

High Current Density Surface Mount Schottky Barrier Rectifiers


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

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
$T_j \text{ max.}$	150 °C

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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 $T_j = 25\text{ °C}$, $I_{AS} = 1.5\text{ A}$, $L = 10\text{ mH}$	E_{AS}	11.25	mJ
Voltage rate of change (rated V_R)	dv/dt	10000	V/ μ s
Operating junction and storage temperature range	T_j, T_{STG}	- 55 to + 150	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP	MAX.	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	at $I_F = 3\text{ A}$, $T_j = 25\text{ °C}$ at $I_F = 3\text{ A}$, $T_j = 125\text{ °C}$	V_F	0.52 0.43	0.58 0.48	V
Maximum reverse current at rated V_R ⁽¹⁾	$T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$	I_R	- 9.0	200 20	μ A mA
Typical junction capacitance	at 4.0 V, 1 MHz	C_J		130	pF

Note:

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	SS3P3	UNIT
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	95	$^\circ\text{C/W}$
	$R_{\theta JL}$	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				
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

RATINGS AND CHARACTERISTICS CURVES

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

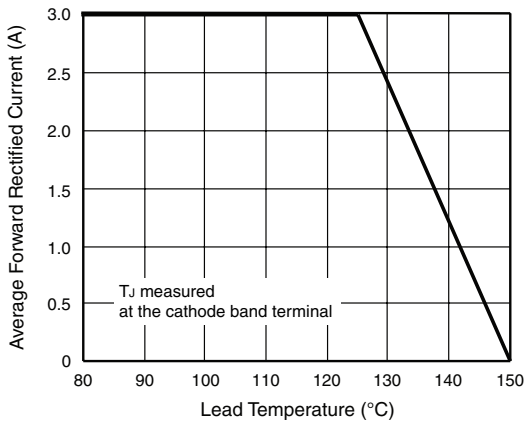


Figure 1. Forward Current Derating Curve

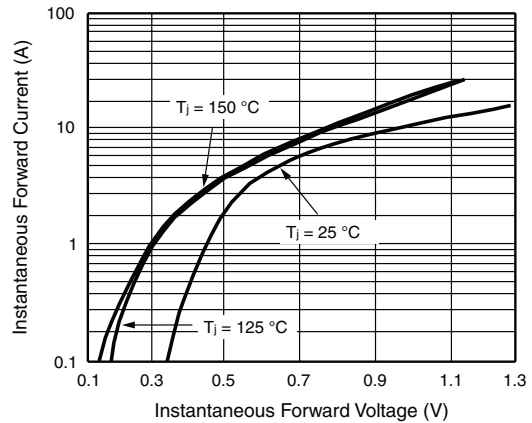


Figure 3. Typical Instantaneous Forward Characteristics

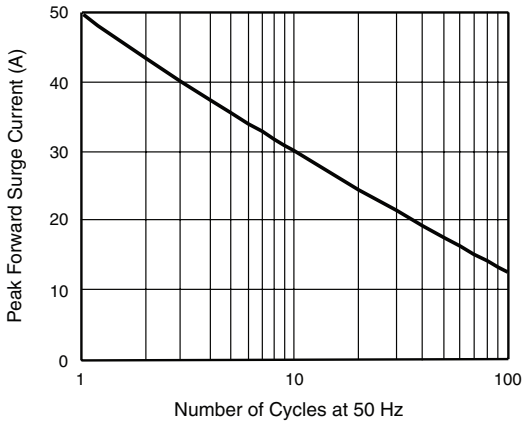


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

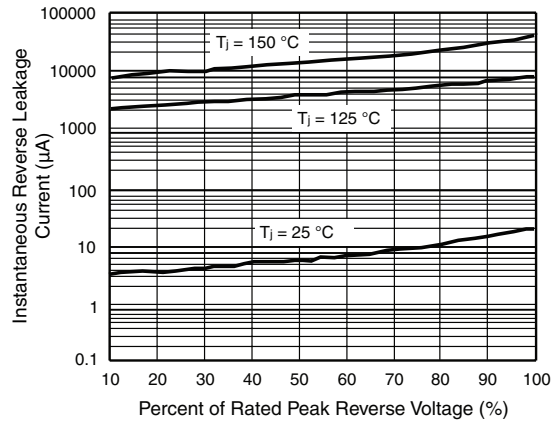


Figure 4. Typical Reverse Leakage Characteristics

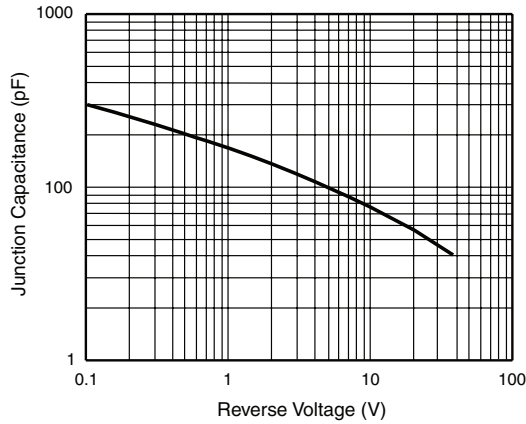


Figure 5. Typical Junction Capacitance

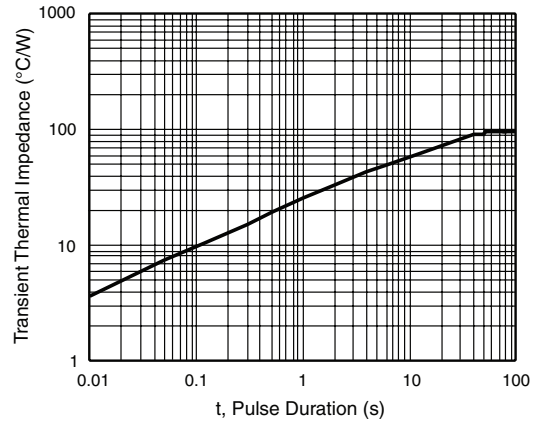
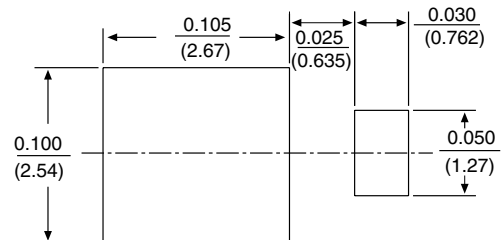
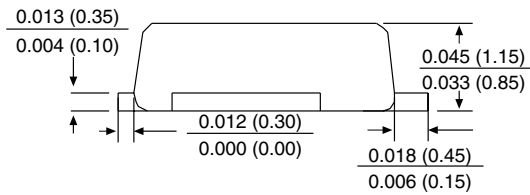
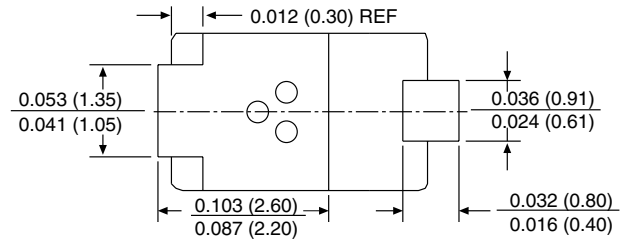
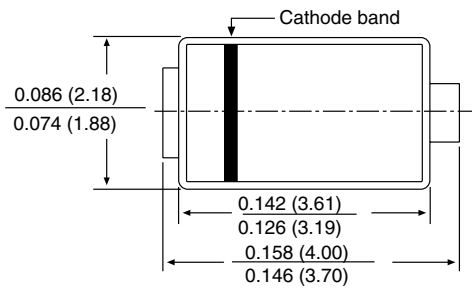


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)




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