

## 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    |
| $T_{JMAX}$     | 150       | °C   |
| Package        | ITO-220AB |      |
| Configuration  | Dual Die  |      |

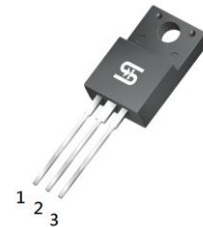
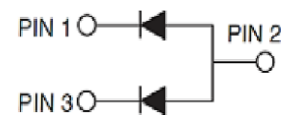
### APPLICATIONS

- 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   | $V_{RRM}$    | 200          | 300        | 400        | 600        | V    |
| Reverse voltage, total rms value  | $V_{R(RMS)}$ | 140          | 280        | 280        | 420        | V    |
| Forward current   | Per device   | 10           |            |            |            | A    |
|   | Per diode    |              |            |            |            |      |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$    | 125          |            | 80         |            | A    |
| Junction temperature  | $T_J$        | - 55 to +150 |            |            |            | °C   |
| Storage temperature   | $T_{STG}$    | - 55 to +150 |            |            |            | °C   |

| <b>THERMAL PERFORMANCE</b>             |                 |              |             |
|--|-----------------|--------------|-------------|
| <b>PARAMETER</b>                       | <b>SYMBOL</b>   | <b>LIMIT</b> | <b>UNIT</b> |
| 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)

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |            |   |               |            |            |               |   |    |    |
|---|------------|---|---------------|------------|------------|---------------|---|----|----|
| <b>PARAMETER</b>  |            | <b>CONDITIONS</b>   | <b>SYMBOL</b> | <b>TYP</b> | <b>MAX</b> | <b>UNIT</b>   |   |    |    |
| Forward voltage per diode <sup>(1)</sup>  | SFF10L04GA | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$                         | $V_F$         | 0.94       | 0.98       | V             |   |    |    |
|   |            | $I_F = 5\text{A}, T_J = 125^\circ\text{C}$                        |               | 0.82       | 0.90       | V             |   |    |    |
|   | SFF10L05GA | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$                         |               | 1.04       | 1.30       | V             |   |    |    |
|   |            | $I_F = 5\text{A}, T_J = 125^\circ\text{C}$                        |               | 0.89       | 0.96       | V             |   |    |    |
|   | SFF10L06GA | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$                         |               | 1.05       | 1.30       | V             |   |    |    |
|   |            | $I_F = 5\text{A}, T_J = 125^\circ\text{C}$                        |               | 0.92       | 1.00       | V             |   |    |    |
|   | SFF10L08GA | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$                         |               | 1.21       | 1.70       | V             |   |    |    |
|   |            | $I_F = 5\text{A}, T_J = 125^\circ\text{C}$                        |               | 1.04       | 1.20       | V             |   |    |    |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup>                              |            | $T_J = 25^\circ\text{C}$  | $I_R$         | -          | 10         | $\mu\text{A}$ |   |    |    |
|   |            | $T_J = 125^\circ\text{C}$   |               | -          | 400        | $\mu\text{A}$ |   |    |    |
| Junction capacitance  |            | 1 MHz, $V_R = 4.0\text{V}$  | $C_J$         | 60         | -          | pF            |   |    |    |
|   |            |   |               | 50         | -          | pF            |   |    |    |
|   |            |   |               |            |            | pF            |   |    |    |
|   |            |   |               |            |            | pF            |   |    |    |
| Reverse recovery time   |            | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$<br>$I_{RR} = 0.25\text{A}$ | $t_{rr}$      | -          | 35         | ns            |   |    |    |
|   |            |   |               | -          | 35         | ns            |   |    |    |
|   |            |   |               |            |            |               | - | 35 | ns |
|   |            |   |               |            |            |               |   |    |    |

**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. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE 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)

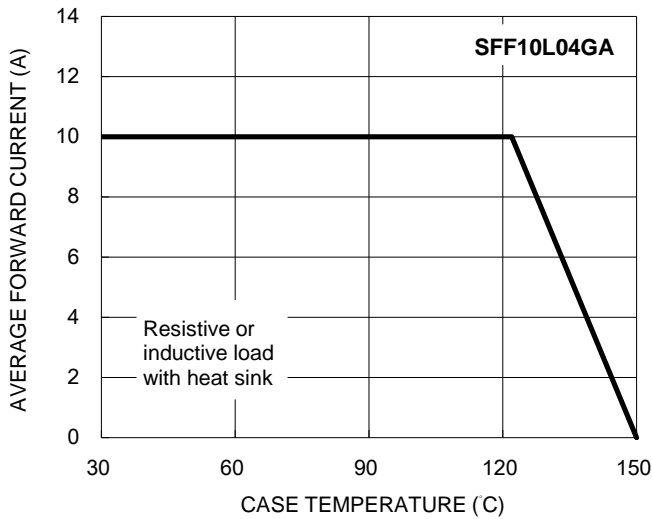
**EXAMPLE P/N**

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

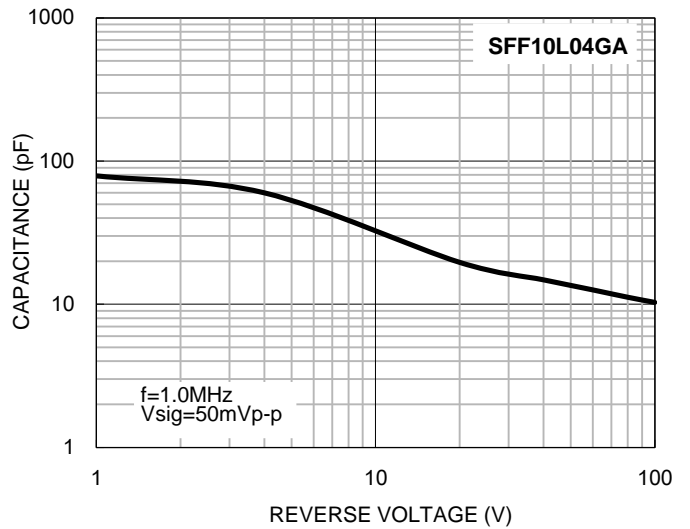
**CHARACTERISTICS CURVES**

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

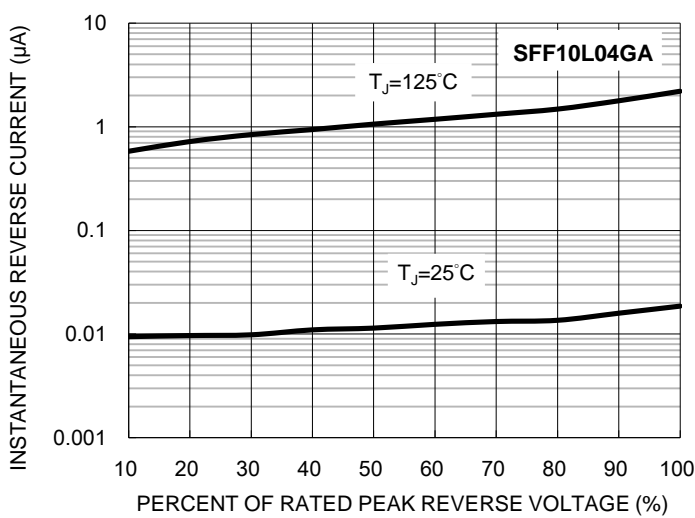
**Fig1. Forward Current Derating Curve**



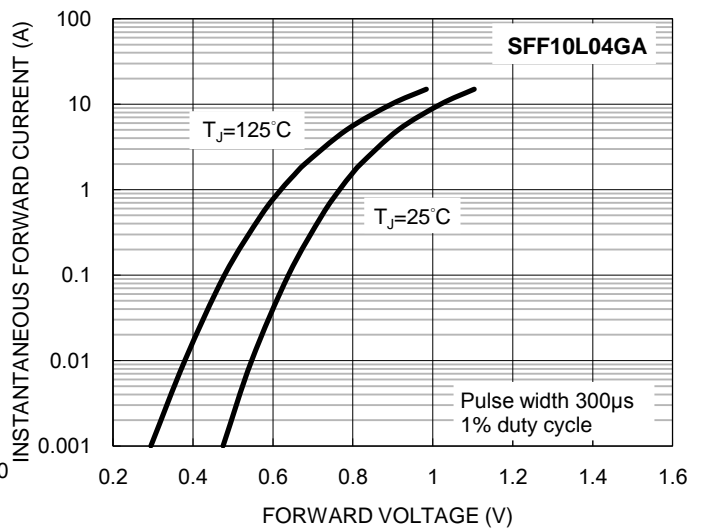
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



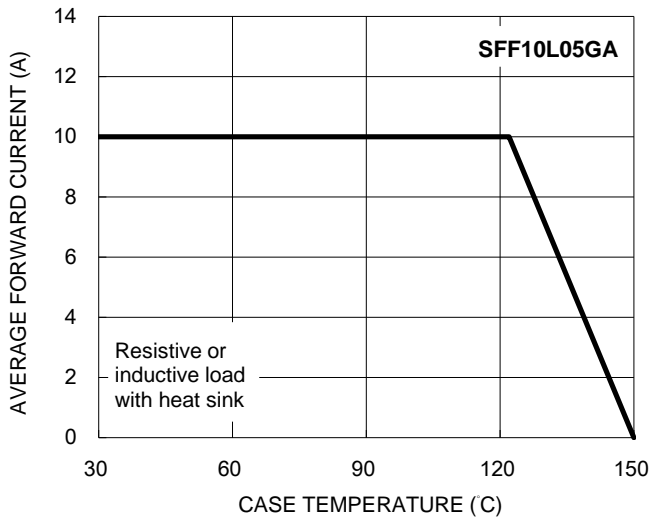
**Fig4. Typical Forward Characteristics**



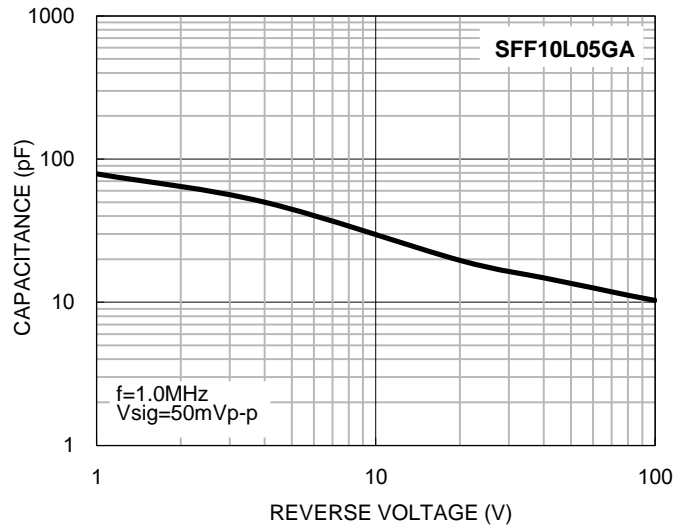
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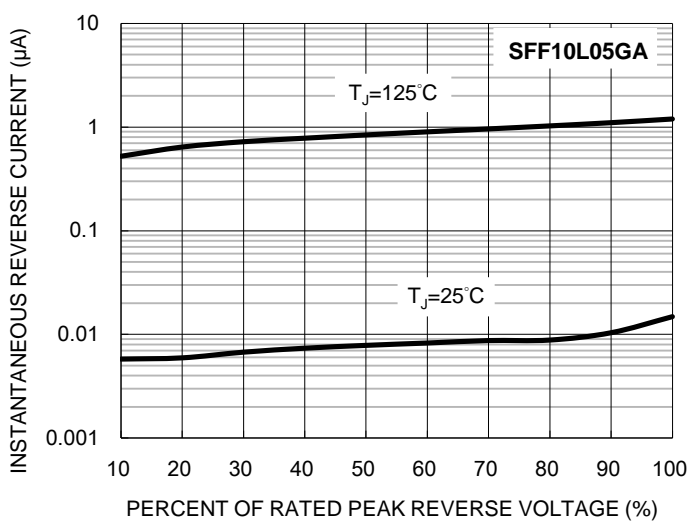
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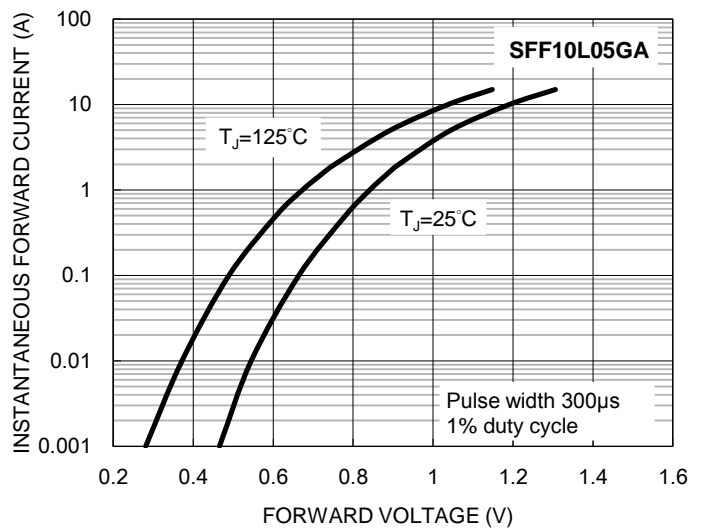
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



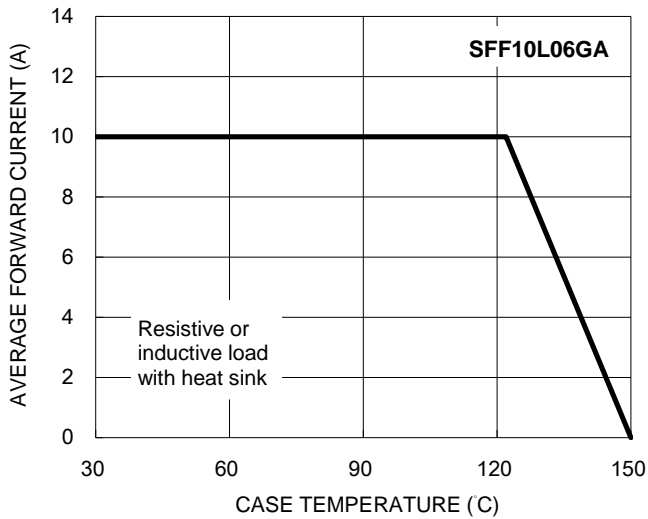
**Fig4. Typical Forward Characteristics**



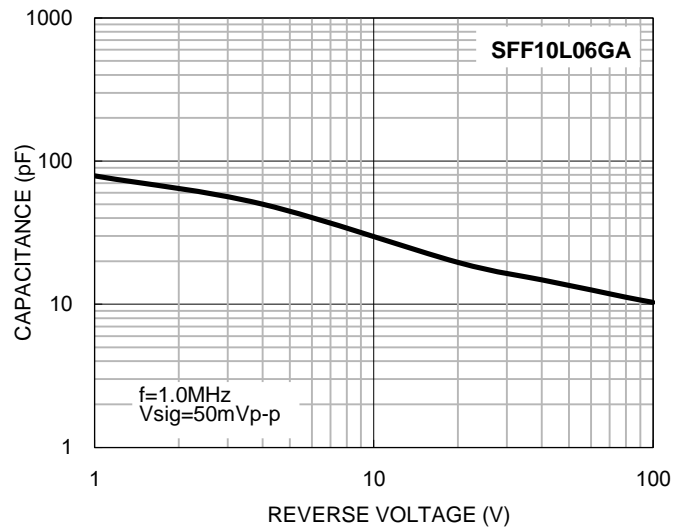
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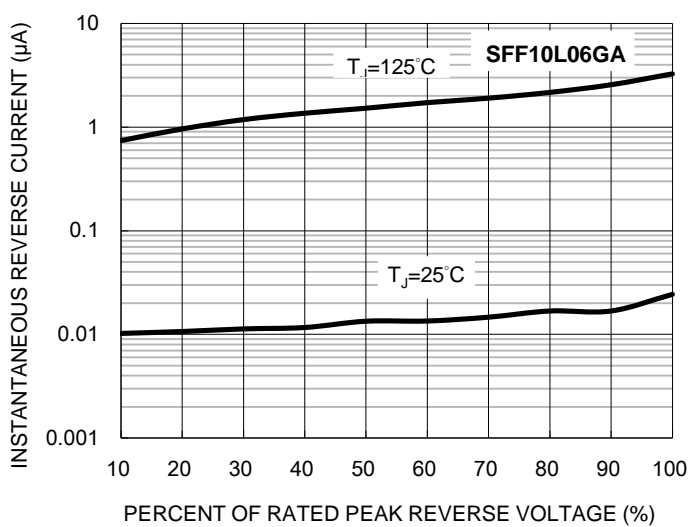
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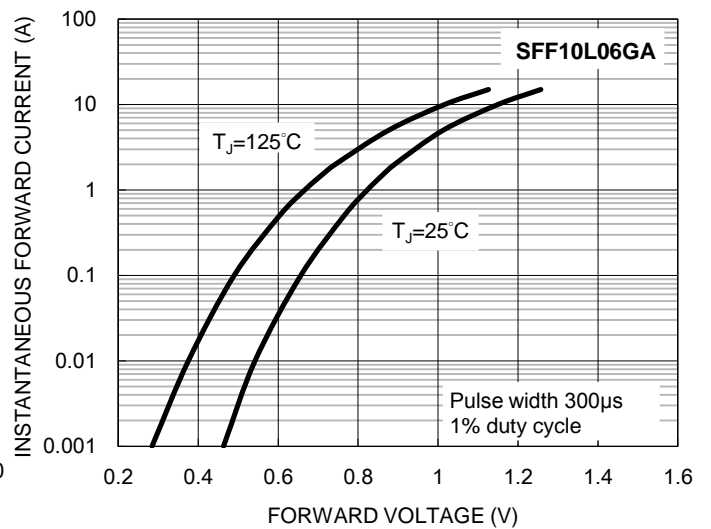
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



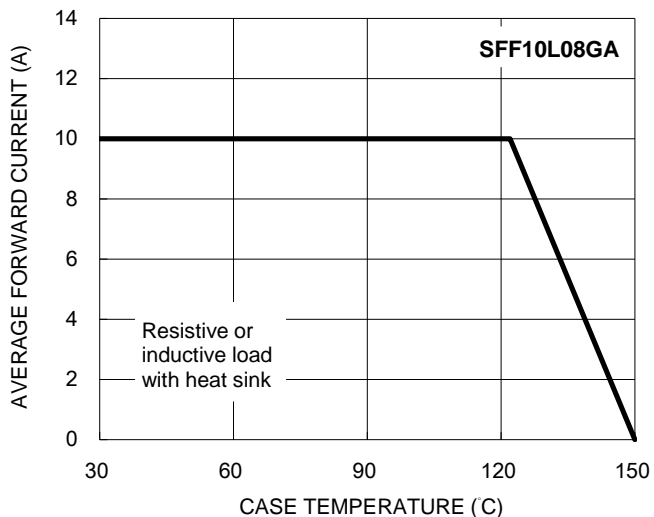
**Fig4. Typical Forward Characteristics**



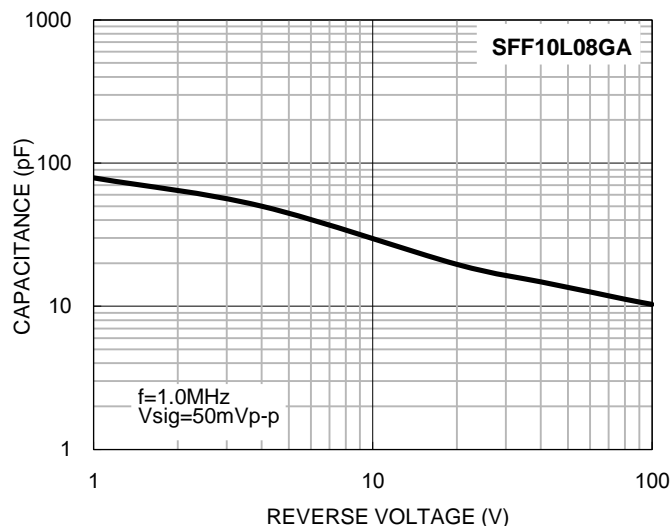
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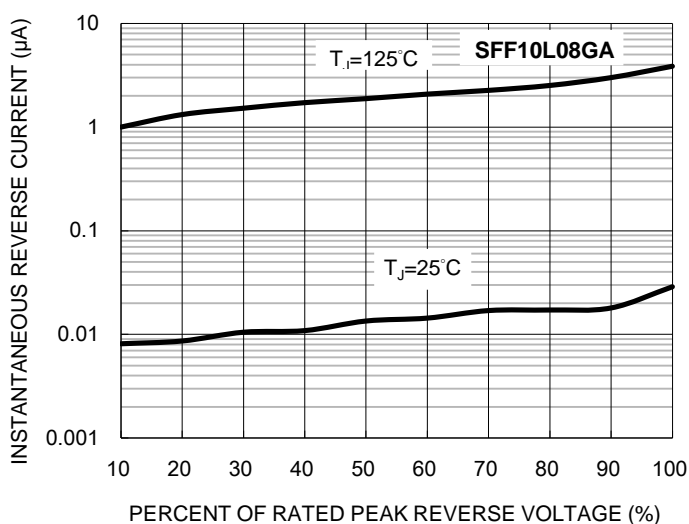
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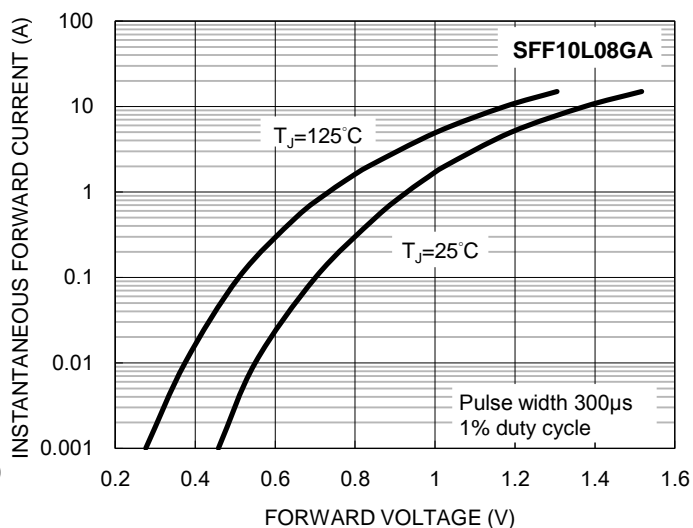
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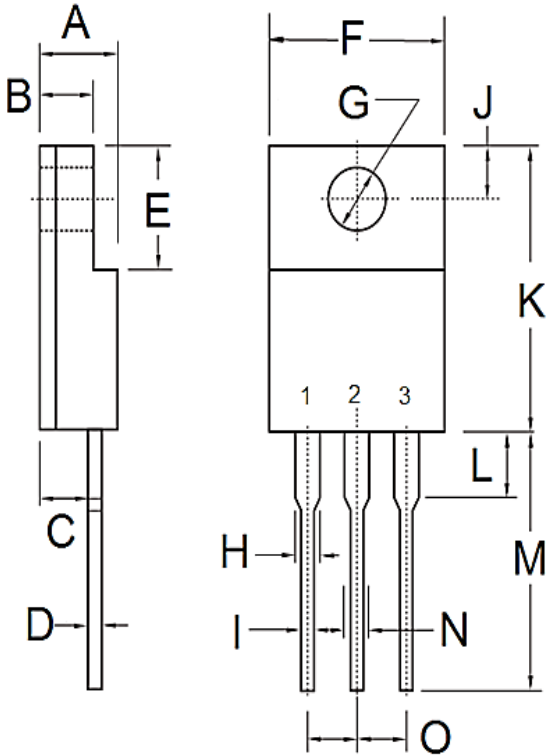


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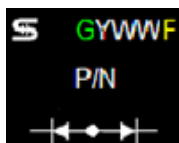
**PACKAGE OUTLINE DIMENSIONS**

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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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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