



**THE DATASHEET OF  
SS3P6HE3/84A**



# High-Current Density Surface Mount Schottky Rectifier

eSMP™ Series



DO-220AA (SMP)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	50 V, 60 V
$I_{FSM}$	45 A
$E_{AS}$	11.25 mJ
$V_F$ at $I_F = 3.0$ A	0.61 V
$T_J$ max.	150 °C

## FEATURES

- Very low profile - typical height of 1.0 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS  
COMPLIANT

## TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters and polarity protection applications.

## MECHANICAL DATA

Case: DO-220AA (SMP)

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, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes the cathode end

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	SS3P5	SS3P6	UNIT
Device marking code		35	36	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	60	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	3.0		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	45		A
Non-repetitive avalanche energy at $I_{AS} = 1.5$ A, $L = 10$ mH, $T_J = 25$ °C	$E_{AS}$	11.25		mJ
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/us
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	$I_F = 3$ A	$T_J = 25$ °C $T_J = 125$ °C	$V_F$	0.71 0.61	0.78 0.65	V
Maximum reverse current at rated $V_R$ <sup>(2)</sup>		$T_J = 25$ °C $T_J = 125$ °C	$I_R$	- 2.0	100 10	$\mu$ A mA
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	80		pF

**Notes:**

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

(2) Pulse test: Pulse width  $\leq$  40 ms



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SS3P5	SS3P6	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$		115	$^\circ\text{C/W}$
	$R_{\theta JL}$		15	
	$R_{\theta JC}$		20	

Note:

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 15 x 15 mm copper pad areas.  $R_{\theta JL}$  is measured at the terminal of cathode band.  $R_{\theta JC}$  is measured at the top centre of the body

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS3P6-E3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SS3P6-E3/85A	0.024	85A	10 000	13" diameter plastic tape and reel
SS3P6HE3/84A <sup>(1)</sup>	0.024	84A	3000	7" diameter plastic tape and reel
SS3P6HE3/85A <sup>(1)</sup>	0.024	85A	10 000	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

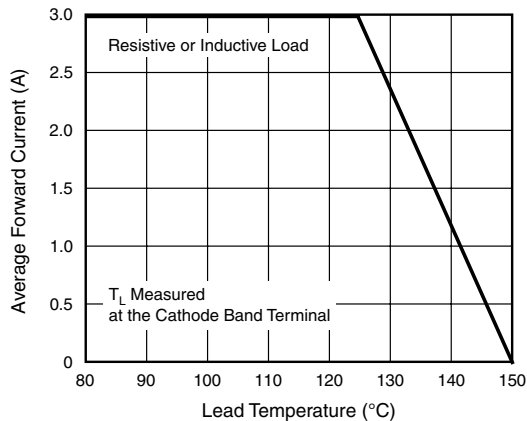


Figure 1. Forward Current Derating Curve

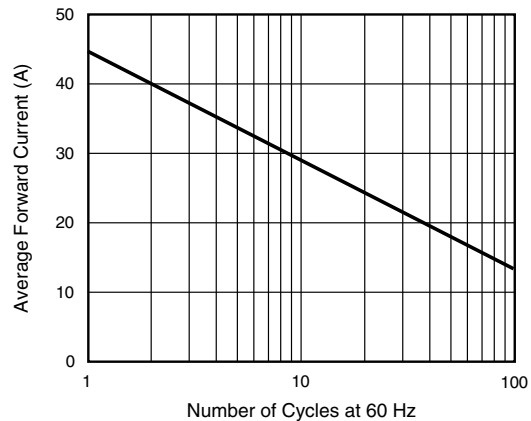


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

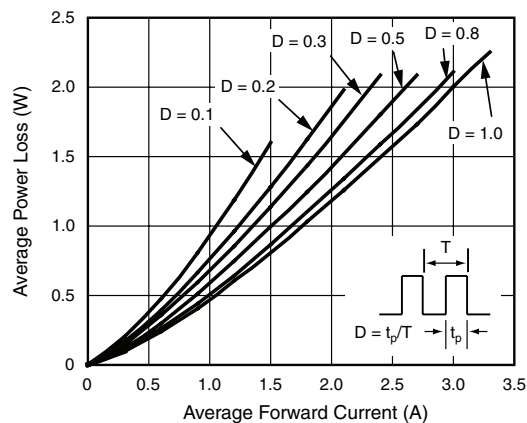


Figure 2. Forward Power Loss Characteristics

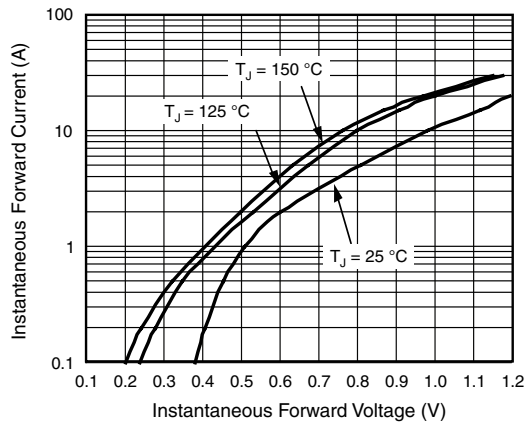


Figure 4. Typical Instantaneous Forward Characteristics

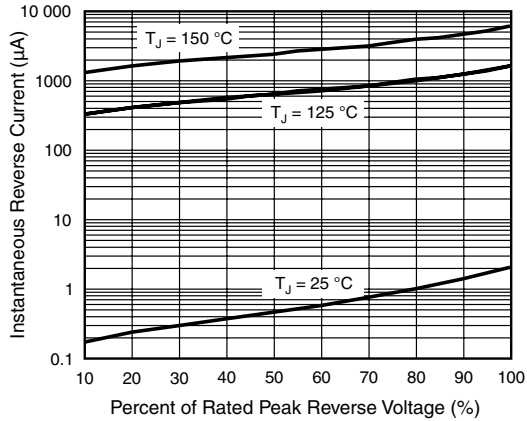


Figure 5. Typical Reverse Leakage Characteristics

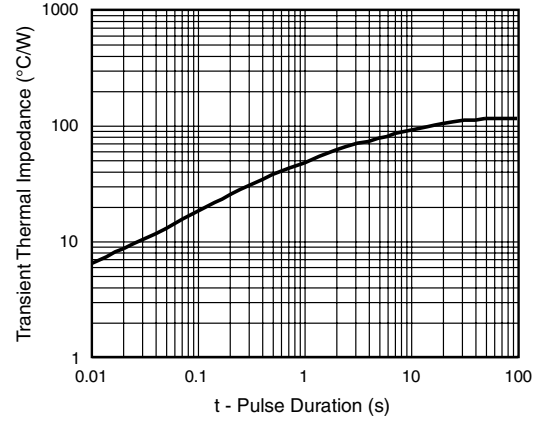


Figure 7. Typical Transient Thermal impedance

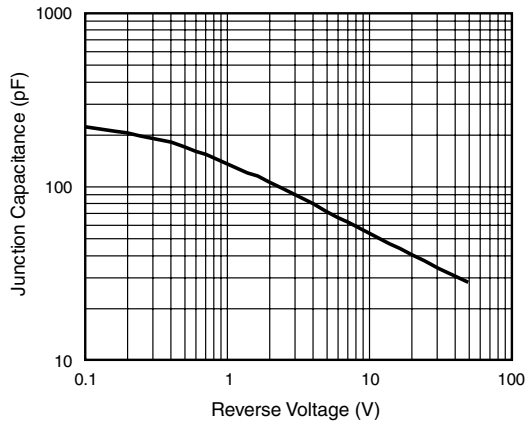
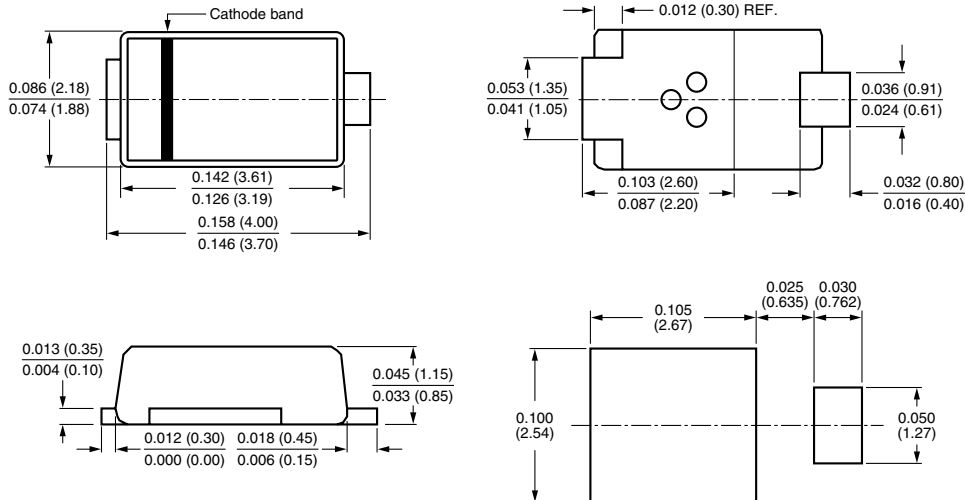


Figure 6. Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-220AA (SMP)**





## Disclaimer

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