

## High Current Density Surface Mount Schottky Barrier Rectifiers

**eSMP™ Series**

**DO-220AA (SMP)**

**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

<b>MAJOR RATINGS AND CHARACTERISTICS</b>	
$I_{F(AV)}$	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

<b>MAXIMUM RATINGS</b> ( $T_A = 25$ °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	

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP	MAX.	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	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 $V_R$ <sup>(1)</sup>	$T_j = 25$ °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

**SS3P3**

Vishay General Semiconductor

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

PARAMETER	SYMBOL	SS3P3	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	95	
	$R_{\theta JL}$	15	
	$R_{eJC}$	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.  $R_{eJC}$  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 <sup>(1)</sup>	0.024	84A	3000	7" Diameter Plastic Tape & Reel
SS3P3HE3/85A <sup>(1)</sup>	0.024	85A	10000	13" Diameter Plastic Tape & Reel

**Note:**

(1) Automotive grade AEC Q101 qualified

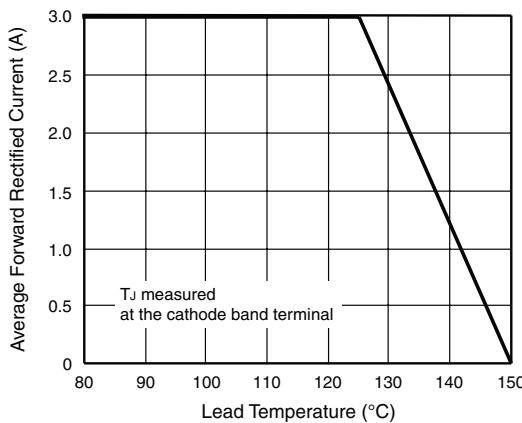
**RATINGS AND CHARACTERISTICS CURVES** $(T_A = 25^\circ\text{C}$  unless otherwise noted)

Figure 1. Forward Current Derating Curve

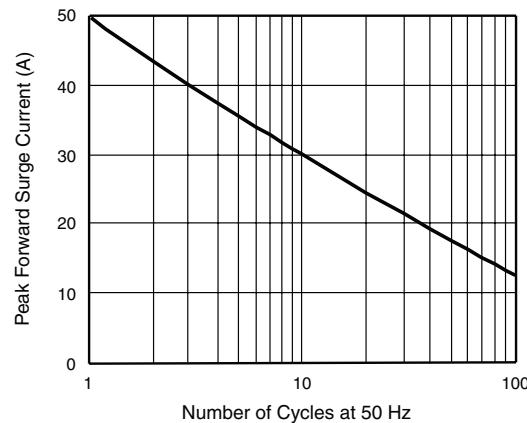


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

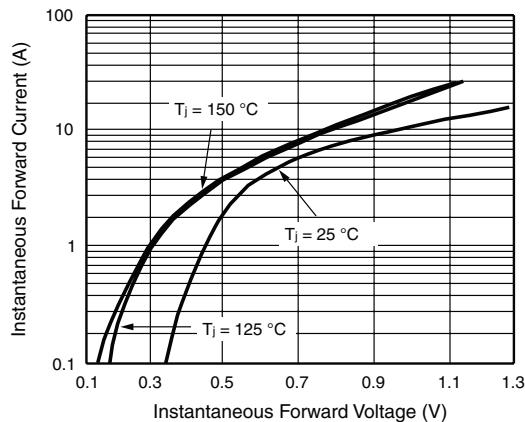


Figure 3. Typical Instantaneous Forward Characteristics

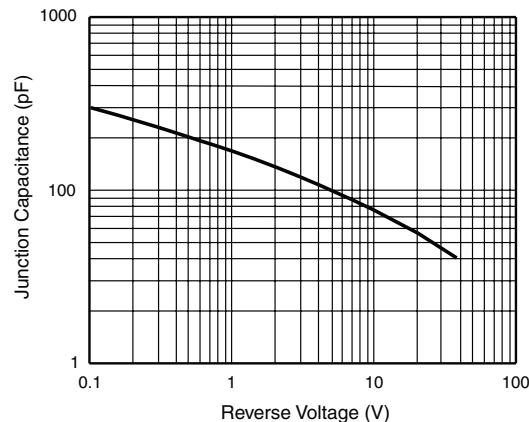


Figure 5. Typical Junction Capacitance

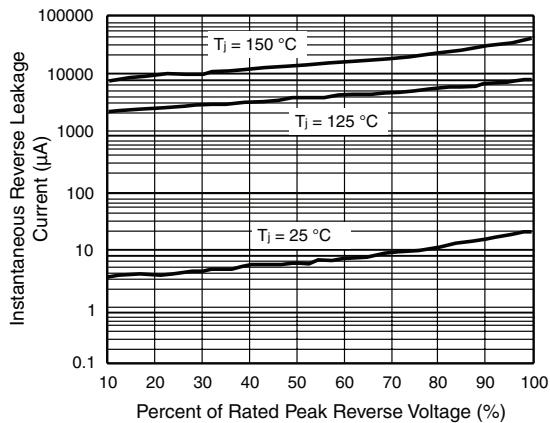


Figure 4. Typical Reverse Leakage Characteristics

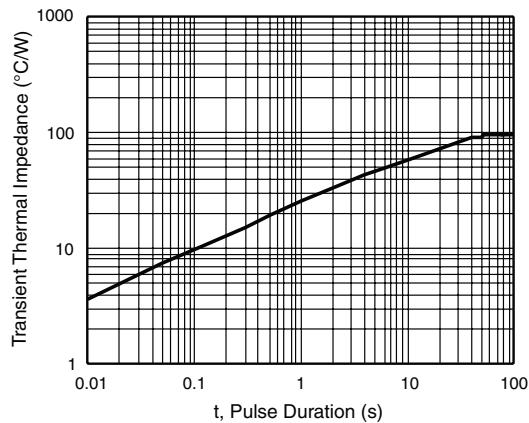
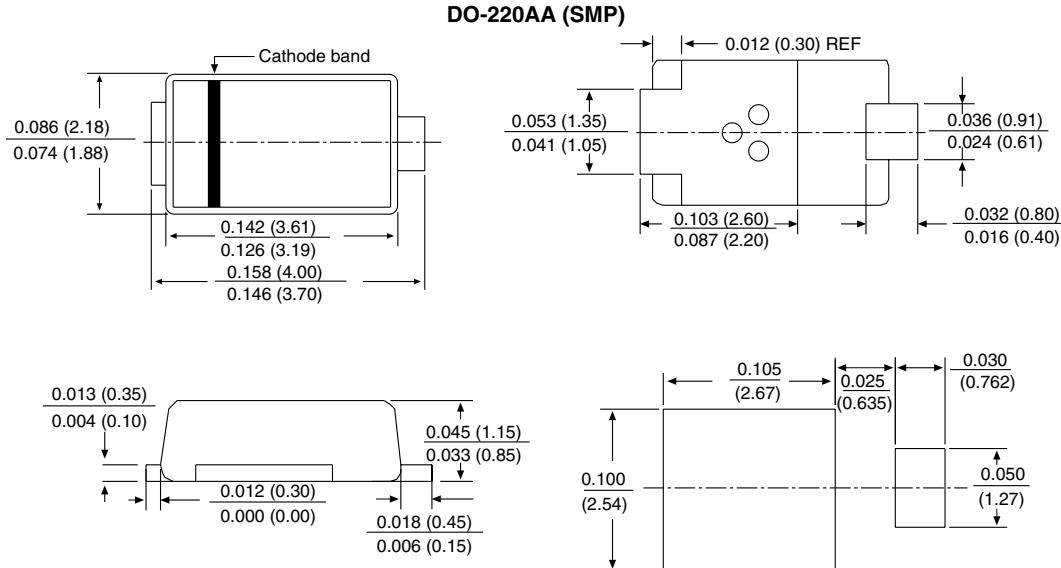


Figure 6. Typical Transient Thermal Impedance

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





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