

## Ultrafast Plastic Rectifier



Case Style P600

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	400 V, 600 V
$I_{FSM}$	80 A
$t_{rr}$	35 ns
$V_F$	1.8 V, 2.0 V
$T_j \text{ max.}$	150 °C

### FEATURES

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



### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** P600

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

**Polarity:** Color band denotes cathode end

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SUF30G	SUF30J	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, 0.200" (5.0 mm) lead length at $T_A = 60\text{ °C}$	$I_{F(AV)}$	3.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	80		A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	SUF30G	SUF30J	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	at 3.0 A	$V_F$	1.8	2.0	V
Maximum peak reverse current at rated peak reverse voltage	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$	$I_R$	10 100		$\mu\text{A}$
Maximum reverse recovery time	at $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	35		ns
Typical junction capacitance	at 4.0 V, 1 MHz	$C_J$	60		pF

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SUF30G	SUF30J	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	25		$^\circ\text{C/W}$

**Note:**

(1) Thermal resistance from junction to ambient at 0.200" (5.0 mm) lead length with both leads attached to heat sink

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SUF30J-E3/54	1.834	54	800	13" Diameter Paper Tape & Reel
SUF30J-E3/73	1.834	73	300	Ammo Pack Packaging

## RATINGS AND CHARACTERISTICS CURVES

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

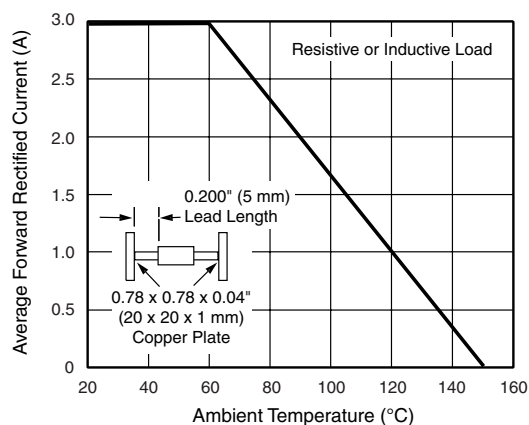


Figure 1. Forward Current Derating Curve

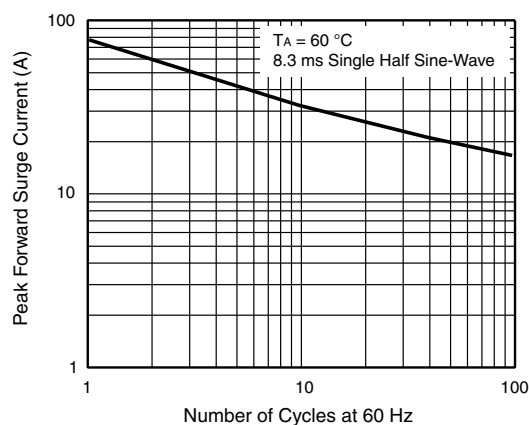


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

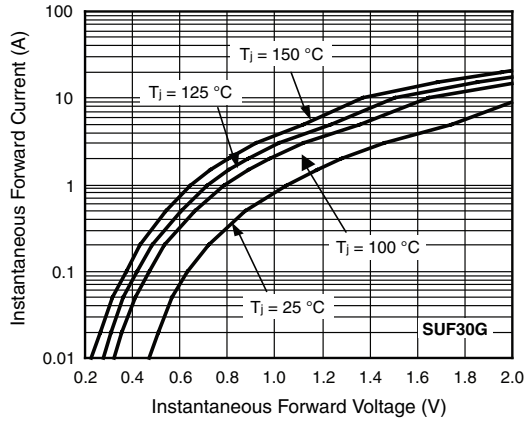


Figure 3. Typical Instantaneous Forward Characteristics

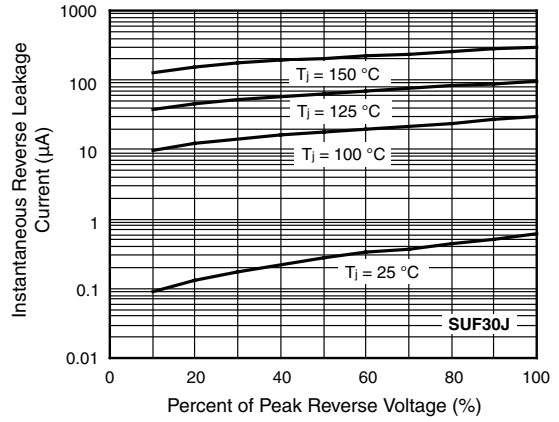


Figure 6. Typical Reverse Leakage Characteristics

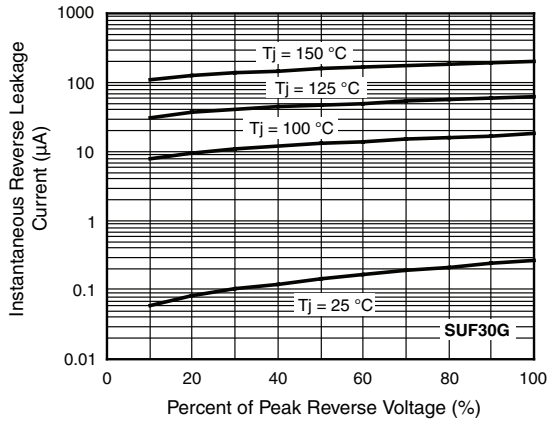


Figure 4. Typical Reverse Leakage Characteristics

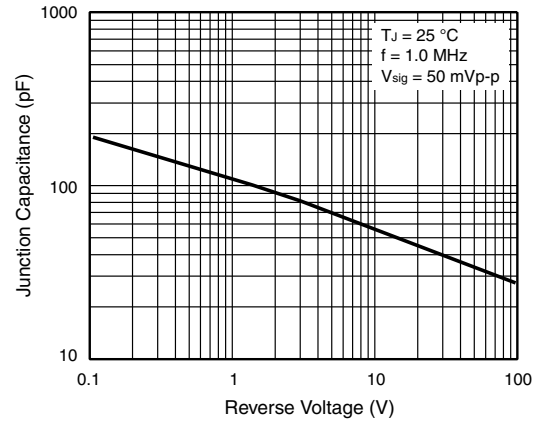


Figure 7. Typical Junction Capacitance

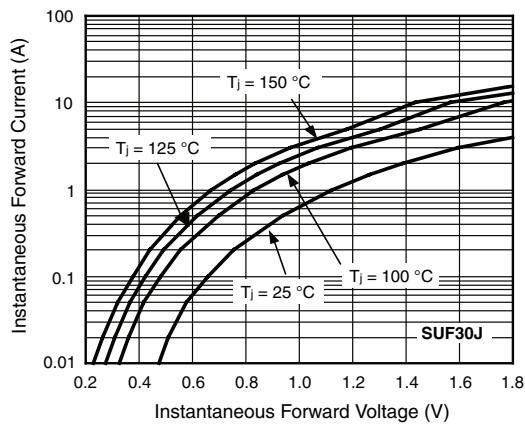


Figure 5. Typical Instantaneous Forward Characteristics

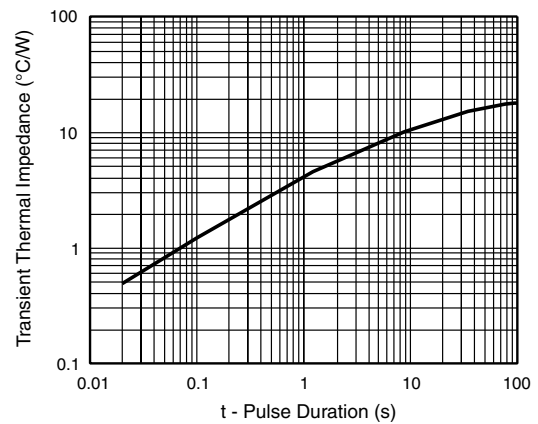
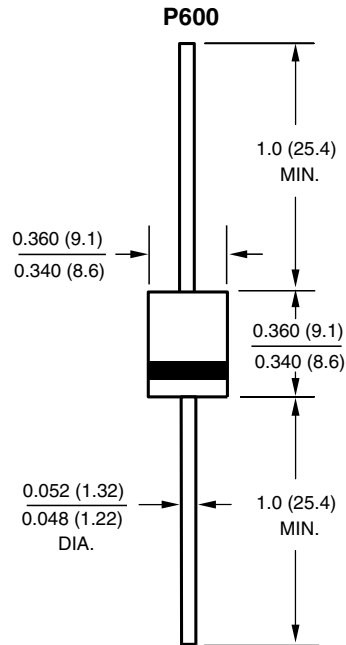


Figure 8. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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