         | $T_J = 25^\circ C$ | $I_R$                |                               |             | - | 400  | $\mu A$ |
|   | SS25<br>SS26                        | -                            |                    |                      | 100                           | $\mu A$     |   |      |         |
|   | SS29<br>SS210<br>SS215              | -                            |                    |                      | -                             | -           |   |      |         |
|   | Reverse current @ rated $V_R^{(2)}$ | SS22<br>SS23<br>SS24         |                    |                      | $T_J = 100^\circ C$           | $I_R$       | - | 10   | mA      |
|   |                                     | SS25<br>SS26                 |                    |                      |                               |             | - | 5    | mA      |
|   |                                     | SS29<br>SS210<br>SS215       |                    |                      |                               |             | - | -    | mA      |

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

| PARAMETER                           | CONDITIONS             | SYMBOL                    | TYP   | MAX | UNIT |    |
|-------------------------------------|------------------------|---------------------------|-------|-----|------|----|
| Reverse current @ rated $V_R^{(2)}$ | SS22<br>SS23<br>SS24   | $T_J = 125^\circ\text{C}$ | $I_R$ | -   | -    | mA |
|                                     | SS25<br>SS26           |                           |       | -   | -    | mA |
|                                     | SS29<br>SS210<br>SS215 |                           |       | -   | 5    | mA |

**Notes:**

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

**ORDERING INFORMATION**

| ORDERING CODE <sup>(1)</sup> | PACKAGE        | PACKING             |
|------------------------------|----------------|---------------------|
| SS2x                         | DO-214AA (SMB) | 3,000 / Tape & Reel |

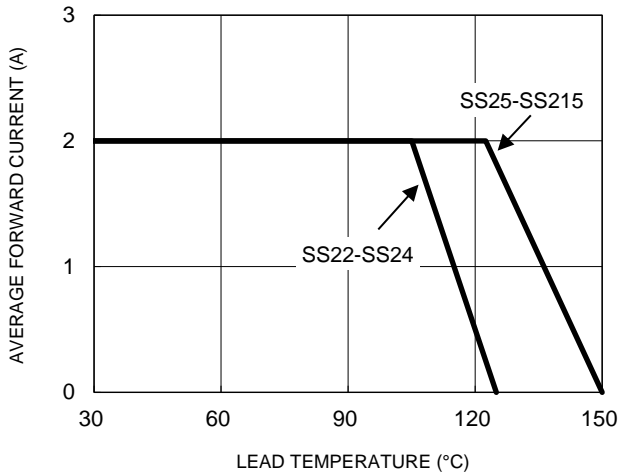
**Notes:**

1. "x" defines voltage from 20V(SS22) to 150V(SS215)

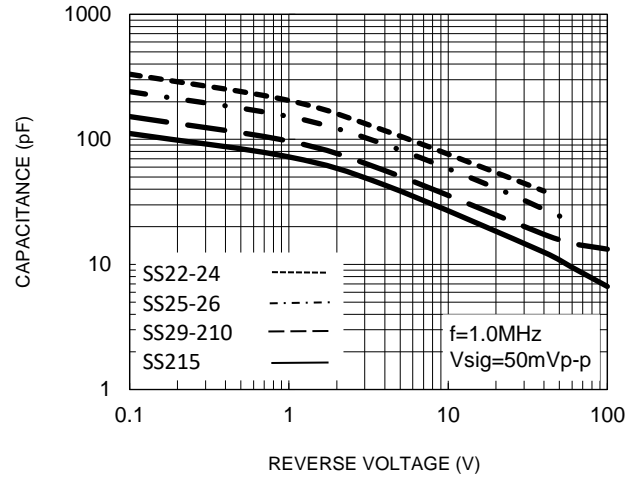
**CHARACTERISTICS CURVES**

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

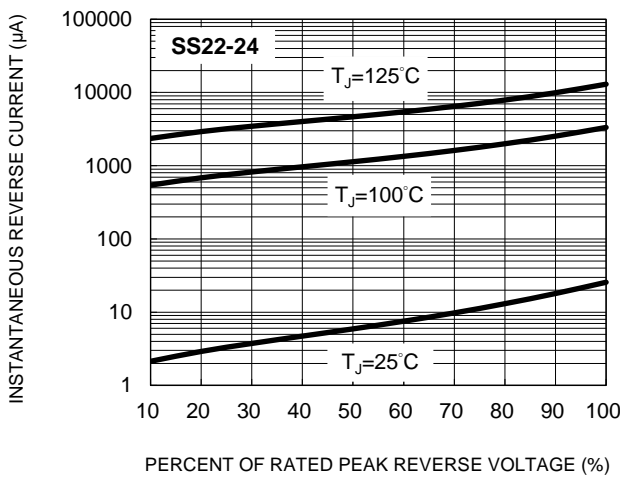
**Fig.1 Forward Current Derating Curve**



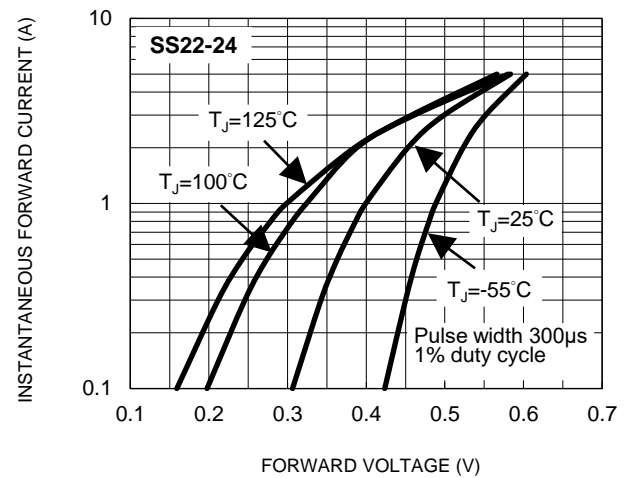
**Fig.2 Typical Junction Capacitance**



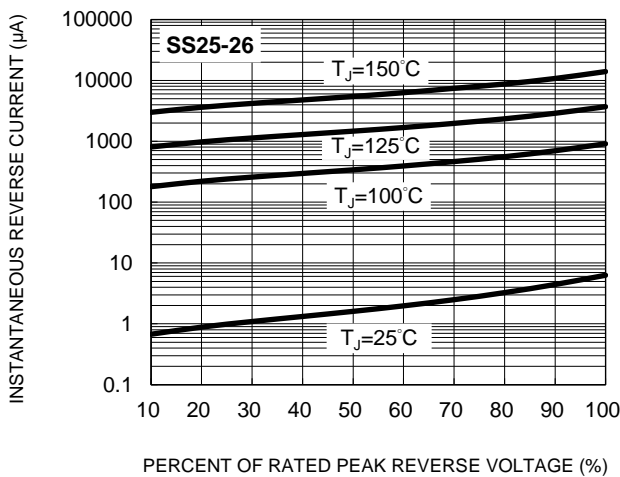
**Fig.3 Typical Reverse Characteristics**



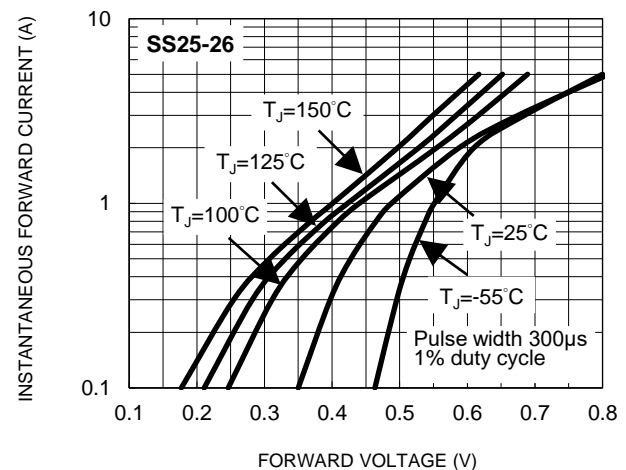
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



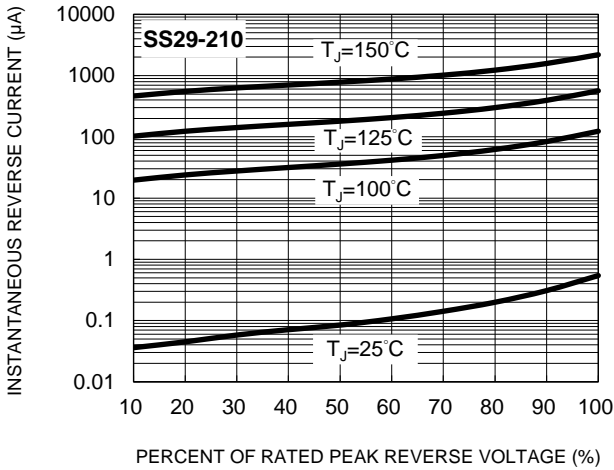
**Fig.6 Typical Forward Characteristics**



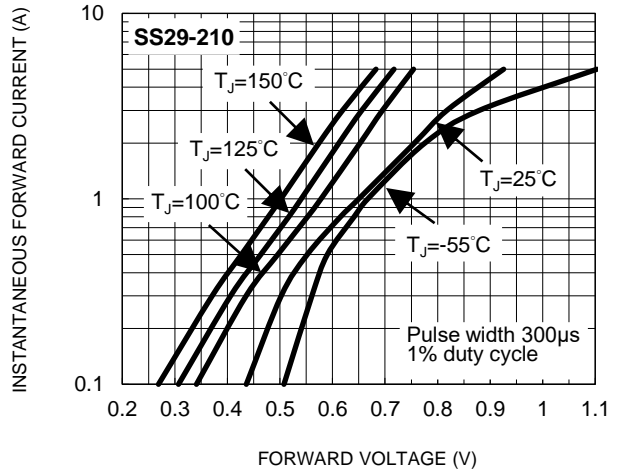
**CHARACTERISTICS CURVES**

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

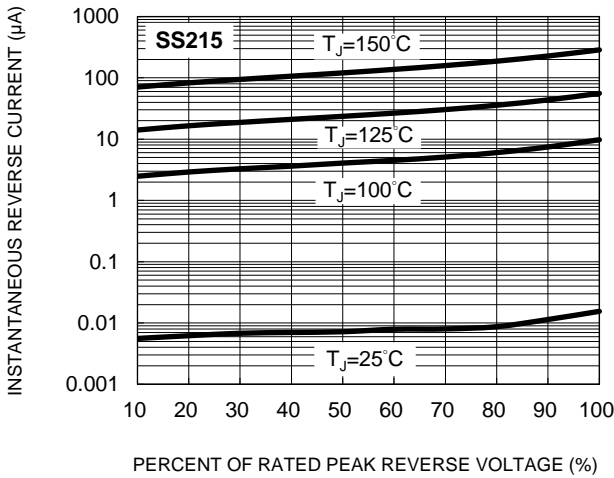
**Fig.7 Typical Reverse Characteristics**



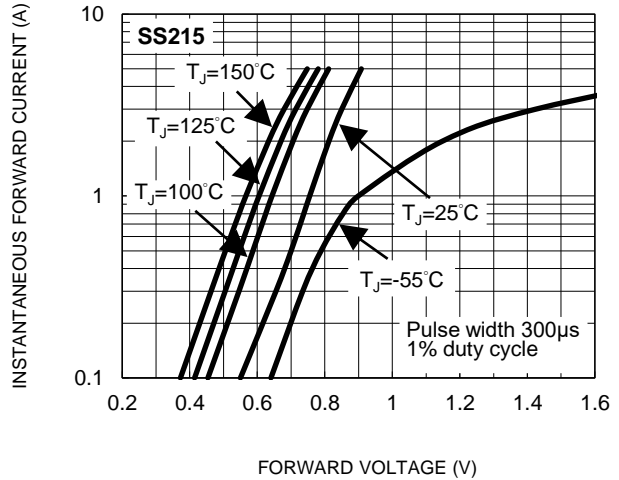
**Fig.8 Typical Forward Characteristics**



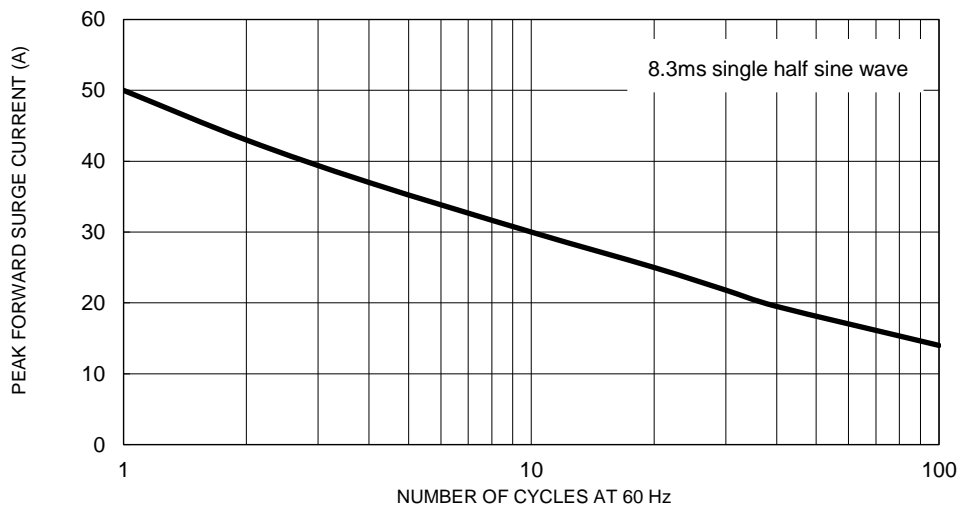
**Fig.9 Typical Reverse Characteristics**



**Fig.10 Typical Forward Characteristics**

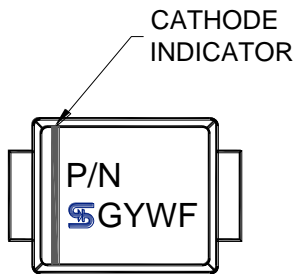
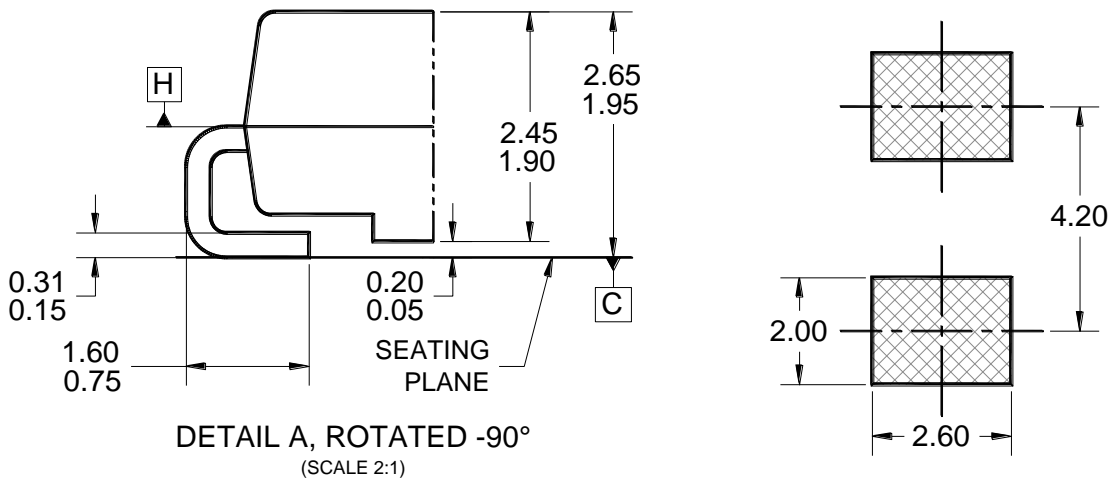
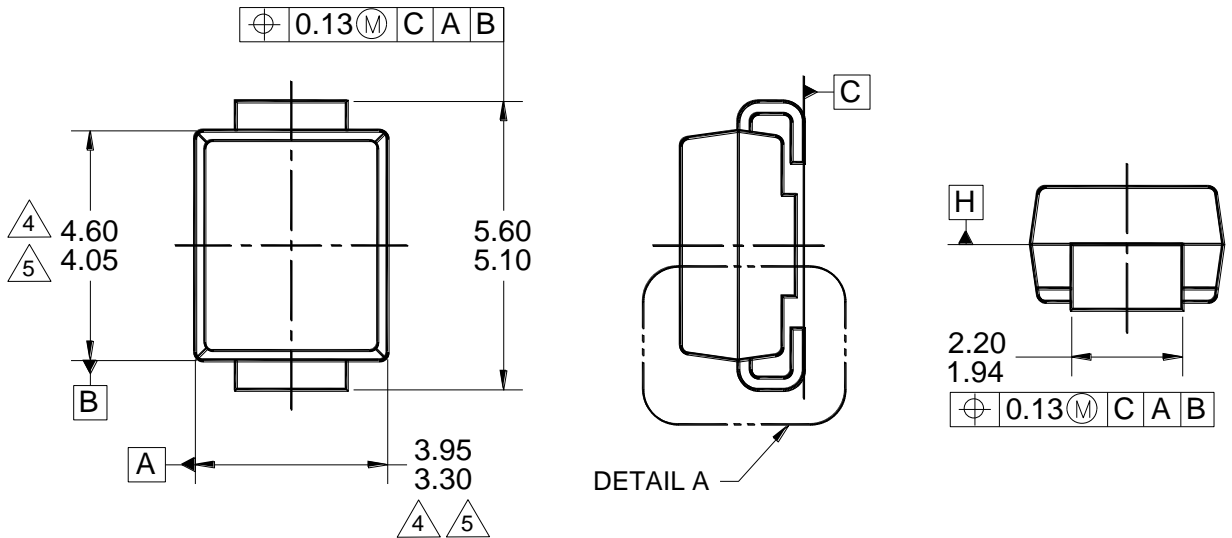


**Fig.11 Maximum Non-Repetitive Forward Surge Current**



**PACKAGE OUTLINE DIMENSIONS**

**DO-214AA (SMB)**



**MARKING DIAGRAM**

P/N = MARKING CODE  
G = GREEN COMPOUND  
YW = DATE CODE  
F = FACTORY CODE

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AA, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-DO214SMB-035 REV A.

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