High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series

DO-220AA (SMP)

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	3 A
V_{RRM}	30 V
I_{FSM}	50 A
E_{AS}	11.25 mJ
V_F	0.43 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-020C, LF max peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, free-wheeling, 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-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**SS3P3**	**UNIT**
Device marking code		33	
Maximum repetitive peak reverse voltage	V_{RRM}	30	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	3.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50	A
Non-repetitive avalanche energy at T_j = 25 °C, I_{AS} = 1.5 A, L = 10 mH	E_{AS}	11.25	mJ
Voltage rate of change (rated V_R)	dv/dt	10000	V/µs
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 (1)	at I_F = 3 A, T_j = 25 °C at I_F = 3 A, T_j = 125 °C	V_F	0.52 0.43	0.58 0.48	V
Maximum reverse current at rated V_R (1)	T_j = 25 °C T_j = 125 °C	I_R	- 9.0	200 20	µA mA
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	130		pF

Note:

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**SS3P3**	**UNIT**
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$ R_{eJC}	95 15 20	°C/W

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**
SS3P3-E3/84A	0.024	84A	3000	7" Diameter Plastic Tape & Reel
SS3P3-E3/85A	0.024	85A	10000	13" Diameter Plastic Tape & Reel
SS3P3HE3/84A (1)	0.024	84A	3000	7" Diameter Plastic Tape & Reel
SS3P3HE3/85A (1)	0.024	85A	10000	13" Diameter Plastic Tape & Reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

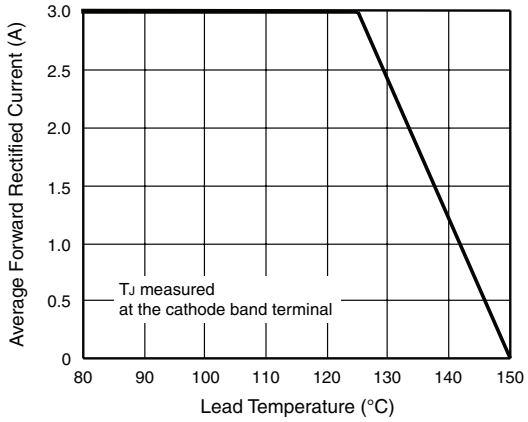


Figure 1. Forward Current Derating Curve

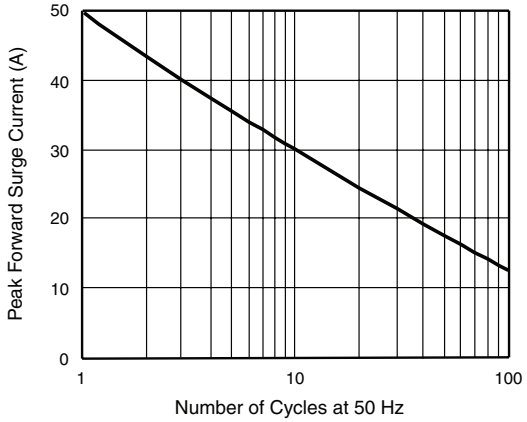


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

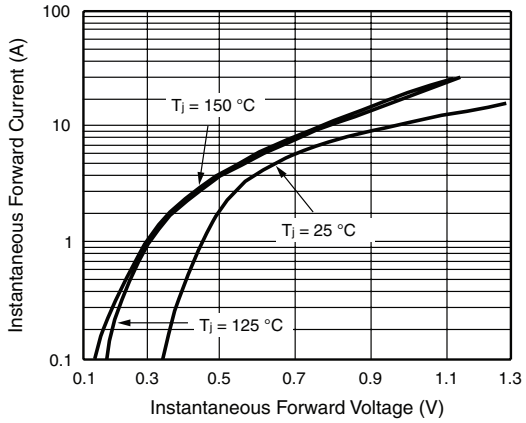


Figure 3. Typical Instantaneous Forward Characteristics

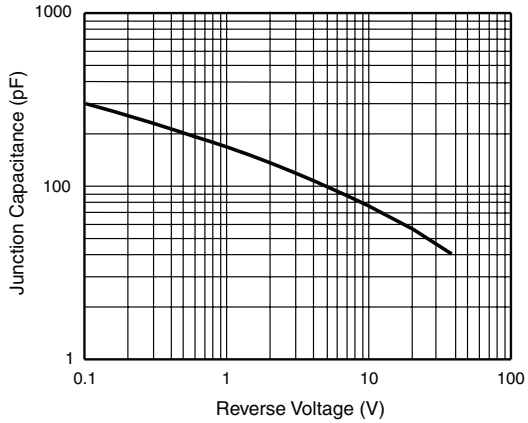


Figure 5. Typical Junction Capacitance

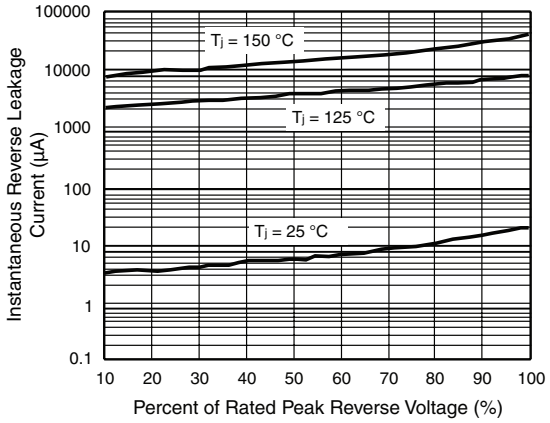


Figure 4. Typical Reverse Leakage Characteristics

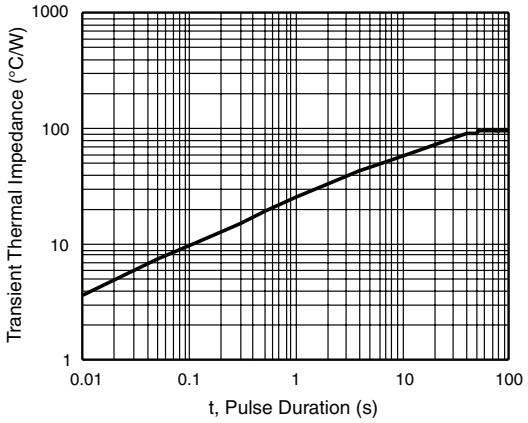
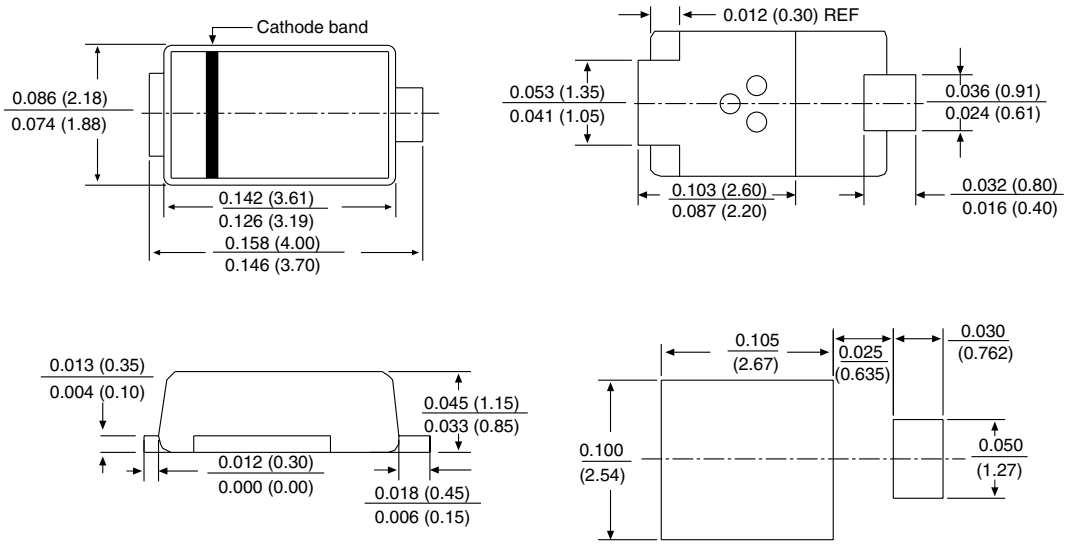


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)



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