

## 10A, 200 - 600V Isolated Glass Passivated Super Fast Rectifier

### FEATURES

- High efficiency
- 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

### KEY PARAMETERS

| PARAMETER     | VALUE     | UNIT |
|---------------|-----------|------|
| $I_{F(AV)}$   | 2 x 5     | A    |
| $V_{RRM}$     | 200 - 600 | V    |
| $T_{J\ MAX}$  | 150       | °C   |
| Package       | ITO-220AB |      |
| Configuration | Dual Die  |      |

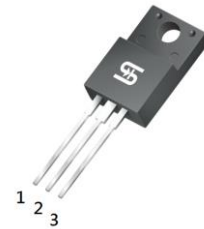
### APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication.

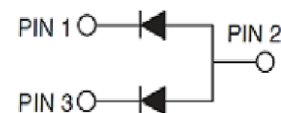


### MECHANICAL DATA

- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Part no. with suffix "H" means AEC-Q101 qualified
- Meet JESD 201 class 2 whisker test,
- Polarity: As marked
- Mounting torque: 0.56 N-m maximum
- Weight: 1.7 g (approximately)



ITO-220AB



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

| PARAMETER                                                                                     |            | SYMBOL              | SFF10L04GA   | SFF10L05GA | SFF10L06GA | SFF10L08GA | UNIT |
|-----------------------------------------------------------------------------------------------|------------|---------------------|--------------|------------|------------|------------|------|
| Marking code on the device                                                                    |            |                     | SFF10L04GA   | SFF10L05GA | SFF10L06GA | SFF10L08GA |      |
| Repetitive peak reverse voltage                                                               |            | V <sub>RRM</sub>    | 200          | 300        | 400        | 600        | V    |
| Reverse voltage, total rms value                                                              |            | V <sub>R(RMS)</sub> | 140          | 280        | 280        | 420        | V    |
| Forward current                                                                               | Per device | I <sub>F(AV)</sub>  | 10           |            |            |            | A    |
|                                                                                               | Per diode  |                     | 5            |            |            |            |      |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode |            | I <sub>FSM</sub>    | 125          |            | 80         |            | A    |
| Junction temperature                                                                          |            | T <sub>J</sub>      | - 55 to +150 |            |            |            | °C   |
| Storage temperature                                                                           |            | T <sub>STG</sub>    | - 55 to +150 |            |            |            | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | TYP | UNIT |
|----------------------------------------|-----------------|-----|------|
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 2   | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 9   | °C/W |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 3   | °C/W |

**Thermal Performance Note:** Units mounted on recommended PCB (2"x3"x0.25" Al -plate)

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

| PARAMETER                                                       |            | CONDITIONS                                                            | SYMBOL          | TYP  | MAX  | UNIT |
|-----------------------------------------------------------------|------------|-----------------------------------------------------------------------|-----------------|------|------|------|
| Forward voltage per diode <sup>(1)</sup>                        | SFF10L04GA | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C                            | V <sub>F</sub>  | 0.94 | 0.98 | V    |
|                                                                 |            | I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C                           |                 | 0.82 | 0.90 | V    |
|                                                                 | SFF10L05GA | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C                            |                 | 1.04 | 1.30 | V    |
|                                                                 |            | I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C                           |                 | 0.89 | 0.96 | V    |
|                                                                 | SFF10L06GA | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C                            |                 | 1.05 | 1.30 | V    |
|                                                                 |            | I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C                           |                 | 0.92 | 1.00 | V    |
|                                                                 | SFF10L08GA | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C                            |                 | 1.21 | 1.70 | V    |
|                                                                 |            | I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C                           |                 | 1.04 | 1.20 | V    |
| Reverse current @ rated V <sub>R</sub> per diode <sup>(2)</sup> |            | T <sub>J</sub> = 25°C                                                 | I <sub>R</sub>  | -    | 10   | μA   |
|                                                                 |            | T <sub>J</sub> = 125°C                                                |                 | -    | 400  | μA   |
| Junction capacitance                                            | SFF10L04GA | 1 MHz, V <sub>R</sub> =4.0V                                           | C <sub>J</sub>  | 60   | -    | pF   |
|                                                                 | SFF10L05GA |                                                                       |                 | 50   | -    | pF   |
|                                                                 | SFF10L06GA |                                                                       |                 |      |      | pF   |
|                                                                 | SFF10L08GA |                                                                       |                 |      |      | pF   |
| Reverse recovery time                                           | SFF10L04GA | I <sub>F</sub> =0.5A , I <sub>R</sub> =1.0A<br>I <sub>RR</sub> =0.25A | t <sub>rr</sub> | -    | 35   | ns   |
|                                                                 | SFF10L05GA |                                                                       |                 |      |      |      |
|                                                                 | SFF10L06GA |                                                                       |                 |      |      |      |
|                                                                 | SFF10L08GA |                                                                       |                 |      |      |      |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

**ORDERING INFORMATION**

| <b>PART NO.</b>           | <b>PART NO.<br/>SUFFIX</b> | <b>PACKING<br/>CODE</b> | <b>PACKING CODE<br/>SUFFIX</b> | <b>PACKAGE</b> | <b>PACKING</b> |
|---------------------------|----------------------------|-------------------------|--------------------------------|----------------|----------------|
| SFF10L0xGA<br>(Note 1, 2) | H                          | C0                      | G                              | ITO-220AB      | 50 / Tube      |

**Notes:**

1. "x" defines voltage from 200V (SFF10L04GA) to 600V (SFF10L08GA)
2. Whole series with green compound (halogen-free)

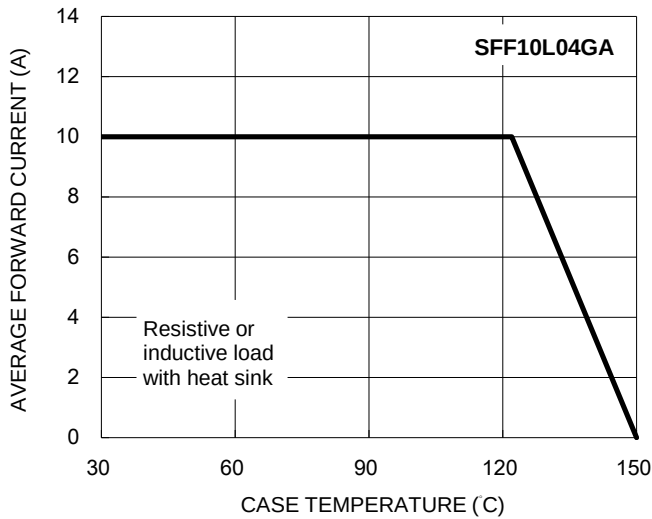
**EXAMPLE P/N**

| <b>EXAMPLE P/N</b> | <b>PART NO.</b> | <b>PART NO.<br/>SUFFIX</b> | <b>PACKING<br/>CODE</b> | <b>PACKING CODE<br/>SUFFIX</b> | <b>DESCRIPTION</b>                   |
|--------------------|-----------------|----------------------------|-------------------------|--------------------------------|--------------------------------------|
| SFF10L04GAHC0G     | SFF10L04GA      | H                          | C0                      | G                              | AEC-Q101 qualified<br>Green compound |

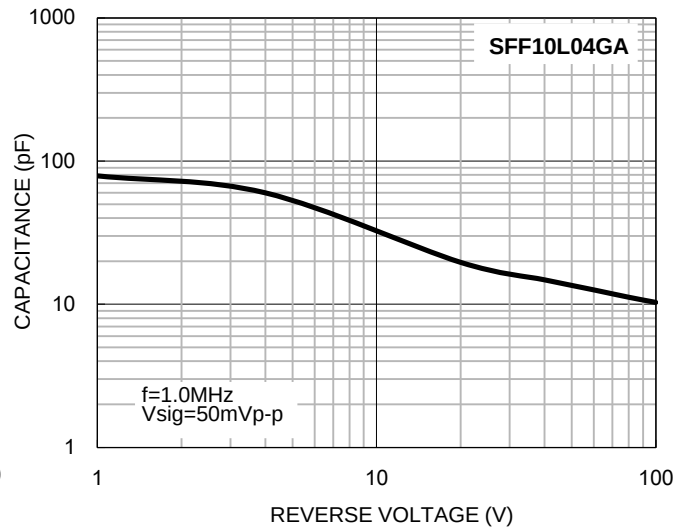
## CHARACTERISTICS CURVES

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

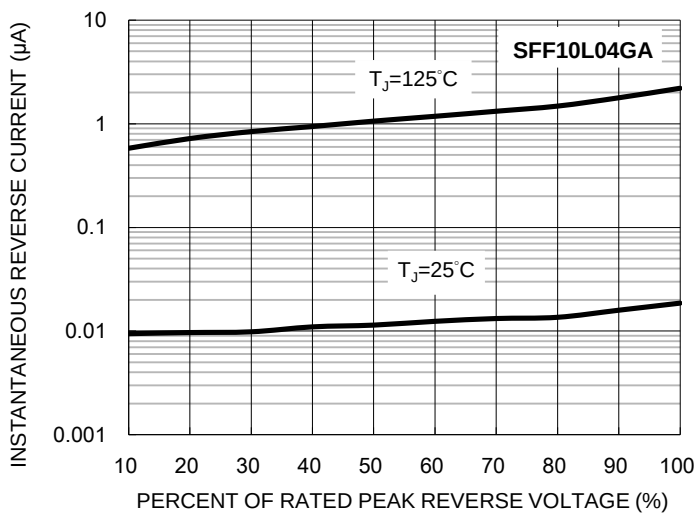
**Fig1. Forward Current Derating Curve**



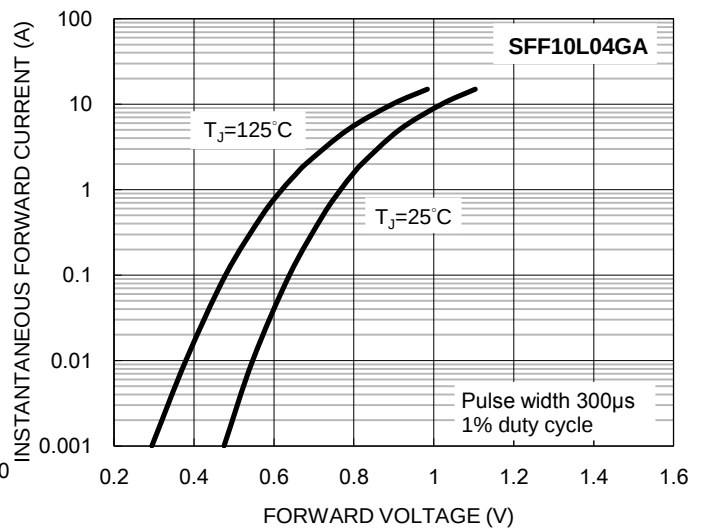
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



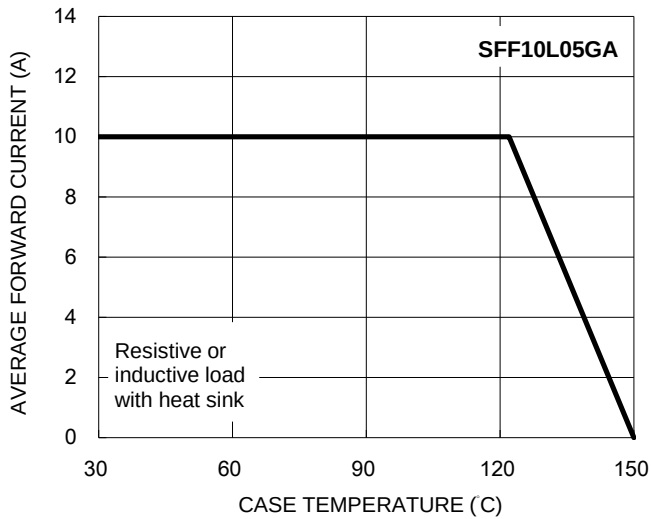
**Fig4. Typical Forward Characteristics**



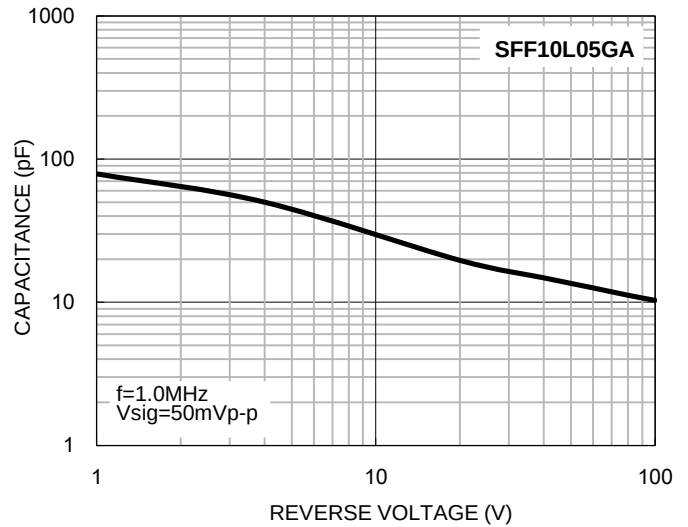
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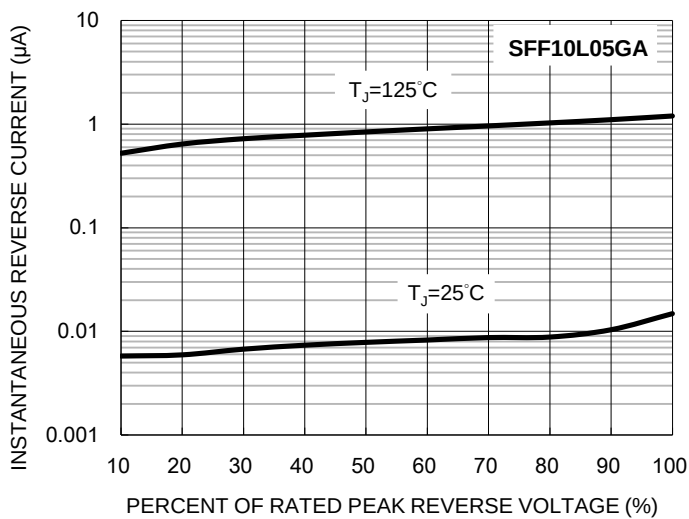
**Fig1. Forward Current Derating Curve**



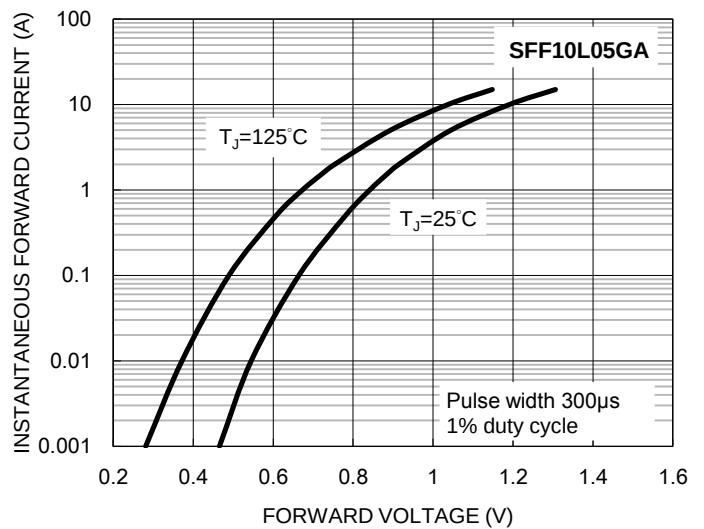
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



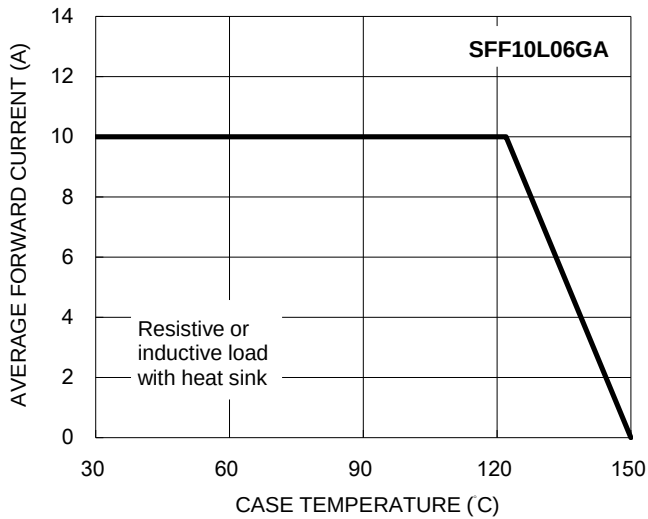
**Fig4. Typical Forward Characteristics**



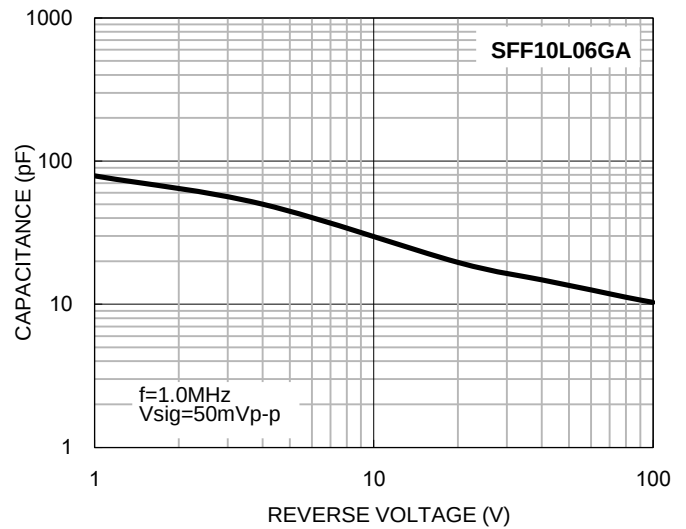
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( $T_A = 25^\circ\text{C}$  unless otherwise noted)

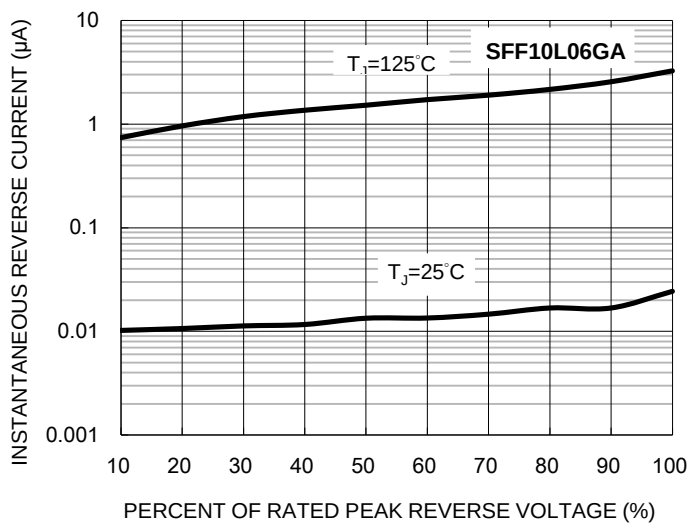
**Fig1. Forward Current Derating Curve**



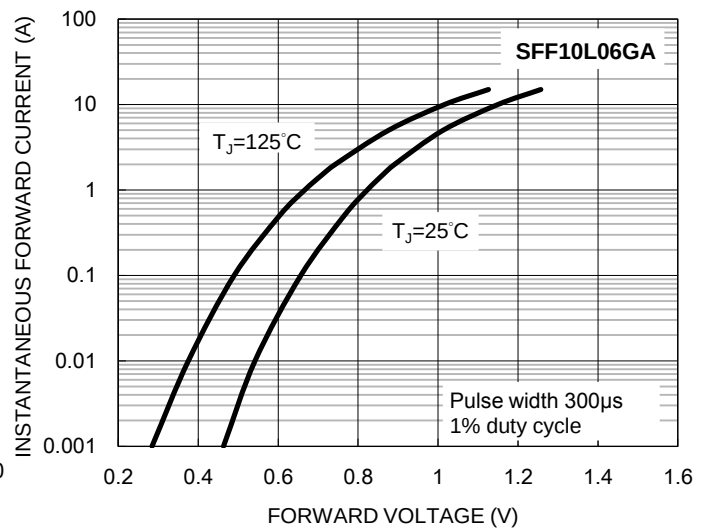
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



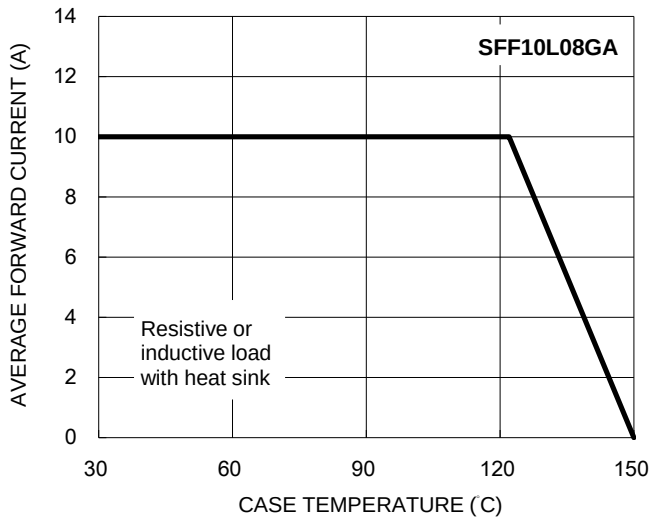
**Fig4. Typical Forward Characteristics**



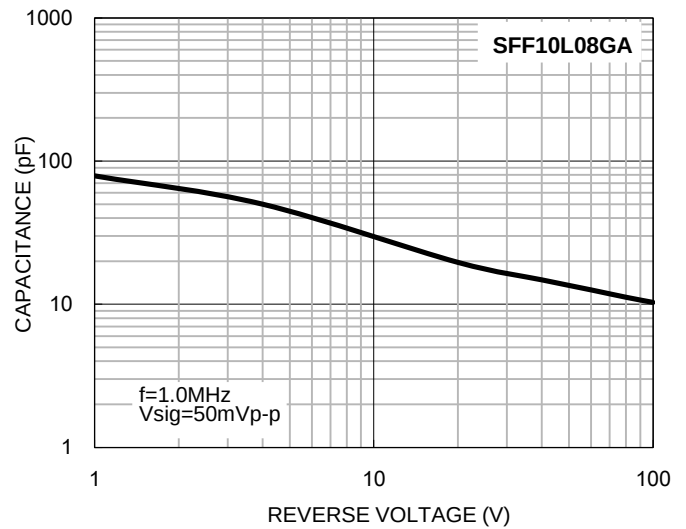
## CHARACTERISTICS CURVES

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

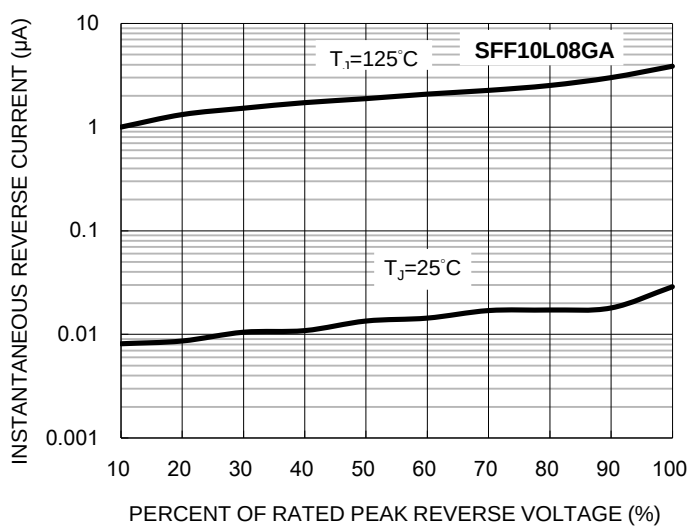
**Fig1. Forward Current Derating Curve**



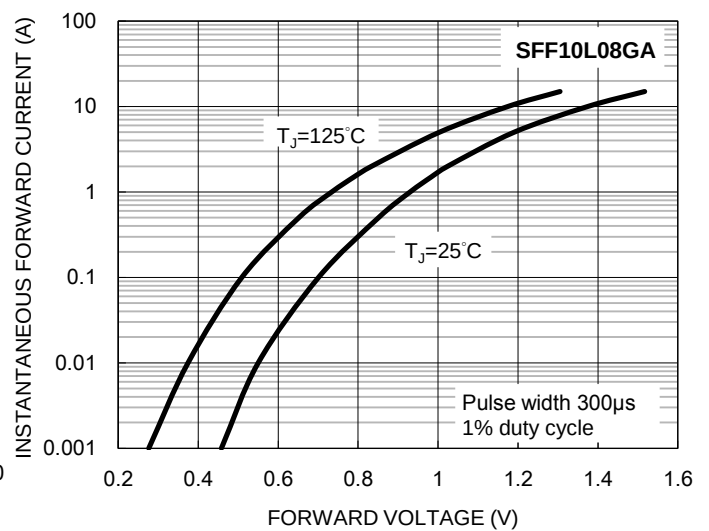
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**

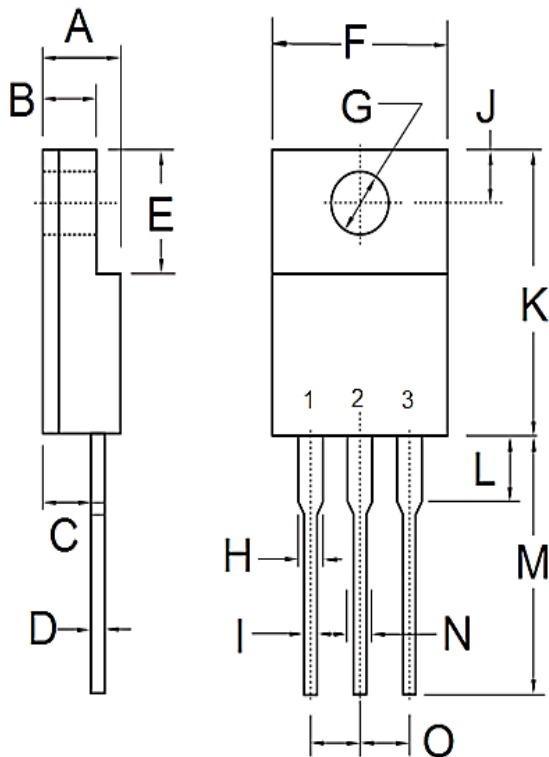


**Fig4. Typical Forward Characteristics**



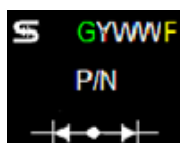
## PACKAGE OUTLINE DIMENSIONS

ITO-220AB



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 4.30      | 4.70  | 0.169       | 0.185 |
| B    | 2.50      | 3.16  | 0.098       | 0.124 |
| C    | 2.30      | 2.96  | 0.091       | 0.117 |
| 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    | 0.95      | 1.45  | 0.037       | 0.057 |
| I    | 0.50      | 0.90  | 0.020       | 0.035 |
| J    | 2.40      | 3.20  | 0.094       | 0.126 |
| K    | 14.80     | 15.50 | 0.583       | 0.610 |
| L    | -         | 4.10  | -           | 0.161 |
| M    | 12.60     | 13.80 | 0.496       | 0.543 |
| N    | -         | 1.80  | -           | 0.071 |
| O    | 2.41      | 2.67  | 0.095       | 0.105 |

## MARKING DIAGRAM



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



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