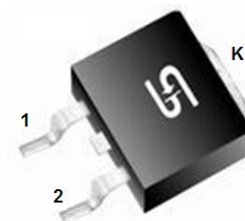


## 16A, 50V - 600V Surface Mount Super Fast Rectifiers

### 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



### 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)

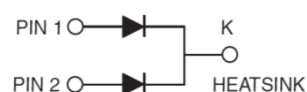
**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Weight:** 1.41 g (approximately)

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



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)    |                    |                  |                  |                  |                  |                  |                  |                  |                  |      |
|-------------------------------------------------------------------------------------------------|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|
| PARAMETER                                                                                       | SYMBOL             | SFS<br>1601<br>G | SFS<br>1602<br>G | SFS<br>1603<br>G | SFS<br>1604<br>G | SFS<br>1605<br>G | SFS<br>1606<br>G | SFS<br>1607<br>G | SFS<br>1608<br>G | UNIT |
| 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> | 16               |                  |                  |                  |                  |                  |                  |                  | 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> = 8 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>     | 10<br>400        |                  |                  |                  |                  |                  |                  |                  | μA   |
| Maximum reverse recovery time (Note 2)                                                          | t <sub>rr</sub>    | 35               |                  |                  |                  |                  |                  |                  |                  | ns   |
| Typical junction capacitance (Note 3)                                                           | C <sub>J</sub>     | 80               |                  |                  |                  | 60               |                  |                  |                  | pF   |
| Typical thermal resistance                                                                      | R <sub>θJC</sub>   | 2.5              |                  |                  |                  |                  |                  |                  |                  | °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                |
| SFS160xG<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 (SFS1601G) to 600V (SFS1608G)

\*: Optional available

| EXAMPLE            |          |                 |              |                     |                                      |
|--------------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| PREFERRED PART NO. | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| SFS1608GHRNG       | SFS1608G | 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

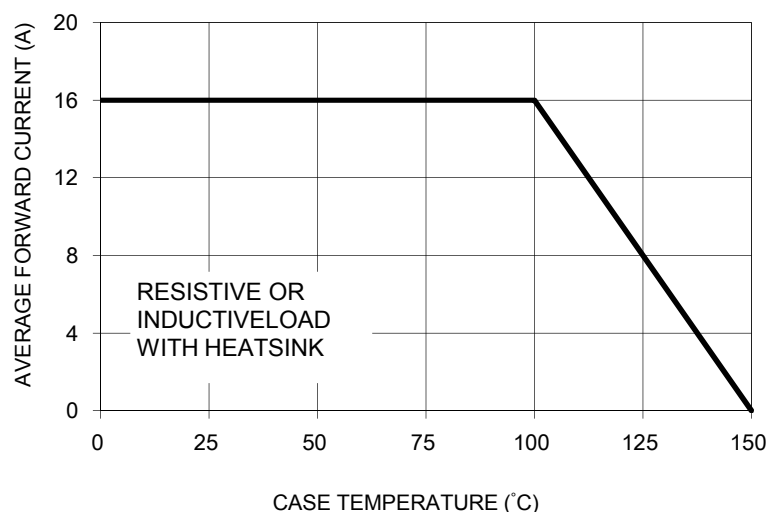


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

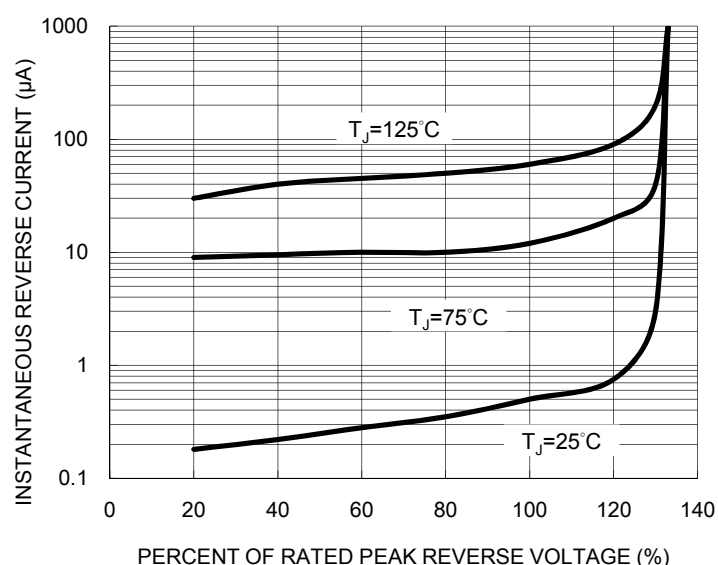


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



FIG. 4 TYPICAL FORWARD CHARACTERISTICS

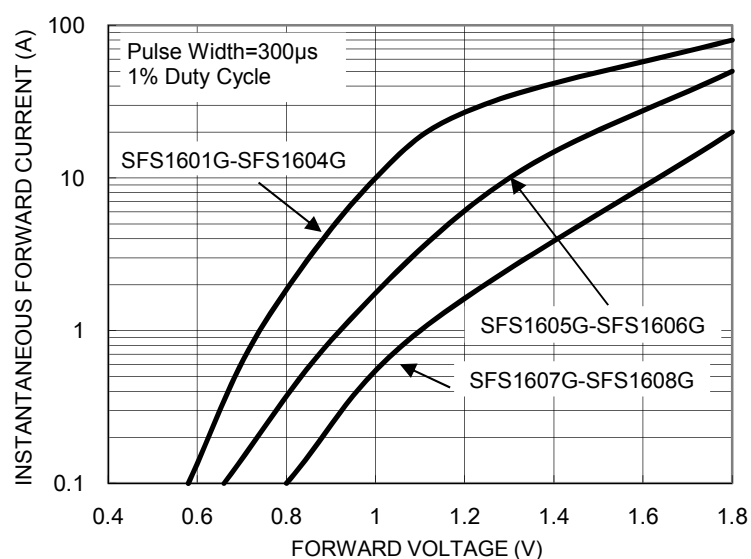


FIG. 5 TYPICAL JUNCTION CAPACITANCE

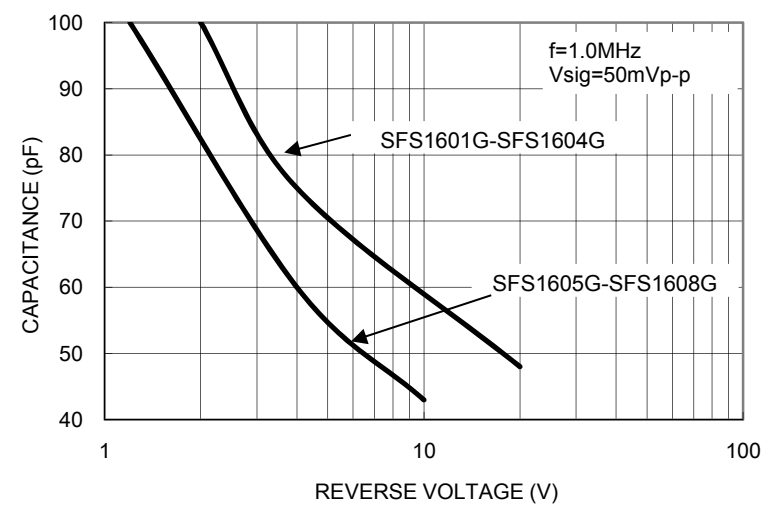
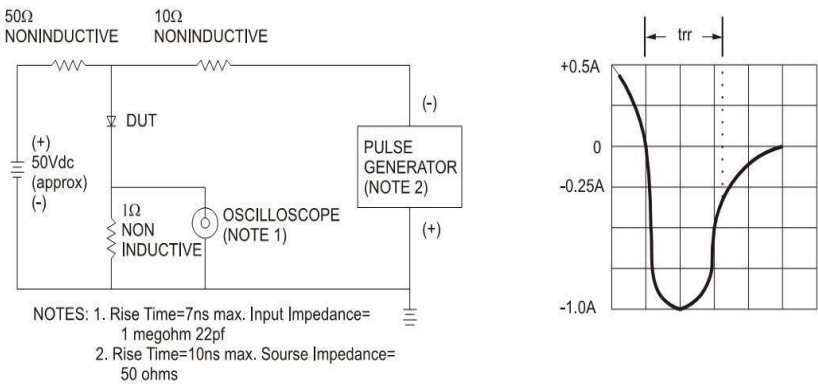
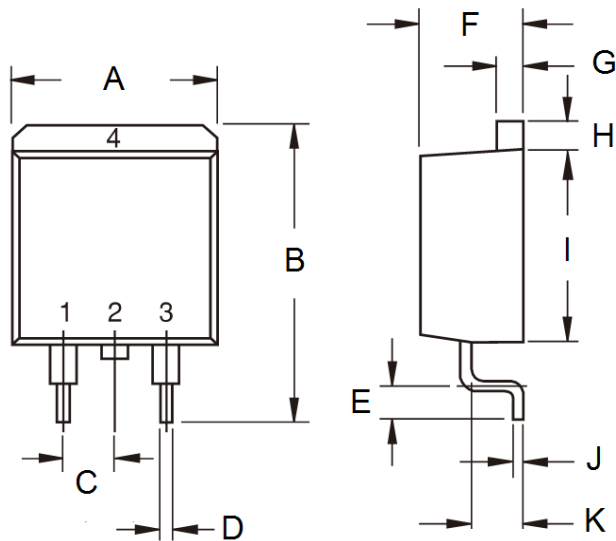


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

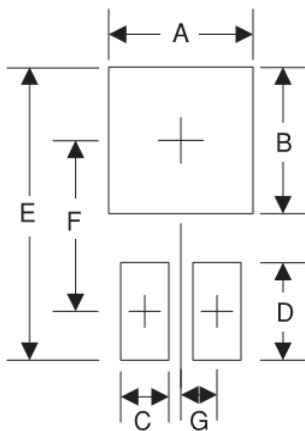


PACKAGE OUTLINE DIMENSIONS  
TO-263AB (D<sup>2</sup>PAK)



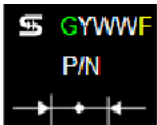
| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | -         | 10.5  | -           | 0.413 |
| B    | 14.60     | 15.88 | 0.575       | 0.625 |
| C    | 2.41      | 2.67  | 0.095       | 0.105 |
| 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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