

## 20A, 50V - 600V Isolated Glass Passivated Super Fast Rectifiers

### FEATURES

- High efficiency, low VF
- High current capability
- High reliability
- High surge current capability
- Low power loss
- UL Recognized File # E-326243
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21



ITO-220AC



### MECHANICAL DATA

**Case:** ITO-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)

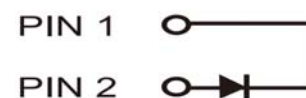
**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting torque:** 0.56 Nm max.

**Weight:** 1.7 g (approximately)



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)    |                    |               |               |               |               |               |               |               |               |      |
|-------------------------------------------------------------------------------------------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------|
| PARAMETER                                                                                       | SYMBOL             | SFAF<br>2001G | SFAF<br>2002G | SFAF<br>2003G | SFAF<br>2004G | SFAF<br>2005G | SFAF<br>2006G | SFAF<br>2007G | SFAF<br>2008G | 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> | 20            |               |               |               |               |               |               |               | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load             | I <sub>FSM</sub>   | 200           |               |               |               |               |               |               |               | A    |
| Maximum instantaneous forward voltage (Note 1)<br>I <sub>F</sub> = 20 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>     | 170           |               |               |               | 150           |               |               |               | pF   |
| Typical thermal resistance                                                                      | R <sub>θJC</sub>   | 3             |               |               |               |               |               |               |               | °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   |
| SFAF200xG<br>(Note 1) | H               | C0           | G                       | ITO-220AC | 50 / Tube |

Note 1: "x" defines voltage from 50V (SFAF2001G) to 600V (SFAF2008G)

\*: Optional available

| EXAMPLE       |           |                 |              |                     |                                      |
|---------------|-----------|-----------------|--------------|---------------------|--------------------------------------|
| EXAMPLE P/N   | PART NO.  | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| SFAF2001GHC0G | SFAF2001G | H               | C0           | G                   | AEC-Q101 qualified<br>Green compound |

## RATINGS AND CHARACTERISTICS CURVES

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

FIG.1 MAXIMUM FORWARD CURRENT  
DERATING CURVE

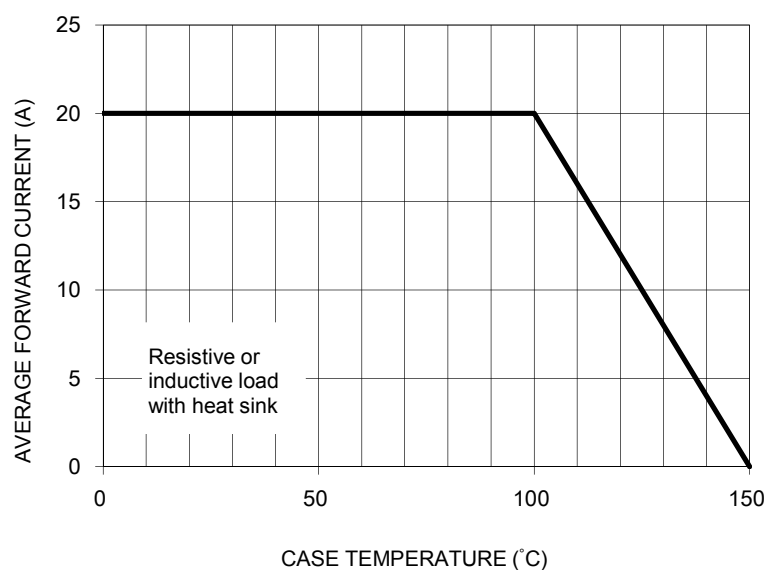


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

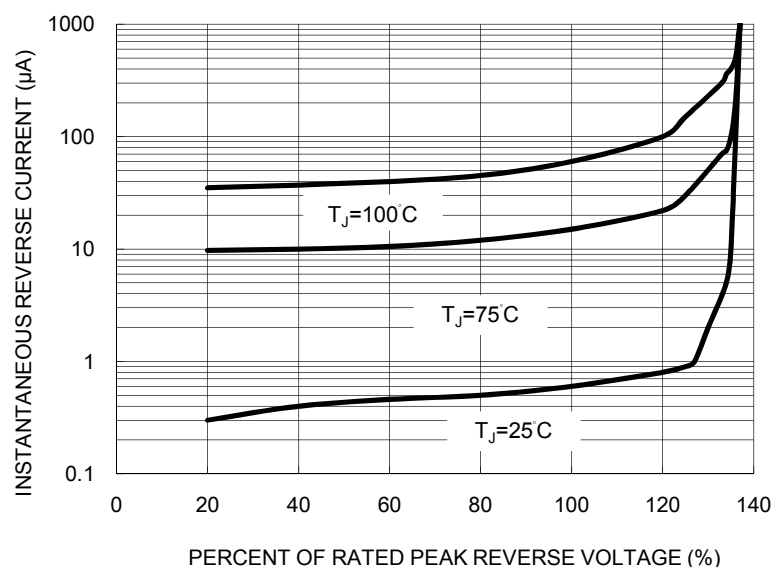


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD  
SURGE CURRENT

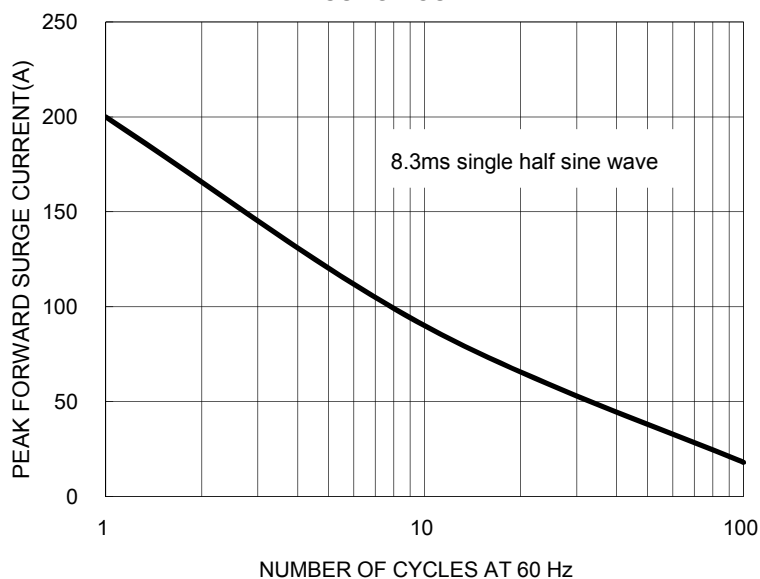


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

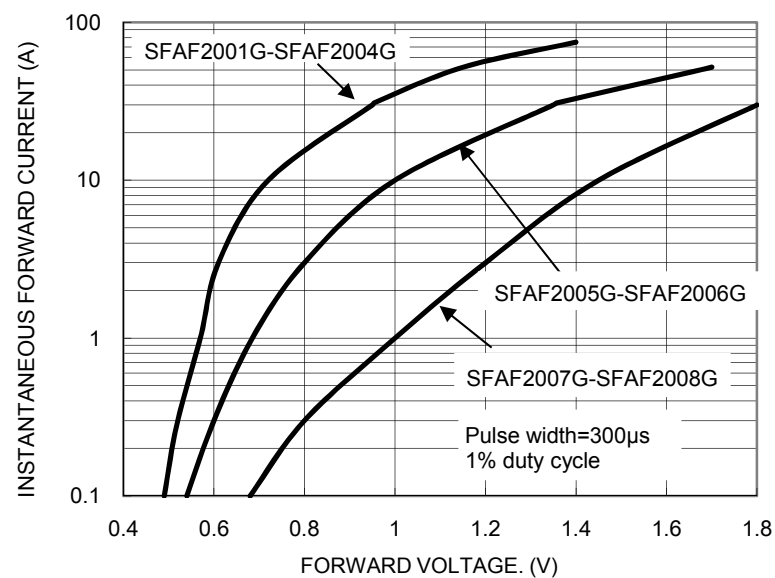


FIG. 5 TYPICAL JUNCTION CAPACITANCE

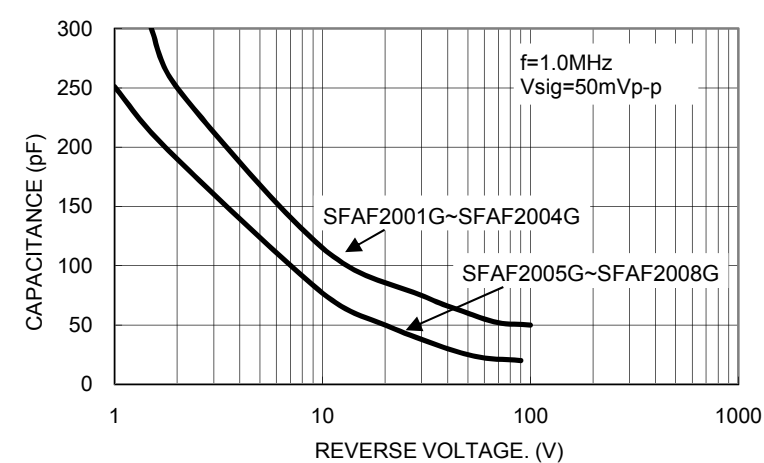
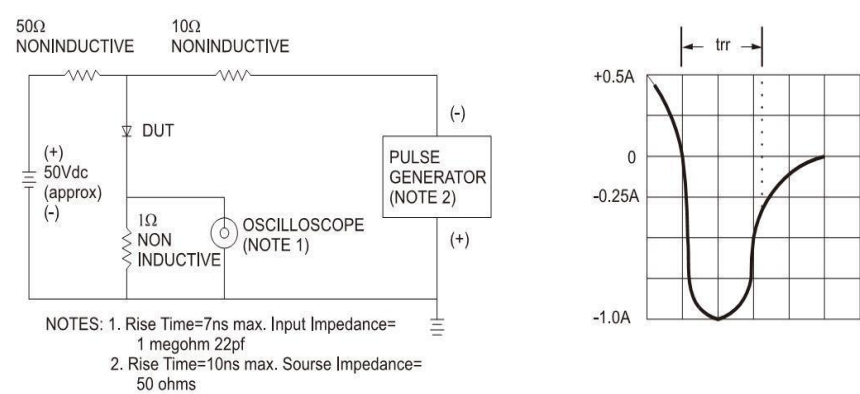
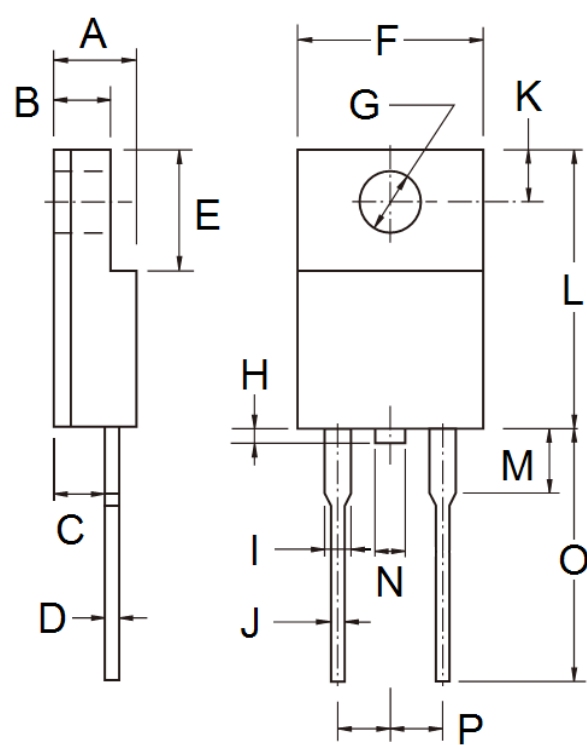


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



PACKAGE OUTLINE DIMENSIONS  
ITO-220AC



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 4.30      | 4.70  | 0.169       | 0.185 |
| B    | 2.50      | 3.10  | 0.098       | 0.122 |
| C    | 2.30      | 2.90  | 0.091       | 0.114 |
| D    | 0.46      | 0.76  | 0.018       | 0.030 |
| E    | 6.30      | 6.90  | 0.248       | 0.272 |
| F    | 9.60      | 10.30 | 0.378       | 0.406 |
| G    | 3.00      | 3.40  | 0.118       | 0.134 |
| H    | 0.00      | 1.60  | 0.000       | 0.063 |
| I    | 0.95      | 1.45  | 0.037       | 0.057 |
| J    | 0.50      | 0.90  | 0.020       | 0.035 |
| K    | 2.40      | 3.20  | 0.094       | 0.126 |
| L    | 14.80     | 15.50 | 0.583       | 0.610 |
| M    | -         | 4.10  | -           | 0.161 |
| N    | -         | 1.80  | -           | 0.071 |
| O    | 12.60     | 13.80 | 0.496       | 0.543 |
| P    | 4.95      | 5.20  | 0.195       | 0.205 |

MARKING DIAGRAM

P/N

= Specific Device Code

G

= Green Compound

YWW

= Date Code

F

= Factory Code

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