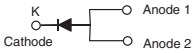
High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP® Series

TO-277A (SMPC)



FEATURES

- Very low profile - typical height of 1.1 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
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	30 V, 10 V
I_{FSM}	150 A
E_{AS}	20 mJ
V_F at I_F = 3.0 A	0.335 V
T_J max.	150 °C

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: TO-277A (SMPC)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade
Base P/NHM3 - halogen-free, RoHS compliant, and automotive grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

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

PARAMETER	SYMBOL	SS3P3L	SS3P4L	UNIT
Device marking code		S33	S34	
Maximum repetitive peak reverse voltage	V_{RRM}	30	40	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}	150		A
Non-repetitive avalanche energy at I_{AS} = 2.0 A, T_J = 25 °C	E_{AS}	20		mJ
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	I_F = 1.5 A	T_A = 25 °C	V_F (1)	0.384	-	V
	I_F = 3.0 A			0.427	0.47	
	I_F = 1.5 A	T_A = 125 °C		0.268	-	
	I_F = 3.0 A			0.335	0.38	
Maximum reverse current	Rated V_R	T_A = 25 °C	I_R (2)	61.8	250	µA
		T_A = 125 °C		26.7	40	mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	280	-	µA

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 specified)				
PARAMETER	SYMBOL	SS3P3L	SS3P4L	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	60		°C/W
	$R_{\theta JL}$	3		

Note

(1) Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS3P4L-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS3P4L-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS3P4LHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel
SS3P4LHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel

Note

(1) Automotive grade

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

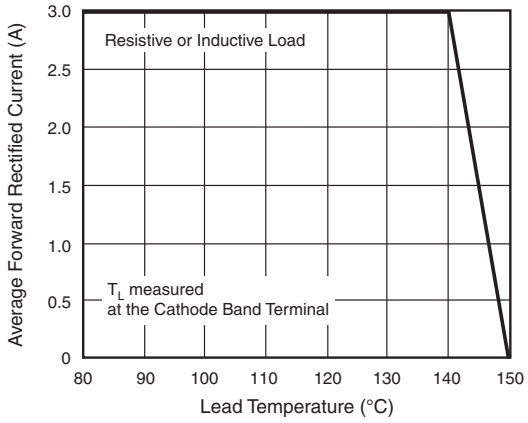


Fig. 1 - Forward Current Derating Curve

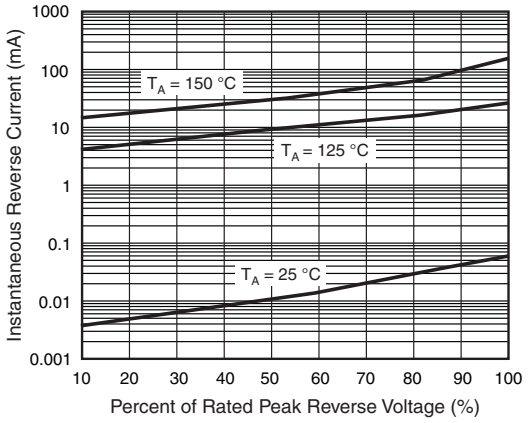


Fig. 4 - Typical Reverse Leakage Characteristics

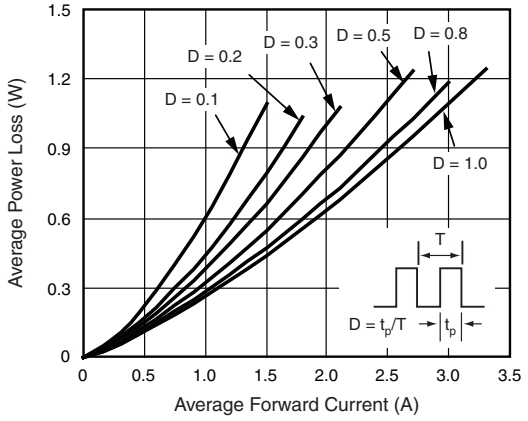


Fig. 2 - Forward Power Loss Characteristics

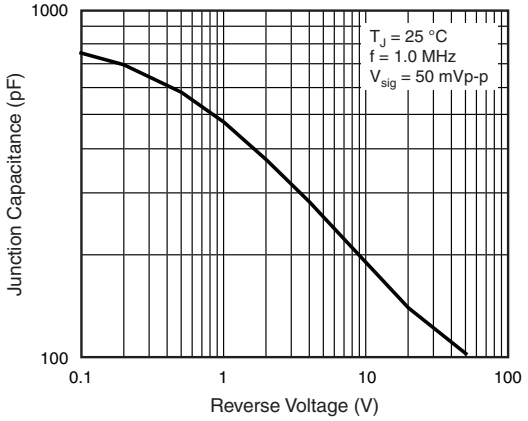


Fig. 5 - Typical Junction Capacitance

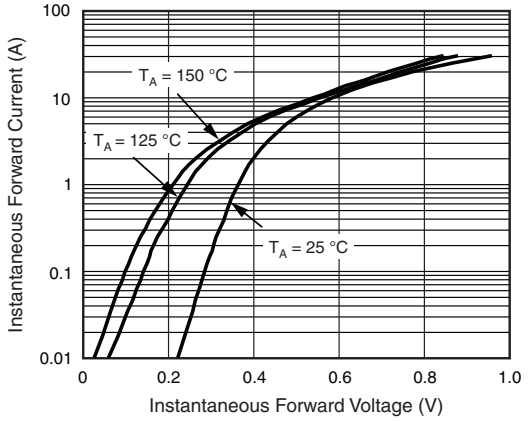


Fig. 3 - Typical Instantaneous Forward Characteristics

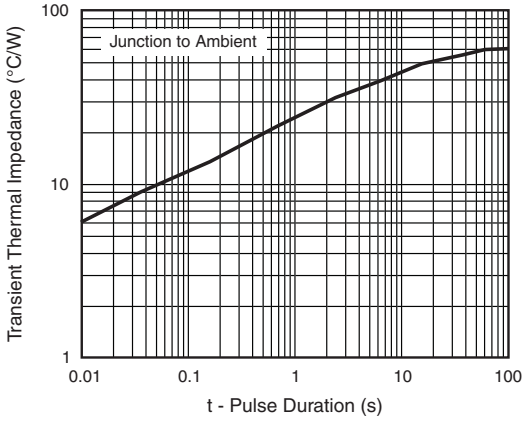
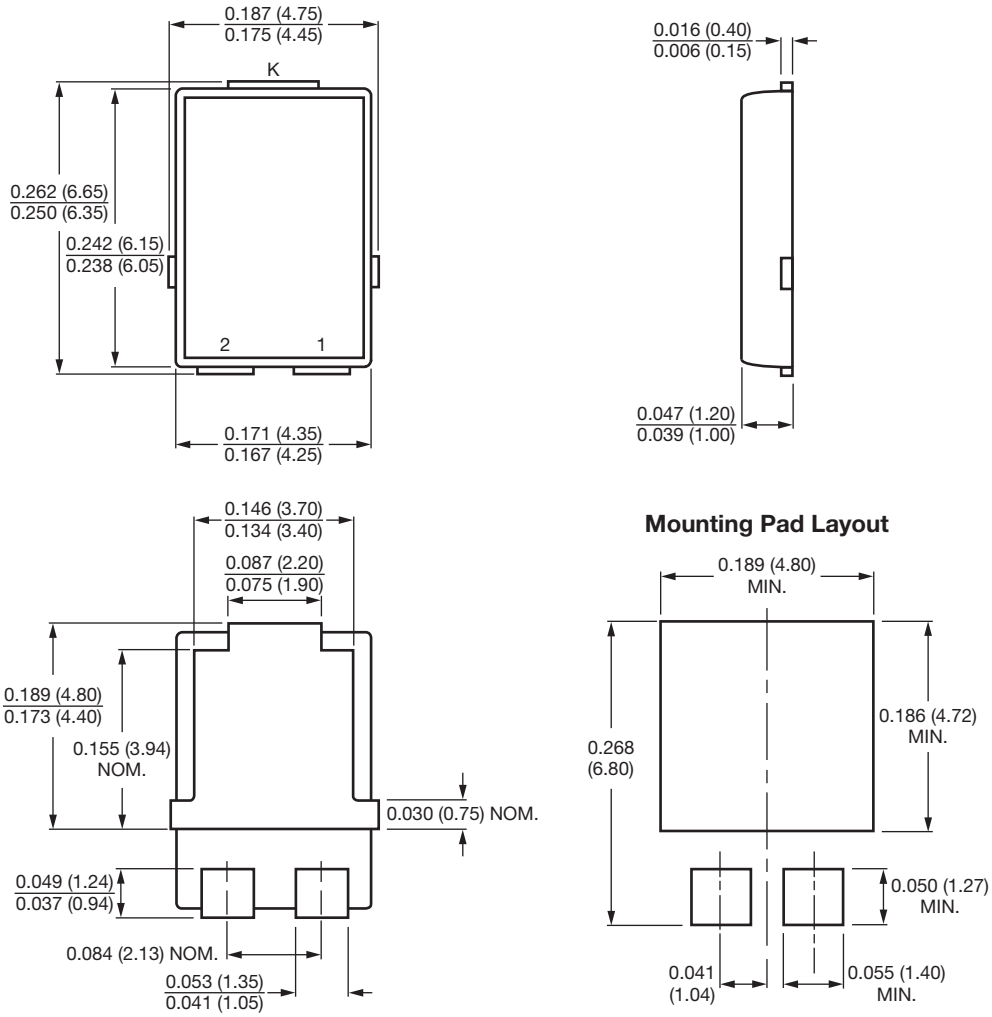


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-277A (SMPC)



Mounting Pad Layout

Conform to JEDEC TO-277A

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