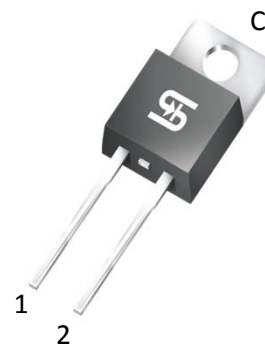


## 10A, 50V - 600V Glass Passivated Super Fast Rectifiers

### FEATURES

- High efficiency, low VF
- High current capability
- High reliability
- High surge current capability
- 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



TO-220AC



### MECHANICAL DATA

**Case:** TO-220AC

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

Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting torque:** 0.56 Nm max.

**Weight:** 1.8 g (approximately)



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)    |                    |              |             |             |             |             |             |             |             |      |
|-------------------------------------------------------------------------------------------------|--------------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| PARAMETER                                                                                       | SYMBOL             | SFA<br>1001  | SFA<br>1002 | SFA<br>1003 | SFA<br>1004 | SFA<br>1005 | SFA<br>1006 | SFA<br>1007 | SFA<br>1008 | 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> | 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> =10 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> =100°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>     | 70           |             |             |             | 50          |             |             |             | pF   |
| Typical thermal resistance                                                                      | R <sub>θJC</sub>   | 3.5          |             |             |             |             |             |             |             | °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: 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 DC.

**ORDERING INFORMATION**

| PART NO.             | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX (*) | PACKAGE  | PACKING   |
|----------------------|-----------------|--------------|-------------------------|----------|-----------|
| SFA100xG<br>(Note 1) | H               | C0           | G                       | TO-220AC | 50 / Tube |

Note 1: "x" defines voltage from 50V (SFA1001G) to 600V (SFA1008G)

\*: Optional available

**EXAMPLE**

| EXAMPLE P/N  | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
|--------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| SFA1008GHC0G | SFA1008G | H               | C0           | 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

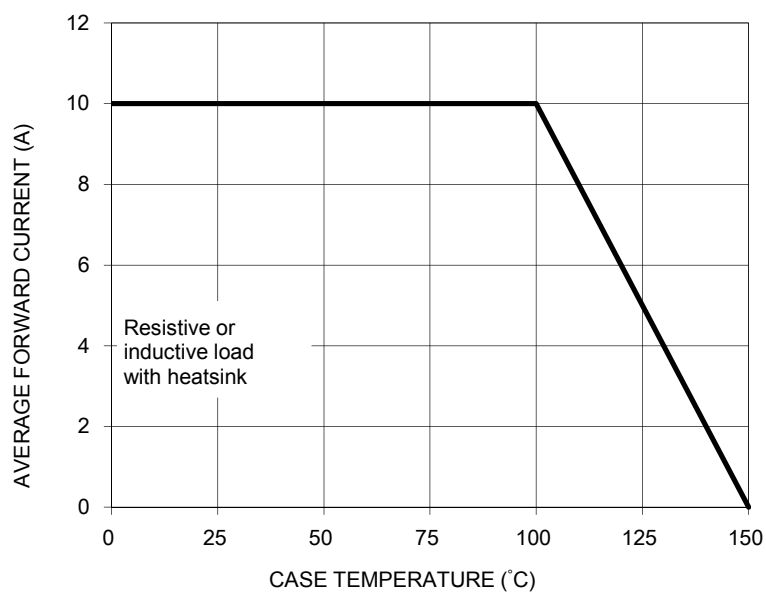


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

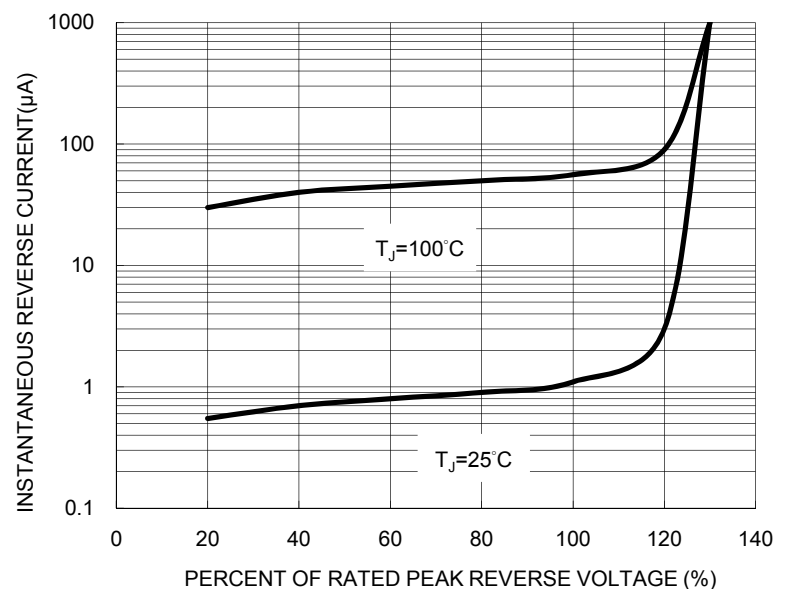


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

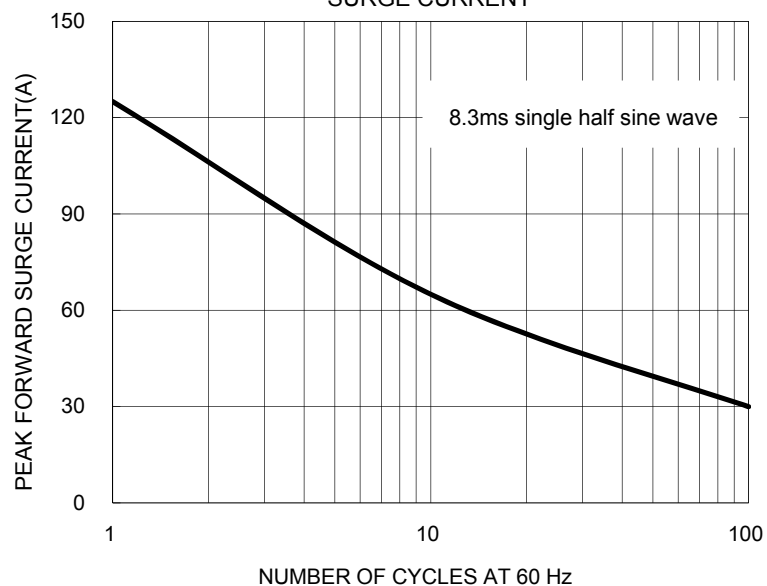


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

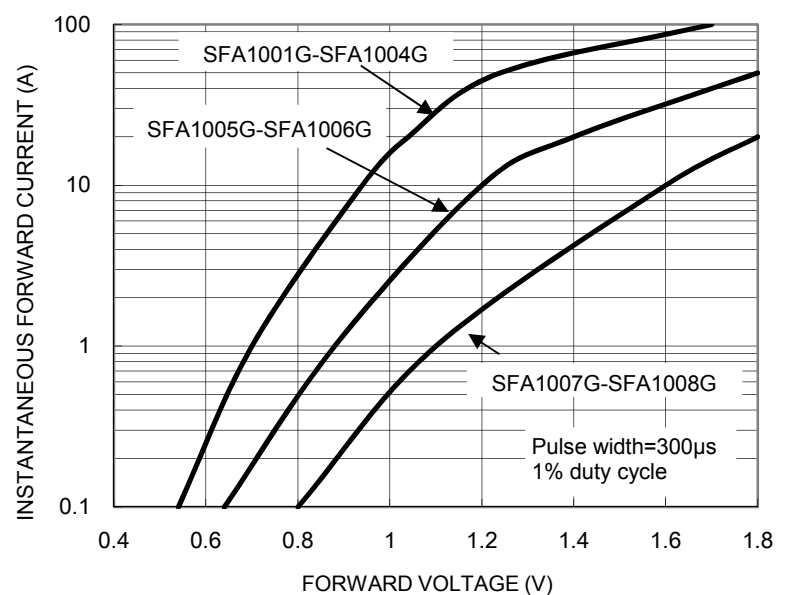


FIG. 5 TYPICAL JUNCTION CAPACITANCE

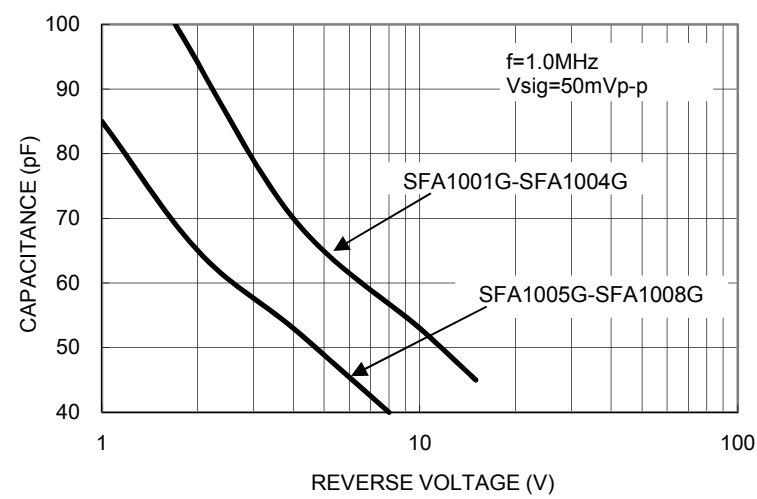
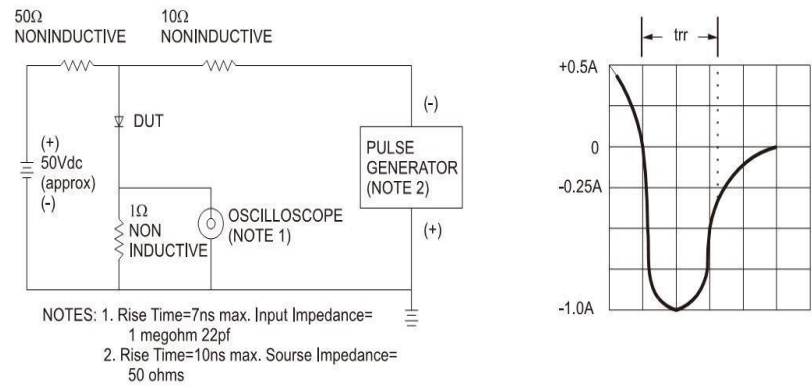
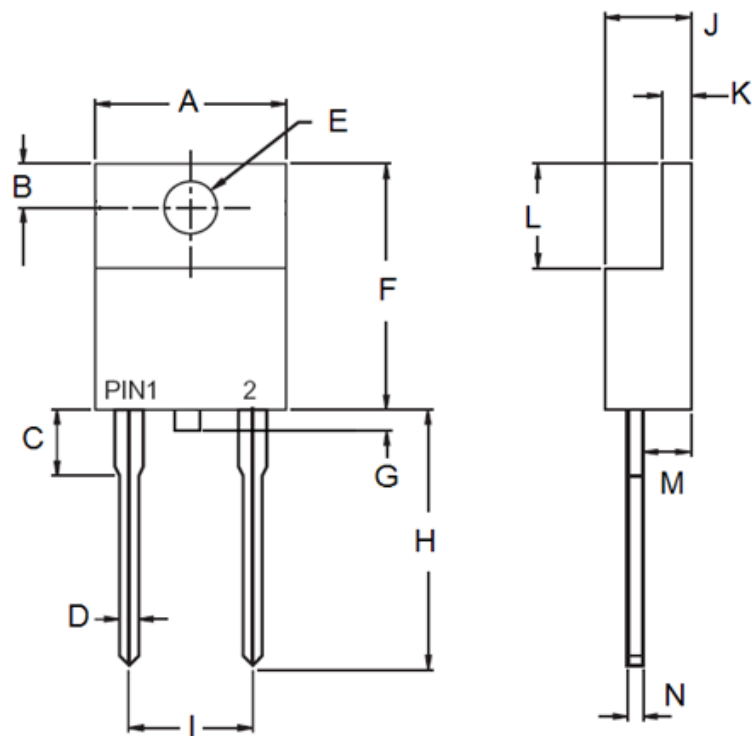


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



**PACKAGE OUTLINE DIMENSIONS**  
**TO-220AC**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | -         | 10.50 | -           | 0.413 |
| B    | 2.62      | 3.44  | 0.103       | 0.135 |
| C    | 2.80      | 4.20  | 0.110       | 0.165 |
| D    | 0.68      | 0.94  | 0.027       | 0.037 |
| E    | 3.54      | 4.00  | 0.139       | 0.157 |
| F    | 14.60     | 16.00 | 0.575       | 0.630 |
| G    | 0.00      | 1.60  | 0.000       | 0.063 |
| H    | 13.19     | 14.79 | 0.519       | 0.582 |
| I    | 4.95      | 5.20  | 0.195       | 0.205 |
| J    | 4.42      | 4.76  | 0.174       | 0.187 |
| K    | 1.14      | 1.40  | 0.045       | 0.055 |
| L    | 5.84      | 6.86  | 0.230       | 0.270 |
| M    | 2.20      | 2.80  | 0.087       | 0.110 |
| N    | 0.35      | 0.64  | 0.014       | 0.025 |

**MARKING DIAGRAM**



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

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