

## 1A, 50V - 600V Glass Passivated Super Fast Rectifiers

### FEATURES

- High efficiency, low VF
- High current capability
- High reliability
- Low power loss
- 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:** DO-204AL (DO-41)

Molding compound, UL flammability classification rating 94V-0

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

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

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

Meet JESD 201 class 2 whisker test

**Weight:** 0.35 g (approximately)



**DO-204AL (DO-41)**



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)    |                                      |              |           |           |           |           |           |           |           |      |
|-------------------------------------------------------------------------------------------------|--------------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                                                       | SYMBOL                               | SF<br>11G    | SF<br>12G | SF<br>13G | SF<br>14G | SF<br>15G | SF<br>16G | SF<br>17G | SF<br>18G | 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>                   | 1            |           |           |           |           |           |           |           | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load             | I <sub>FSM</sub>                     | 30           |           |           |           |           |           |           |           | A    |
| Maximum instantaneous forward voltage (Note 1)<br>@ 1 A                                         | V <sub>F</sub>                       | 0.95         |           |           |           | 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>                       | 5<br>100     |           |           |           |           |           |           |           | μA   |
| Maximum reverse recovery time (Note 2)                                                          | t <sub>rr</sub>                      | 35           |           |           |           |           |           |           |           | ns   |
| Typical junction capacitance (Note 3)                                                           | C <sub>J</sub>                       | 20           |           |           |           | 10        |           |           |           | pF   |
| Typical thermal resistance                                                                      | R <sub>θJL</sub><br>R <sub>θJA</sub> | 20<br>80     |           |           |           |           |           |           |           | °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                          |
| SF1xG<br>(Note 1)    | H               | A0           | G                       | DO-41   | 3,000 / Ammo box (52mm taping)   |
|                      |                 | R0           |                         | DO-41   | 5,000 / 13" Paper reel           |
|                      |                 | R1           |                         | DO-41   | 5,000 / 13" Paper reel (Reverse) |
|                      |                 | B0           |                         | DO-41   | 1,000 / Bulk packing             |

Note 1: "x" defines voltage from 50V (SF11G) to 600V (SF18G)

\*: Optional available

| EXAMPLE       |          |                 |              |                     |                                      |
|---------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| PREFERRED P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| SF18GHA0G     | SF18G    | H               | A0           | G                   | AEC-Q101 qualified<br>Green compound |

## RATINGS AND CHARACTERISTICS CURVES

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

FIG.1 MAXIMUM AVERAGE FORWARD CURRENT DERATING

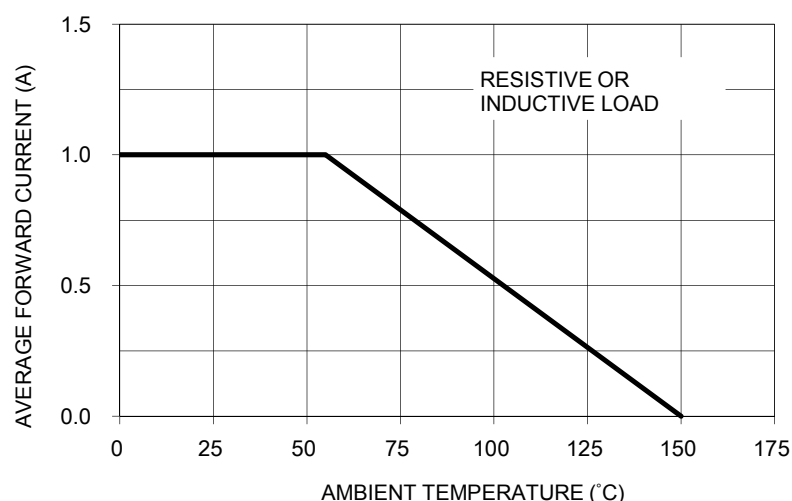


FIG.2 TYPICAL REVERSE CHARACTERISTICS

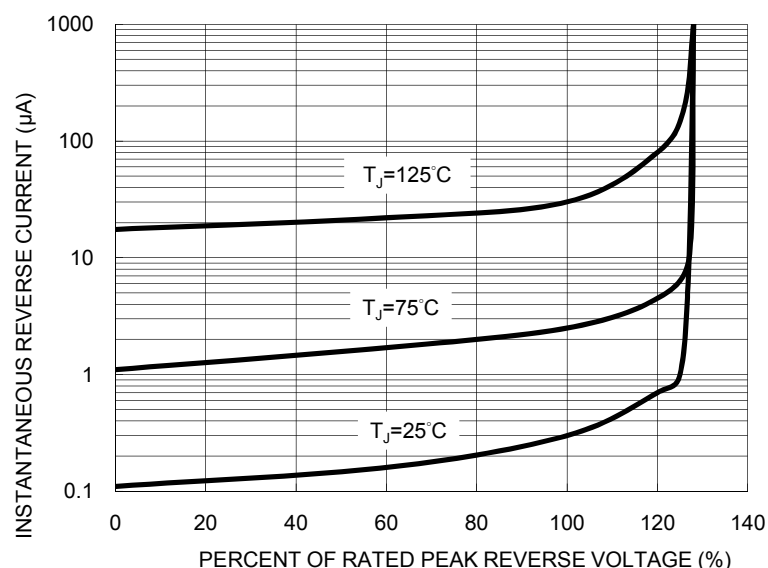


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

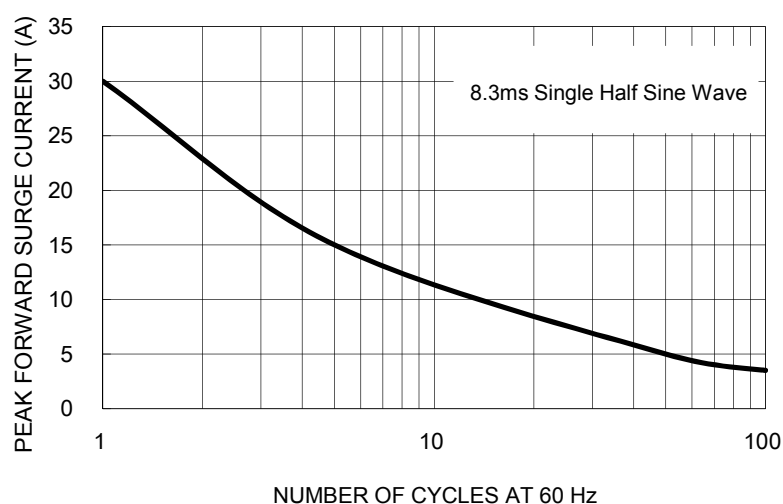


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

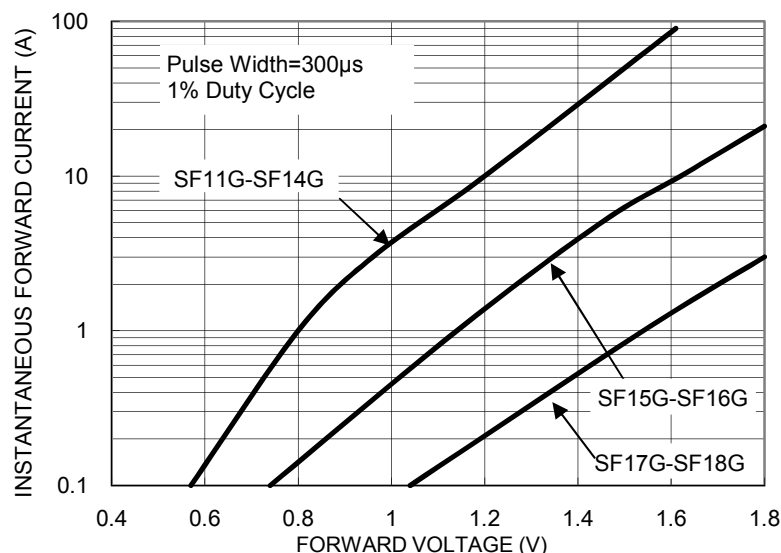


FIG. 5 TYPICAL JUNCTION CAPACITANCE

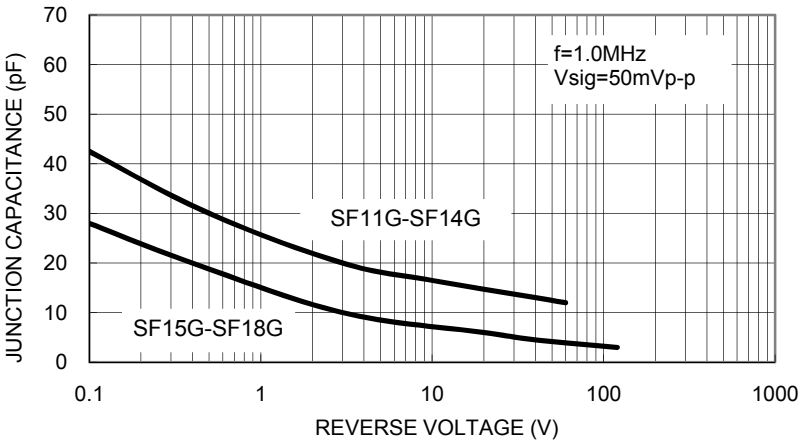
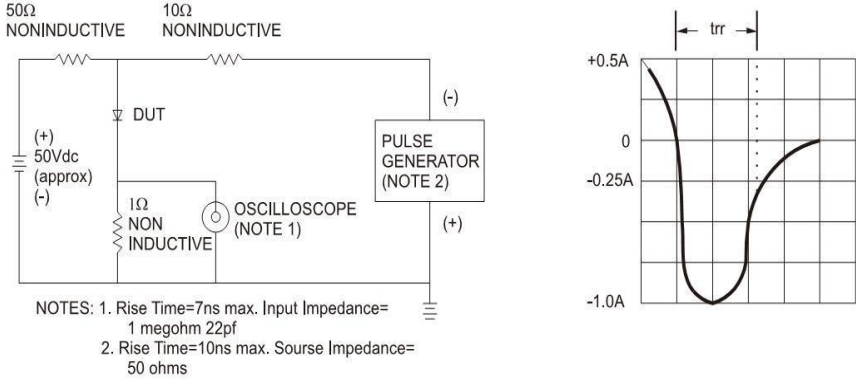
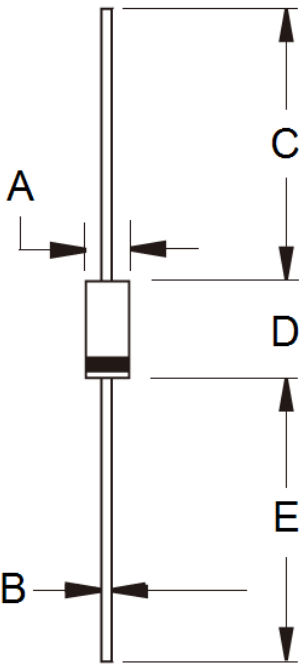


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 2.00      | 2.70 | 0.079       | 0.106 |
| B    | 0.71      | 0.86 | 0.028       | 0.034 |
| C    | 25.40     | -    | 1.000       | -     |
| D    | 4.20      | 5.20 | 0.165       | 0.205 |
| E    | 25.40     | -    | 1.000       | -     |

MARKING DIAGRAM



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

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