

## 10A, 50V - 600V Surface Mount Super Fast Rectifiers

### FEATURES

- Low forward voltage drop
- Ideal for automated placement
- High current capability
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



### TO-263AB (D<sup>2</sup>PAK)



### MECHANICAL DATA

**Case:** TO-263AB (D<sup>2</sup>PAK)

Molding compound, UL flammability classification rating 94V-0

Moisture sensitivity level: level 1, per J-STD-020

Part no. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Weight:** 1.37 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)    |                    |              |      |      |      |      |      |      |      |      |
|---|--------------------|--------------|------|------|------|------|------|------|------|------|
| PARAMETER   | SYMBOL             | SFS          | SFS  | SFS  | SFS  | SFS  | SFS  | SFS  | SFS  | UNIT |
|   |                    | 1001         | 1002 | 1003 | 1004 | 1005 | 1006 | 1007 | 1008 |      |
|   |                    | G            | G    | G    | G    | G    | G    | G    | G    |      |
| Maximum repetitive peak reverse voltage   | V <sub>RRM</sub>   | 50           | 100  | 150  | 200  | 300  | 400  | 500  | 600  | V    |
| Maximum RMS voltage   | V <sub>RMS</sub>   | 35           | 70   | 105  | 140  | 210  | 280  | 350  | 420  | V    |
| Maximum DC blocking voltage   | V <sub>DC</sub>    | 50           | 100  | 150  | 200  | 300  | 400  | 500  | 600  | V    |
| Maximum average forward rectified current   | I <sub>F(AV)</sub> | 10           |      |      |      |      |      |      |      | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load             | I <sub>FSM</sub>   | 125          |      |      |      |      |      |      |      | A    |
| Maximum instantaneous forward voltage (Note 1)<br>I <sub>F</sub> = 5 A                          | V <sub>F</sub>     | 0.975        |      |      | 1.3  |      | 1.7  |      |      | V    |
| Maximum reverse current @ rated V <sub>R</sub><br>T <sub>J</sub> =25°C<br>T <sub>J</sub> =125°C | I <sub>R</sub>     | 1<br>200     |      |      |      |      |      |      |      | μA   |
| Maximum reverse recovery time (Note 2)  | t <sub>rr</sub>    | 35           |      |      |      |      |      |      |      | ns   |
| Typical junction capacitance (Note 3)   | C <sub>J</sub>     | 70           |      |      |      | 50   |      |      |      | pF   |
| Typical thermal resistance  | R <sub>θJC</sub>   | 2            |      |      |      |      |      |      |      | °C/W |
| Operating junction temperature range  | T <sub>J</sub>     | - 55 to +150 |      |      |      |      |      |      |      | °C   |
| Storage temperature range   | T <sub>STG</sub>   | - 55 to +150 |      |      |      |      |      |      |      | °C   |

Note 1: Pulse test with PW=300μs, 1% duty cycle

Note 2: Reverse Recovery Test Conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A

Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C.

| ORDERING INFORMATION |                 |              |                         |                    |                        |
|----------------------|-----------------|--------------|-------------------------|--------------------|------------------------|
| PART NO.             | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX (*) | PACKAGE            | PACKING                |
| SFS100xG<br>(Note 1) | H               | RN           | G                       | D <sup>2</sup> PAK | 800 / 13" Paper reel   |
|                      |                 | MN           |                         |                    | 800 / 13" Plastic reel |

Note 1: "x" defines voltage from 50V (SFS1001G) to 600V (SFS1008G)

\*: Optional available

| EXAMPLE       |          |                 |              |                     |                                      |
|---------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| PREFERRED P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| SFS1008GHRNG  | SFS1008G | H               | RN           | G                   | AEC-Q101 qualified<br>Green compound |

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub>=25°C unless otherwise noted)

FIG.1 FORWARD CURRENT DERATING CURVE

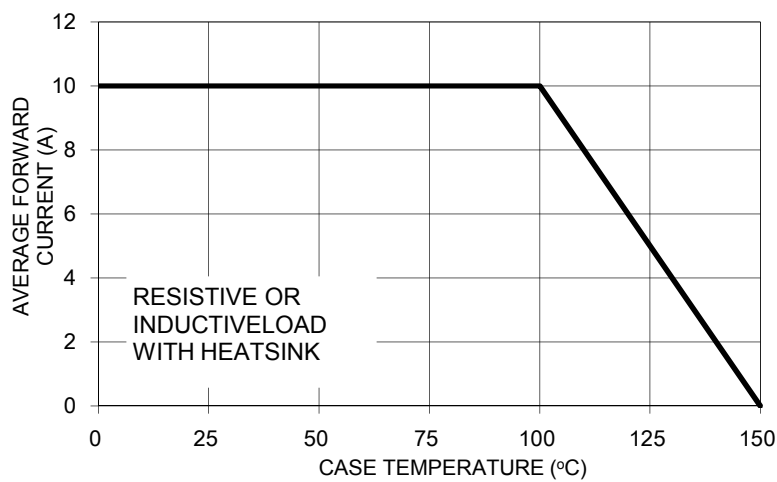


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

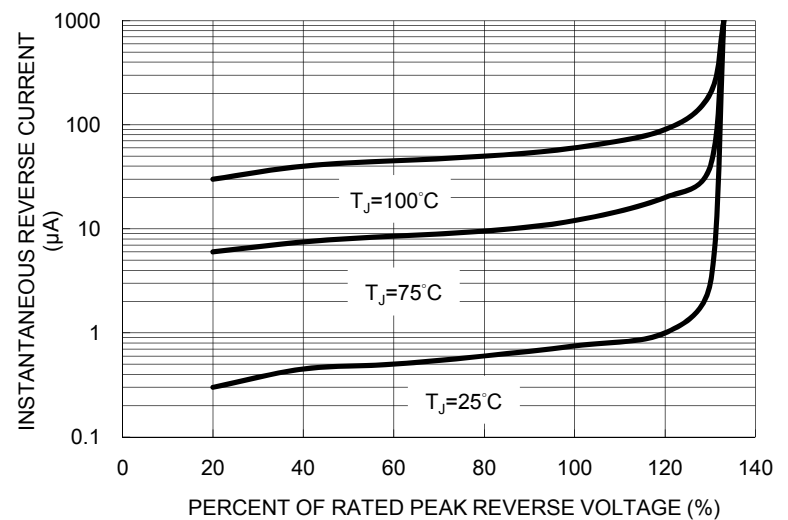


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

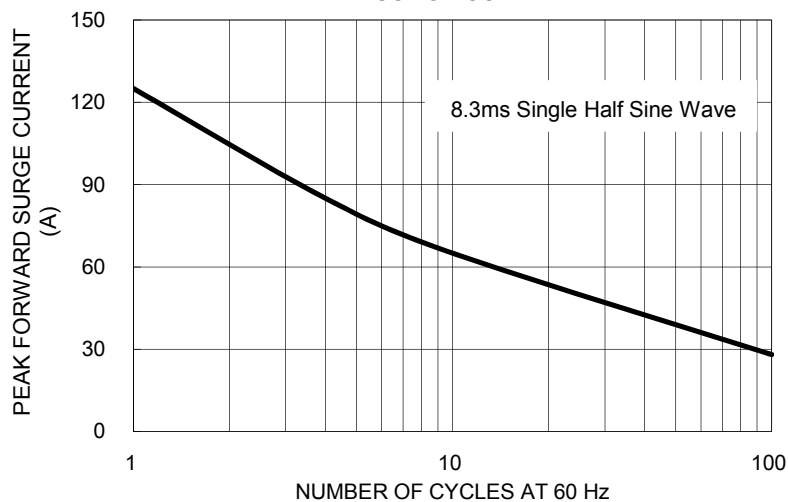
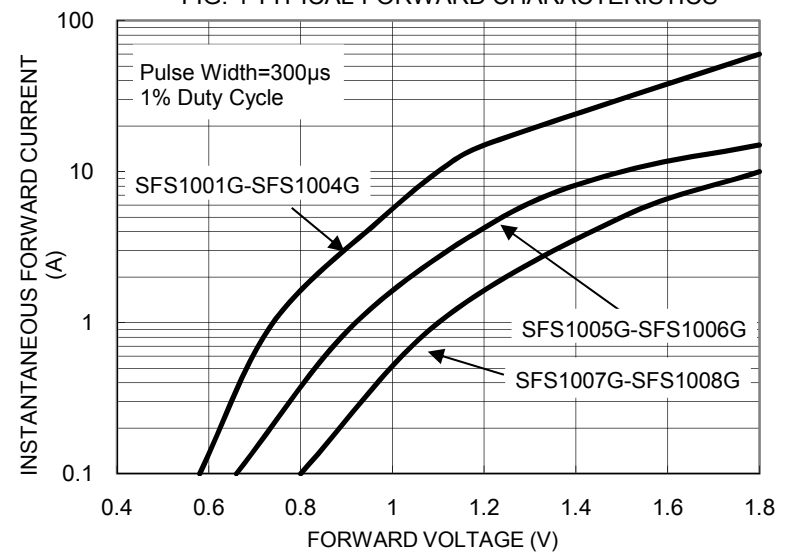


FIG. 4 TYPICAL FORWARD CHARACTERISTICS





**FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM**



**PACKAGE OUTLINE DIMENSIONS**

**TO-263AB (D<sup>2</sup>PAK)**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | -         | 10.5  | -           | 0.413 |
| B    | 14.60     | 15.88 | 0.575       | 0.625 |
| C    | 2.41      | 2.67  | 0.095       | 0.105 |
| D    | 0.68      | 0.94  | 0.027       | 0.037 |
| E    | 2.29      | 2.79  | 0.090       | 0.110 |
| F    | 4.44      | 4.70  | 0.175       | 0.185 |
| G    | 1.14      | 1.40  | 0.045       | 0.055 |
| H    | 1.14      | 1.40  | 0.045       | 0.055 |
| I    | 8.25      | 9.25  | 0.325       | 0.364 |
| J    | 0.36      | 0.53  | 0.014       | 0.021 |
| K    | 2.03      | 2.79  | 0.080       | 0.110 |

**SUGGESTED PAD LAYOUT**



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 10.8      | 0.425       |
| B      | 8.3       | 0.327       |
| C      | 1.1       | 0.043       |
| D      | 3.5       | 0.138       |
| E      | 16.9      | 0.665       |
| F      | 9.5       | 0.374       |
| G      | 2.5       | 0.098       |

**MARKING DIAGRAM**



- P/N = Specific Device Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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