

## 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 11G       | SF 12G | SF 13G | SF 14G | SF 15G | SF 16G | SF 17G | SF 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) @ 1 A   | V <sub>F</sub>                       | 0.95         |        |        | 1.3    |        | 1.7    |        |        | V    |      |
| Maximum reverse current @ rated V <sub>R</sub> T <sub>J</sub> =25°C<br>T <sub>J</sub> =125°C | I <sub>R</sub>                       | 5            |        |        |        |        | 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           |        |        |        |        | 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 Green compound |

**RATINGS AND CHARACTERISTICS CURVES**

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

FIG.1 MAXIMUM AVERAGE FORWARD CURRENT DERATING

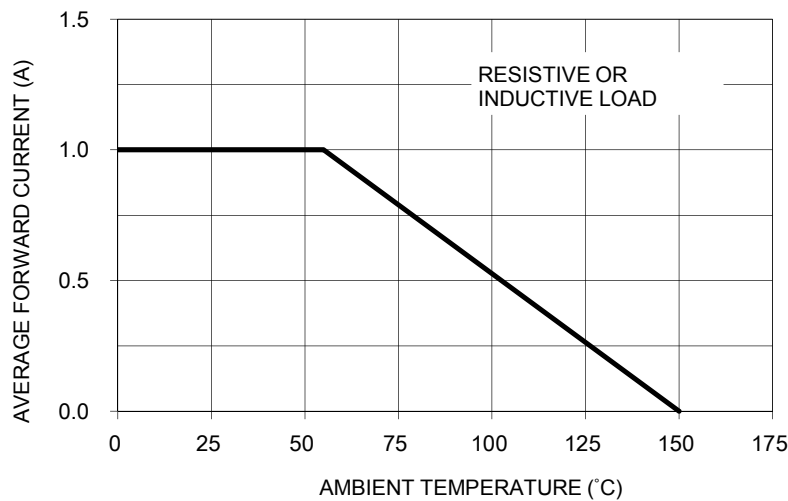


FIG.2 TYPICAL REVERSE CHARACTERISTICS

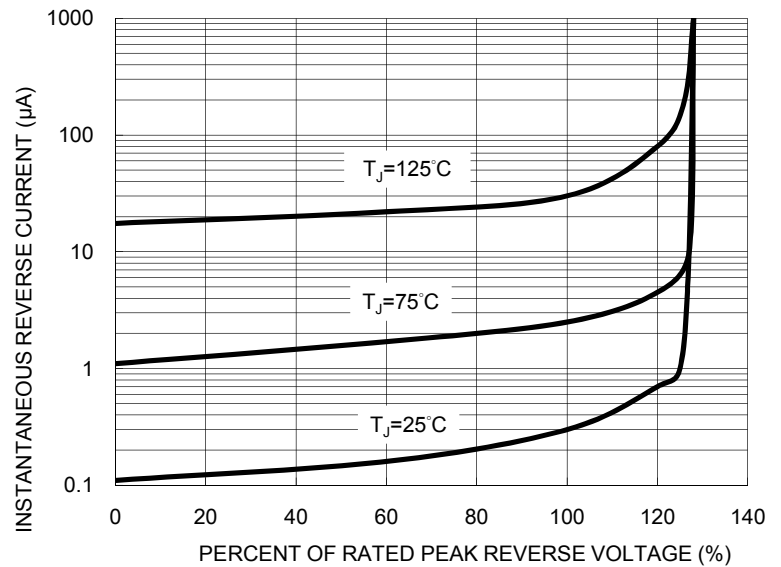


FIG.3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

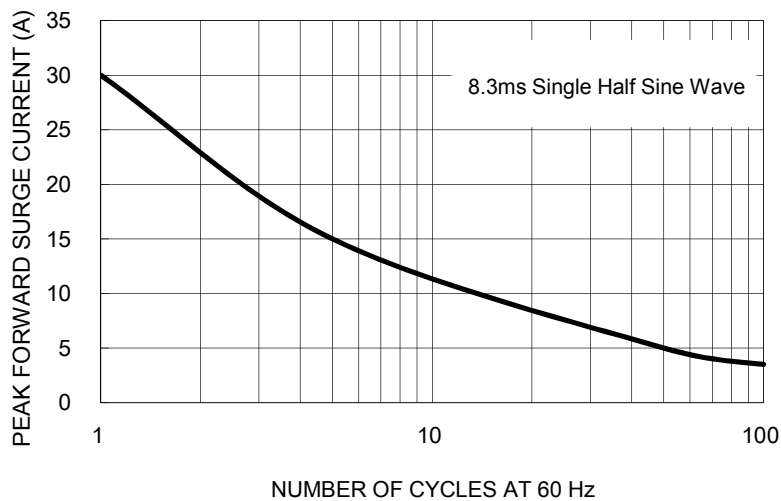


FIG.4 TYPICAL FORWARD CHARACTERISTICS

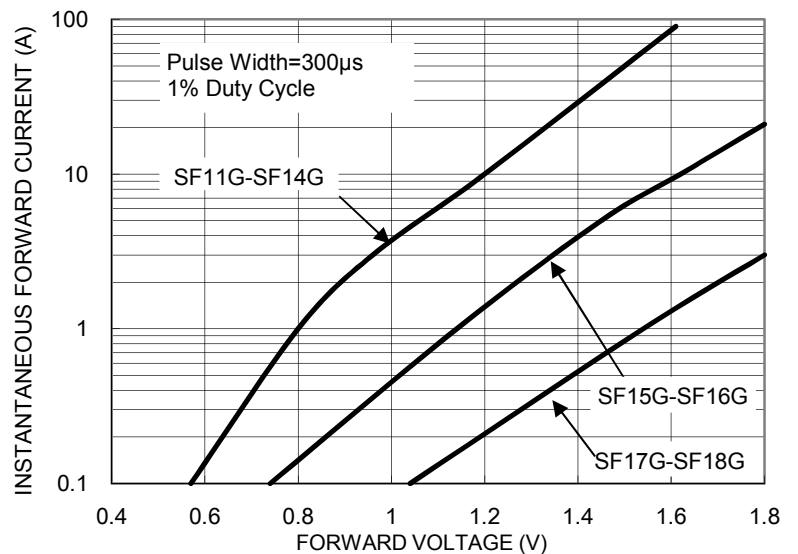


FIG. 5 TYPICAL JUNCTION CAPACITANCE

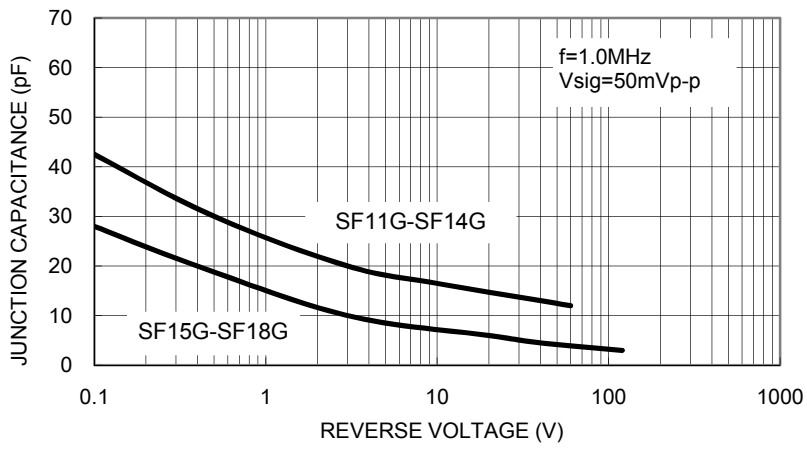
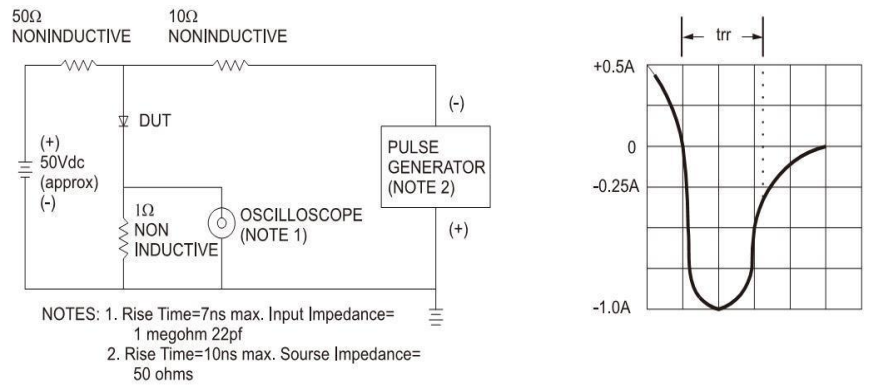
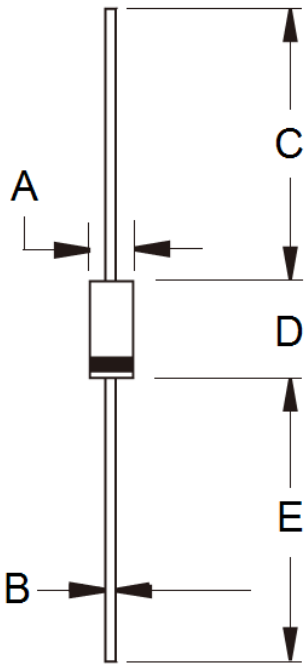


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



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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