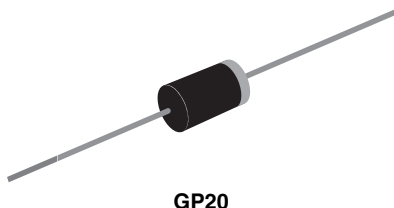


## Ultrafast Plastic Rectifier



### FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- Low leakage current
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

### MECHANICAL DATA

**Case:** GP20

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

### PRIMARY CHARACTERISTICS

|                    |              |
|--------------------|--------------|
| $I_{F(AV)}$        | 1.5 A        |
| $V_{RRM}$          | 400 V, 600 V |
| $I_{FSM}$          | 50 A         |
| $t_{rr}$           | 35 ns        |
| $V_F$              | 1.8 V        |
| $T_J \text{ max.}$ | 150 °C       |

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

| PARAMETER                                                                                       | SYMBOL         | SUF15G        | SUF15J | UNIT |
|-------------------------------------------------------------------------------------------------|----------------|---------------|--------|------|
| Maximum repetitive peak reverse voltage                                                         | $V_{RRM}$      | 400           | 600    | V    |
| Maximum RMS voltage                                                                             | $V_{RMS}$      | 280           | 420    | V    |
| Maximum DC blocking voltage                                                                     | $V_{DC}$       | 400           | 600    | V    |
| Maximum average forward rectified current, 0.375" (9.5 mm) lead length at $T_A = 50 \text{ °C}$ | $I_{F(AV)}$    | 1.5           |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load              | $I_{FSM}$      | 50            |        | A    |
| Operating junction and storage temperature range                                                | $T_J, T_{STG}$ | - 55 to + 150 |        | °C   |

### ELECTRICAL CHARACTERISTICS ( $T_A = 25 \text{ °C}$ unless otherwise noted)

| PARAMETER                                                  | TEST CONDITIONS                                                     | SYMBOL   | SUF15G    | SUF15J | UNIT |
|------------------------------------------------------------|---------------------------------------------------------------------|----------|-----------|--------|------|
| Maximum instantaneous forward voltage <sup>(1)</sup>       | 1.5 A                                                               | $V_F$    | 1.8       |        | V    |
| Maximum peak reverse current at rated peak reverse voltage | $T_A = 25 \text{ °C}$<br>$T_A = 100 \text{ °C}$                     | $I_R$    | 10<br>100 |        | μA   |
| Maximum reverse recovery time                              | $I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, t_{rr} = 0.25 \text{ A}$ | $t_{rr}$ | 35        |        | ns   |
| Typical junction capacitance                               | 4.0 V, 1 MHz                                                        | $C_J$    | 35        |        | pF   |

#### Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                                    |          |        |                      |
|--------------------------------------------------------------------------------------|------------------------------------|----------|--------|----------------------|
| PARAMETER                                                                            | SYMBOL                             | SUF15G   | SUF15J | UNIT                 |
| Typical thermal resistance <sup>(1)</sup>                                            | $R_{\theta JA}$<br>$R_{\theta JL}$ | 65<br>20 |        | $^{\circ}\text{C/W}$ |

**Note:**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| SUF15J-E3/54                   | 0.886           | 54                     | 1400          | 13" diameter paper tape and reel |
| SUF15J-E3/73                   | 0.886           | 73                     | 1000          | Ammo pack packaging              |

## RATINGS AND CHARACTERISTICS CURVES

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

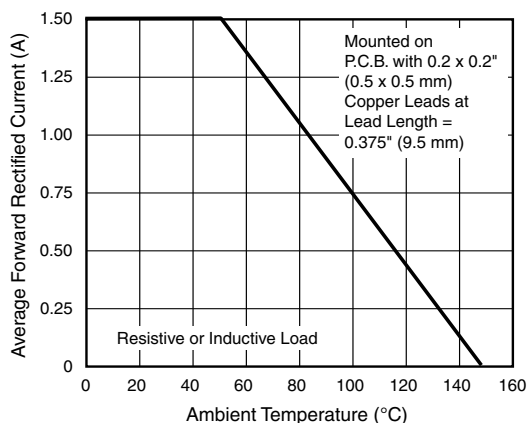


Figure 1. Maximum Forward Current Derating Curve

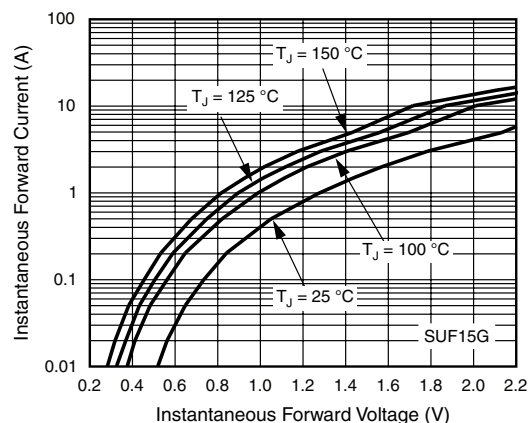


Figure 3. Typical Instantaneous Forward Characteristics

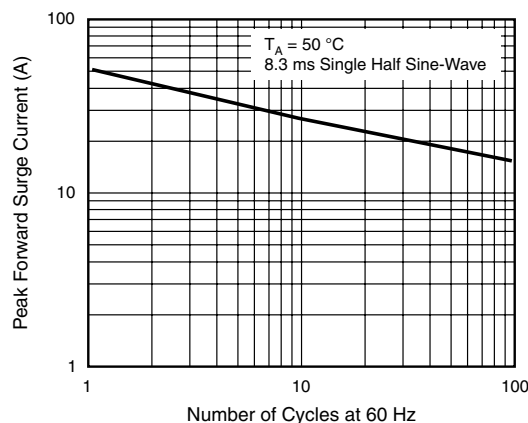


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

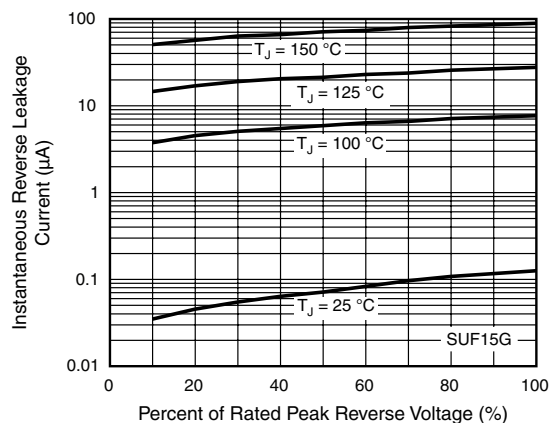


Figure 4. Typical Reverse Leakage Characteristics

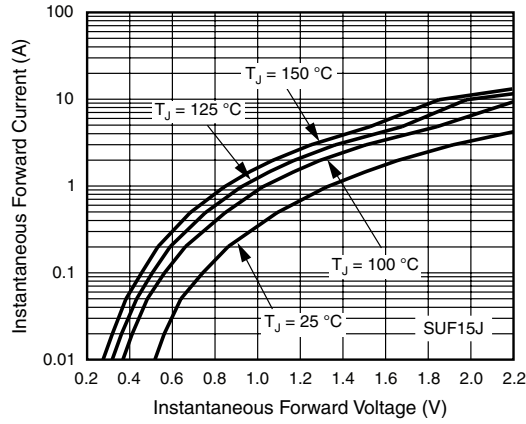


Figure 5. Typical Instantaneous Forward Characteristics

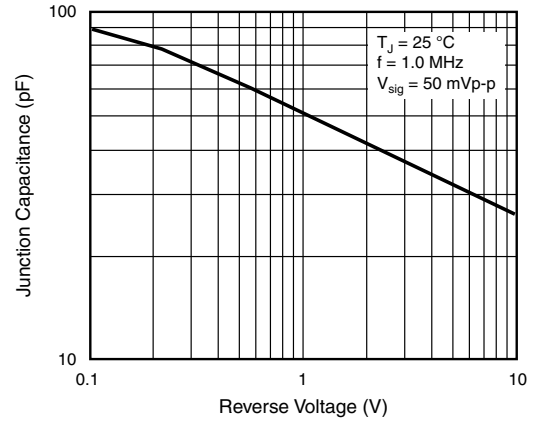


Figure 7. Typical Junction Capacitance

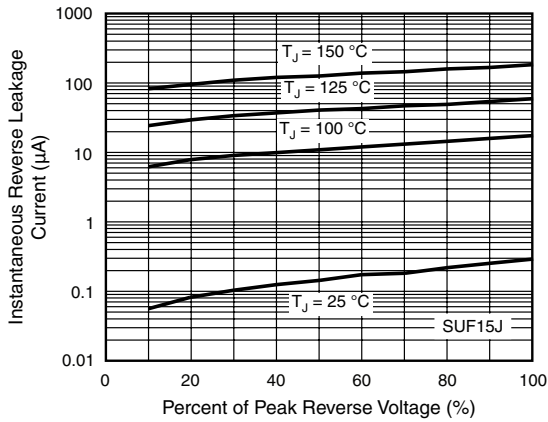


Figure 6. Typical Reverse Leakage Characteristics

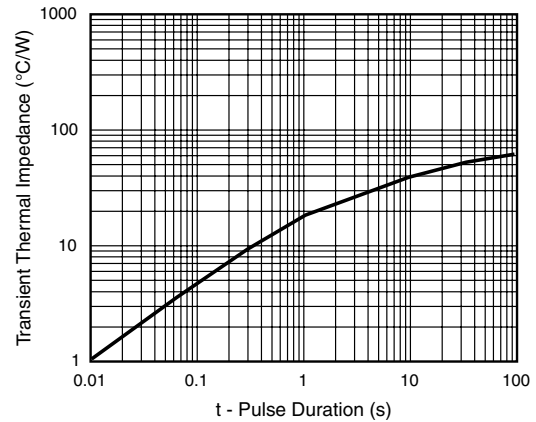
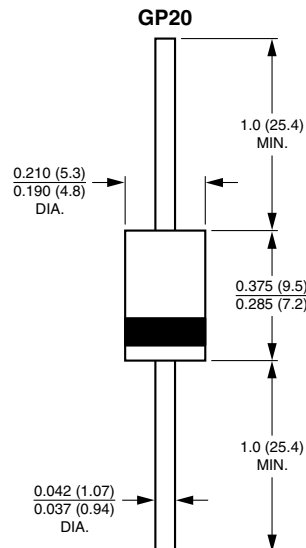


Figure 8. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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