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High-Current Density Surface Mount Schottky Rectifier

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-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

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

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	SS3P5	SS3P6	UNIT
Device marking code		35	36	
Maximum repetive 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 (1)	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 (2)		T_J = 25 °C T_J = 125 °C	I_R	- 2.0	100 10	µA mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	80		pF

Notes:

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SS3P5**	**SS3P6**	**UNIT**
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$ $R_{\theta JC}$	115 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**
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 (1)	0.024	84A	3000	7" diameter plastic tape and reel
SS3P6HE3/85A (1)	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 °C unless otherwise noted)

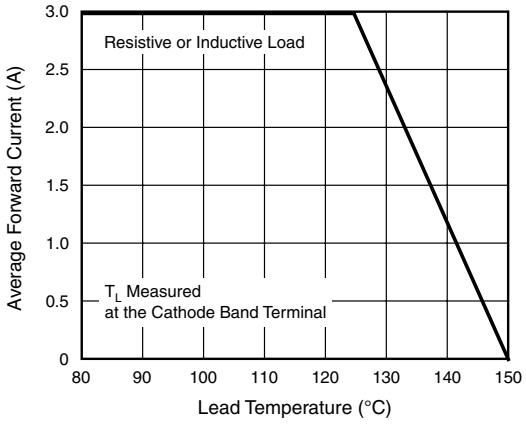


Figure 1. Forward Current Derating Curve

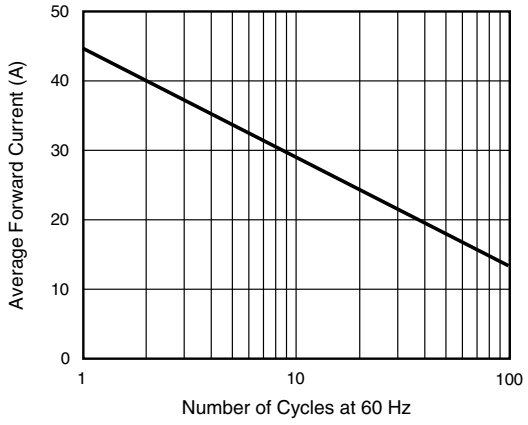


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

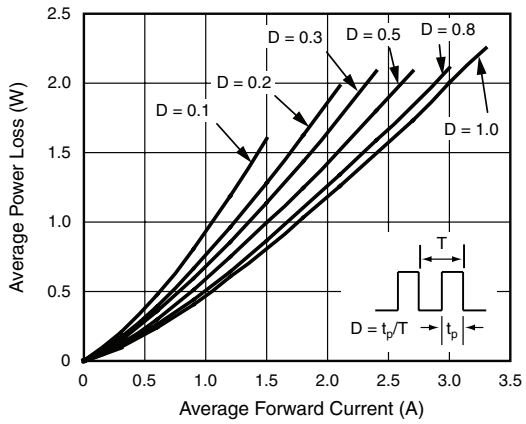


Figure 2. Forward Power Loss Characteristics

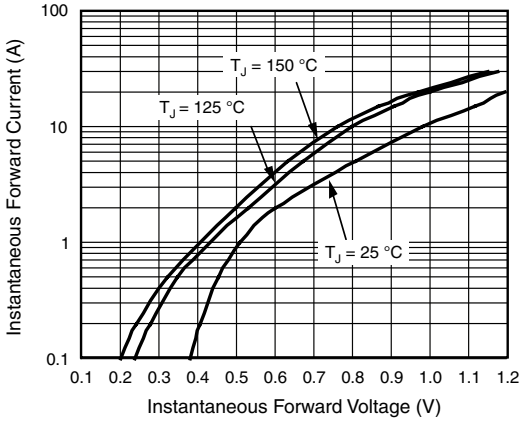


Figure 4. Typical Instantaneous Forward Characteristics

For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

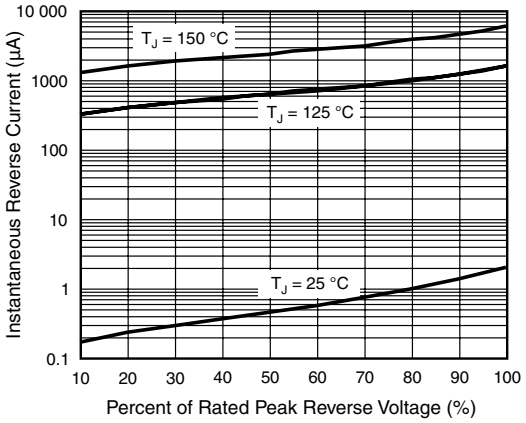


Figure 5. Typical Reverse Leakage Characteristics

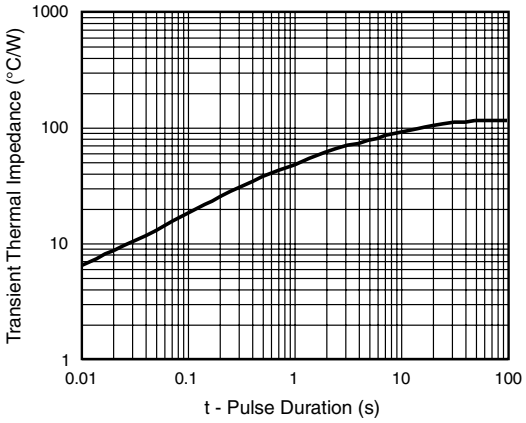


Figure 7. Typical Transient Thermal impedance

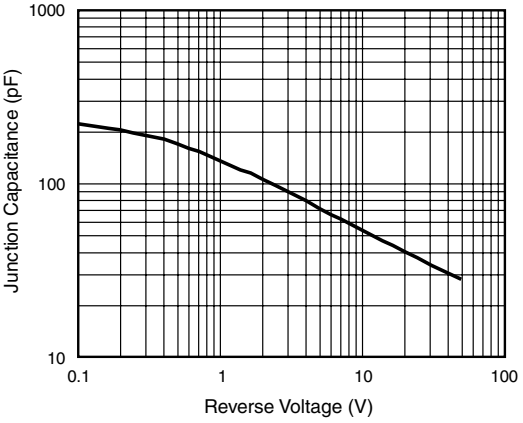
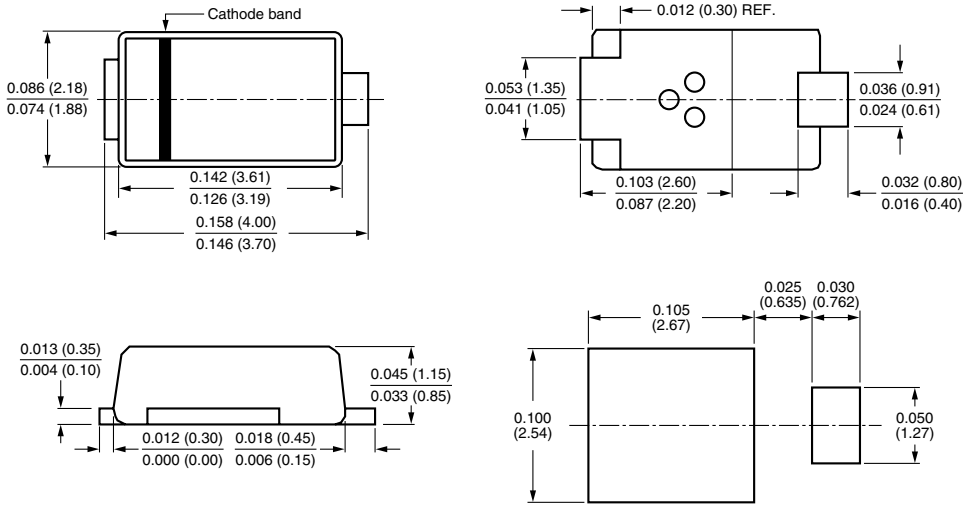


Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)



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