

## 2A, 50V - 1000V High Efficient Surface Mount Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Glass passivated junction chip
- Fast switching 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

### APPLICATIONS

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

### 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
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.09 g (approximately)

| KEY PARAMETERS |                |      |
|----------------|----------------|------|
| PARAMETER      | VALUE          | UNIT |
| $I_{F(AV)}$    | 2              | A    |
| $V_{RRM}$      | 50 - 1000      | V    |
| $I_{FSM}$      | 50             | A    |
| $T_{JMAX}$     | 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       | HS2A         | HS2B | HS2D | HS2F | HS2G | HS2J | HS2K | HS2M | UNIT |
| Marking code on the device  |              | HS2A         | HS2B | HS2D | HS2F | HS2G | HS2J | HS2K | HS2M |      |
| Repetitive peak reverse voltage   | $V_{RRM}$    | 50           | 100  | 200  | 300  | 400  | 600  | 800  | 1000 | V    |
| Reverse voltage, total rms value  | $V_{R(RMS)}$ | 35           | 70   | 140  | 210  | 280  | 420  | 560  | 700  | V    |
| Maximum DC blocking voltage   | $V_{DC}$     | 50           | 100  | 200  | 300  | 400  | 600  | 800  | 1000 | V    |
| Forward current   | $I_{F(AV)}$  | 2            |      |      |      |      |      |      |      | A    |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$    | 50           |      |      |      |      |      |      |      | A    |
| Junction temperature  | $T_J$        | - 55 to +150 |      |      |      |      |      |      |      | °C   |
| Storage temperature   | $T_{STG}$    | - 55 to +150 |      |      |      |      |      |      |      | °C   |

| THERMAL PERFORMANCE                    |                 |       |               |
|--|-----------------|-------|---------------|
| PARAMETER                              | SYMBOL          | LIMIT | UNIT          |
| Junction to Ambient Thermal Resistance | $R_{\theta JA}$ | 80    | $^{\circ}C/W$ |

| ELECTRICAL SPECIFICATIONS ( $T_A = 25^{\circ}C$ unless otherwise noted) |                      |  |          |     |         |    |
|---|----------------------|--|----------|-----|---------|----|
| PARAMETER   | CONDITIONS           | SYMBOL                                       | TYP      | MAX | UNIT    |    |
| Forward voltage per diode <sup>(1)</sup>                                | HS2A                 | $I_F = 2A, T_J = 25^{\circ}C$                | $V_F$    | -   | 1.0     | V  |
|   | HS2B                 |  |          | -   |         | V  |
|   | HS2D                 |  |          | -   |         | V  |
|   | HS2F                 |  |          | -   |         | V  |
|   | HS2G                 |  |          | -   | 1.3     | V  |
|   | HS2J                 |  |          | -   | 1.7     | V  |
|   | HS2K                 |  |          | -   |         | V  |
|   | HS2M                 |  |          | -   |         | V  |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup>                  | $T_J = 25^{\circ}C$  | $I_R$  | -        | 5   | $\mu A$ |    |
|   | $T_J = 125^{\circ}C$ |  | -        | 150 | $\mu A$ |    |
| Junction capacitance  | HS2A                 | 1 MHz, $V_R = 4.0V$                          | $C_J$    | 50  | -       | pF |
|   | HS2B                 |  |          |     | -       | pF |
|   | HS2D                 |  |          |     | -       | pF |
|   | HS2F                 |  |          |     | -       | pF |
|   | HS2G                 |  |          | -   | pF      |    |
|   | HS2J                 |  |          | 30  | -       | pF |
|   | HS2K                 |  |          |     | -       | pF |
|   | HS2M                 |  |          |     | -       | pF |
| Reverse recovery time   | HS2A                 | $I_F = 0.5A, I_R = 1.0A$<br>$I_{RR} = 0.25A$ | $t_{rr}$ | 50  | -       | ns |
|   | HS2B                 |  |          |     | -       | ns |
|   | HS2D                 |  |          |     | -       | ns |
|   | HS2F                 |  |          |     | -       | ns |
|   | HS2G                 |  |          | -   | ns      |    |
|   | HS2J                 |  |          | 75  | -       | ns |
|   | HS2K                 |  |          |     | -       | ns |
|   | HS2M                 |  |          |     | -       | ns |

**Notes:**

1. Pulse test with PW=0.3 ms
2. Pulse test with PW=30 ms

| <b>ORDERING INFORMATION</b> |                        |                     |                               |                |                          |
|-----------------------------|------------------------|---------------------|-------------------------------|----------------|--------------------------|
| <b>PART NO.</b>             | <b>PART NO. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE SUFFIX(*)</b> | <b>PACKAGE</b> | <b>PACKING</b>           |
| HS2x<br>(Note 1)            | H                      | R5                  | G                             | SMB            | 850 / 7" Plastic reel    |
|                             |                        | R4                  |                               | SMB            | 3,000 / 13" Paper reel   |
|                             |                        | M4                  |                               | SMB            | 3,000 / 13" Plastic reel |

**Note:**

1. "x" defines voltage from 50V (HS2A) to 1000V (HS2M)

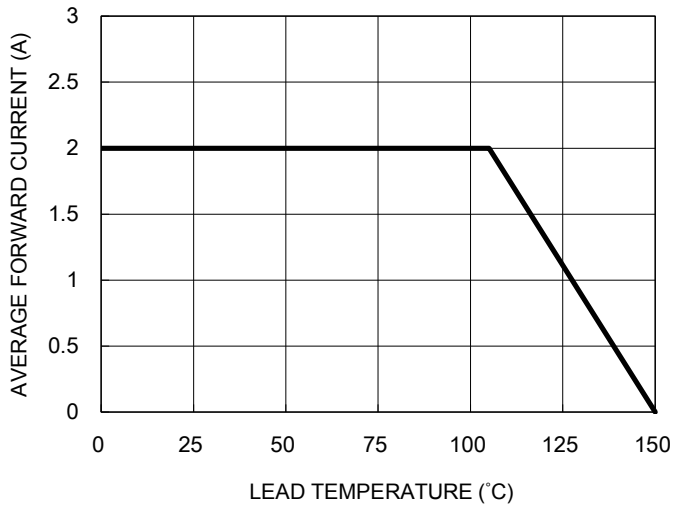
\*: Optional available

| <b>EXAMPLE P/N</b> |                 |                        |                     |                            |                                      |
|--------------------|-----------------|------------------------|---------------------|----------------------------|--------------------------------------|
| <b>EXAMPLE P/N</b> | <b>PART NO.</b> | <b>PART NO. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE SUFFIX</b> | <b>DESCRIPTION</b>                   |
| HS2JHR5G           | HS2J            | H                      | R5                  | G                          | AEC-Q101 qualified<br>Green compound |

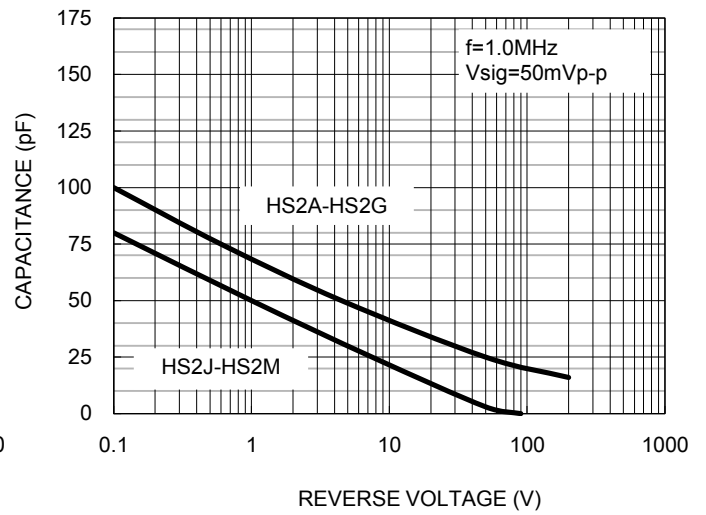
**CHARACTERISTICS CURVES**

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

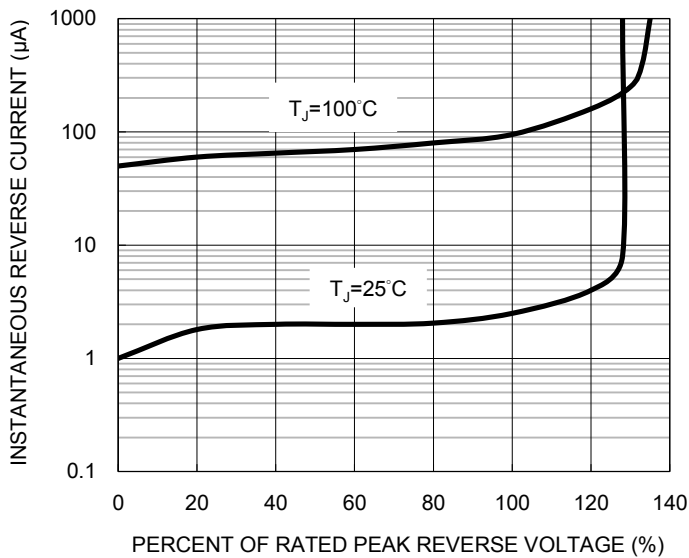
**Fig1. Forward Current Derating Curve**



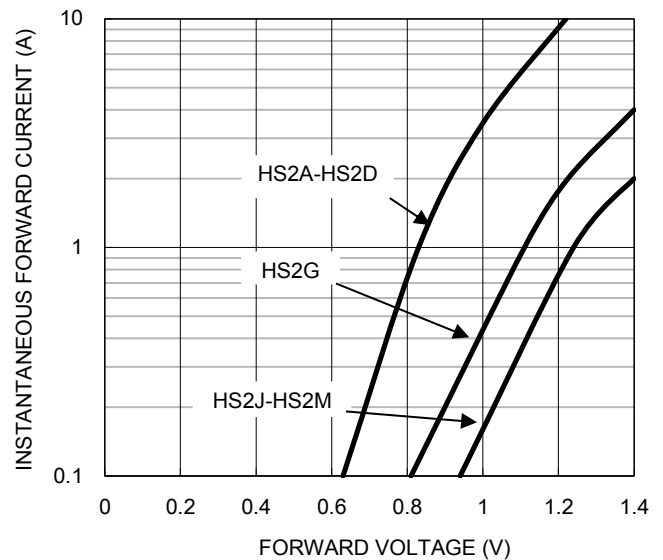
**Fig2. Typical Junction Capacitance**



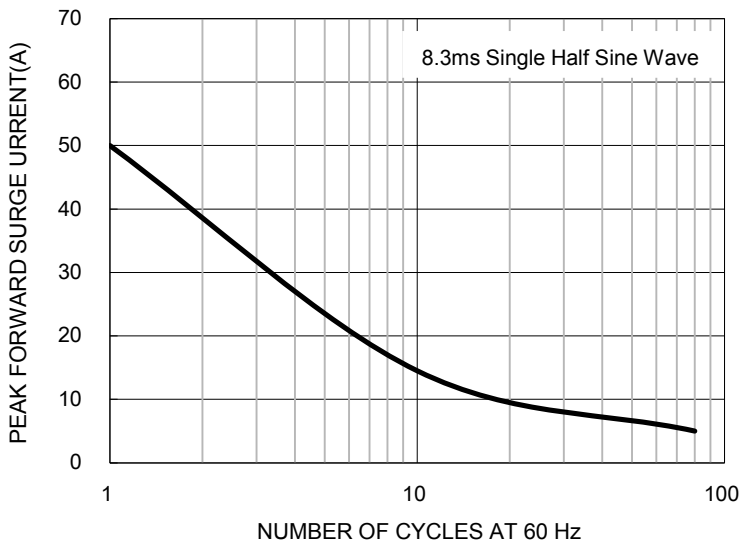
**Fig3. Typical Reverse Characteristics**



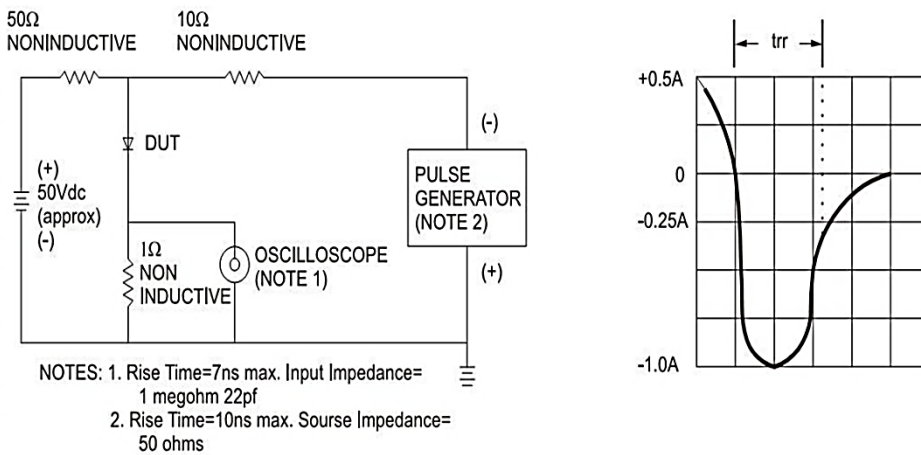
**Fig4. Typical Forward Characteristics**



**Fig5. Maximum Non-repetitive Forward Surge Current**



**Fig6. Reverse Recovery Time Characteristic And Test Circuit Diagram**



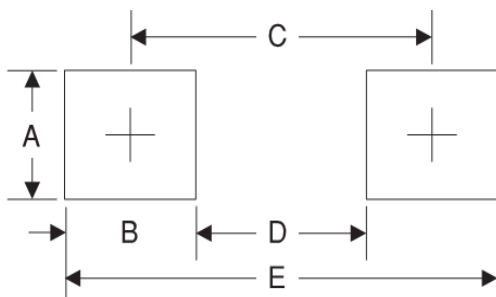
**PACKAGE OUTLINE DIMENSIONS**

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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