High Current Density Surface Mount Schottky Barrier Rectifiers

Major Ratings and Characteristics

$I_{F(AV)}$	2 A
V_{RRM}	20 V, 30 V, 40 V
I_{FSM}	50 A
E_{AS}	11.25 mJ
V_F	0.50 V
T_j max.	150 °C

DO-220AA (SMP)

Features

- Very low profile - typical height of 1.0mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- Low thermal resistance
- Meets MSL level 1 per J-STD-020C
- AEC-Q101 qualified

Typical Applications

For use in low voltage high frequency inverters, free-wheelling, 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 (E3 Suffix) leads, solderable per J-STD-002B and MIL-STD-750, Method 2026

Polarity: Color band denotes the cathode end

Maximum Ratings

T_A = 25 °C, unless otherwise specified

Parameter	Symbol	SS2P2	SS2P3	SS2P4	Unit
Device marking code		22	23	24	
Maximum repetive peak reverse voltage	V_{RRM}	20	30	40	V
RMS reverse voltage	V_{RWM}	14	21	28	V
DC blocking voltage	V_R	20	30	40	V
Maximum average forward rectified current see Fig. 1	$I_{F(AV)}$	2.0			A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	50			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	10000			V/us
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150			°C

Electrical Characteristics

T_A = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Typ	Max.	Unit
Maximum instantaneous forward voltage(1)	at I_F = 2 A, T_J = 25 °C at I_F = 2 A, T_J = 125 °C	V_F	0.50 0.43	0.55 0.50	V
Maximum reverse current at rated VRM(1)	T_J = 25 °C T_J = 125 °C	I_R	- 8	150 15	µA mA
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	110		pF

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

Thermal Characteristics

T_A = 25 °C, unless otherwise specified

Parameter	Symbol	SS2P2	SS2P3	SS2P4	Unit
Typical thermal resistance(1)	$R_{\theta JA}$ $R_{\theta JL}$ $R_{\theta JC}$	115 15 20			°C/W

Notes:

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 5.0 x 5.0mm 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

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise specified)

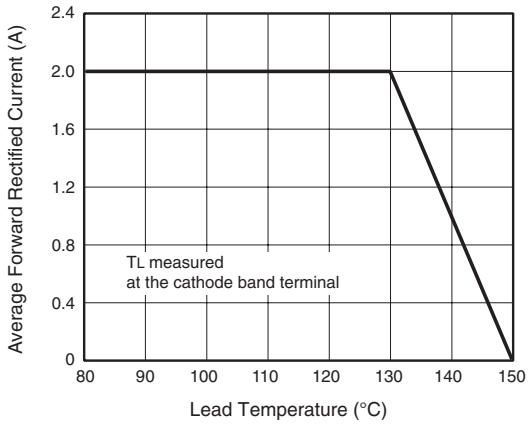

Figure 1. Forward Current Derating Curve

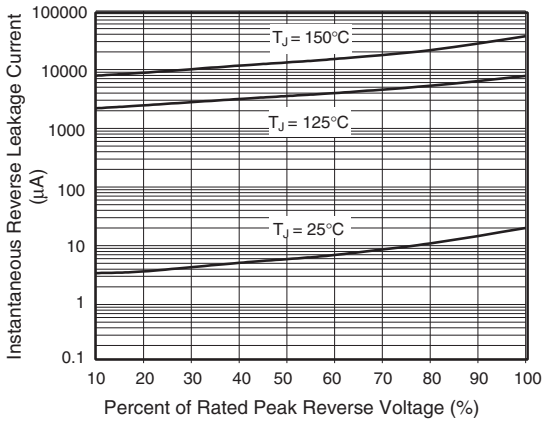

Figure 4. Typical Reverse Leakage Characteristics

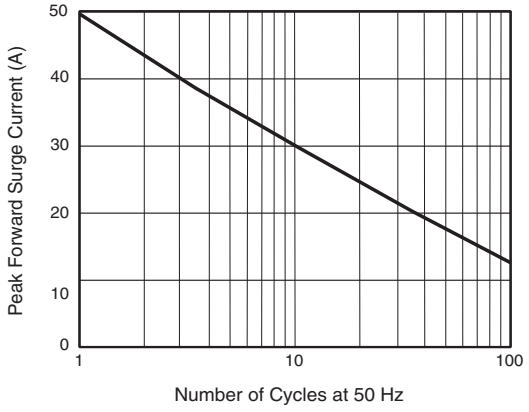

Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

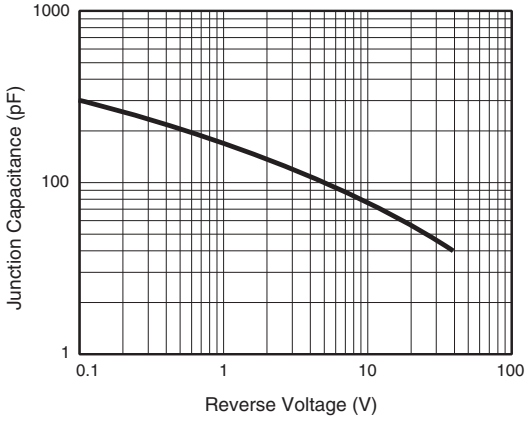

Figure 5. Typical Junction Capacitance

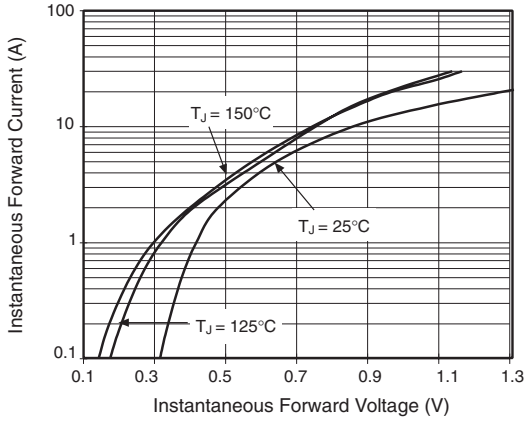

Figure 3. Typical Instantaneous Forward Characteristics

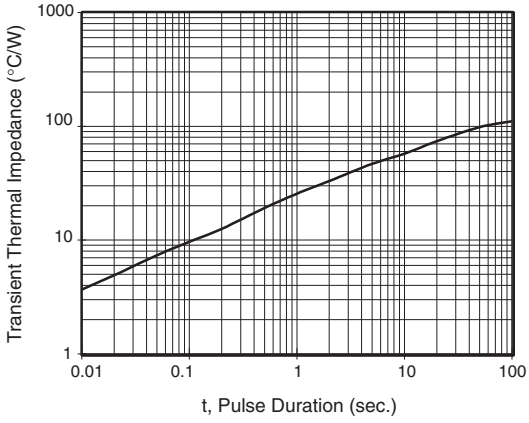

Figure 6. Typical Transient Thermal impedance

Package Dimensions in Inches (millimeters)

DO-220AA (SMP)