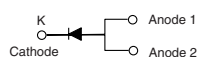


High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series



TO-277A (SMPC)



FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Guardring for overvoltage protection
- 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



MAJOR RATINGS AND CHARACTERISTICS

$I_{F(AV)}$	10 A
V_{RRM}	30 V, 40 V
I_{FSM}	280 A
E_{AS}	20 mJ
V_F at $I_F = 10$ A	0.384 V
T_j max.	150 °C

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, free-wheeling, dc-to-dc converters, and polarity protection applications.

MECHANICAL DATA

Case: TO-277A (SMPC)

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

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

PARAMETER	SYMBOL	SS10P3	SS10P4	UNIT
Device marking code		S103	S104	
Maximum repetitive peak reverse voltage	V_{RRM}	30	40	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	10		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	280		A
Non-repetitive avalanche energy at $T_j = 25$ °C, $I_{AS} = 2$ A, $L = 10$ mH	E_{AS}	20		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

SS10P3 & SS10P4

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage ⁽¹⁾	at $I_F = 5\text{ A}$ at $I_F = 10\text{ A}$ $T_j = 25\text{ }^{\circ}\text{C}$	V_F	0.406 0.469	- 0.51	V
	at $I_F = 5\text{ A}$ at $I_F = 10\text{ A}$ $T_j = 125\text{ }^{\circ}\text{C}$		0.298 0.384	- 0.45	
Reverse current ⁽¹⁾	at rated V_R $T_j = 25\text{ }^{\circ}\text{C}$ $T_j = 125\text{ }^{\circ}\text{C}$	I_R	89 53	300 80	μA mA
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	750	-	pF

Note:

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SS10P3	SS10P4	UNIT
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾	60		$^{\circ}\text{C/W}$
	$R_{\theta JL}$	3		

Note:

(1) Units mounted on recommended P.C.B. 1 oz. pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS10P4-E3/86A	0.10	86A	1500	7" Diameter Plastic Tape & Reel
SS10P4-E3/87A	0.10	87A	6500	13" Diameter Plastic Tape & Reel

RATINGS AND CHARACTERISTICS CURVES

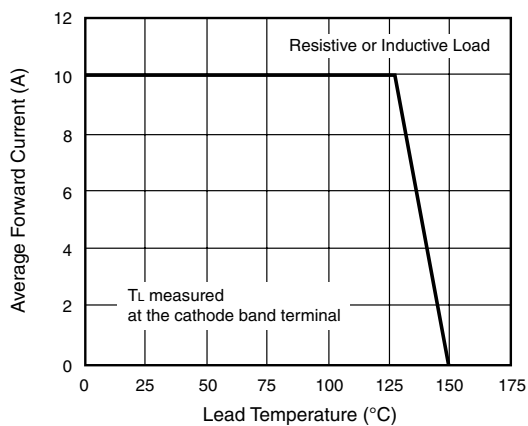
($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

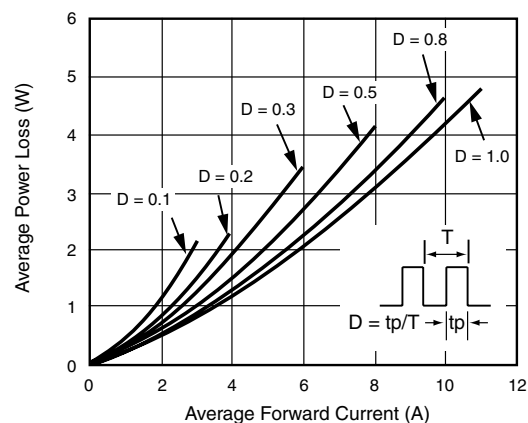


Figure 2. Forward Power Loss Characteristics

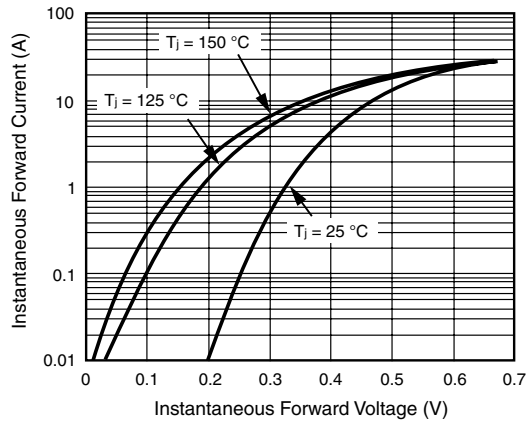


Figure 3. Typical Instantaneous Forward Characteristics

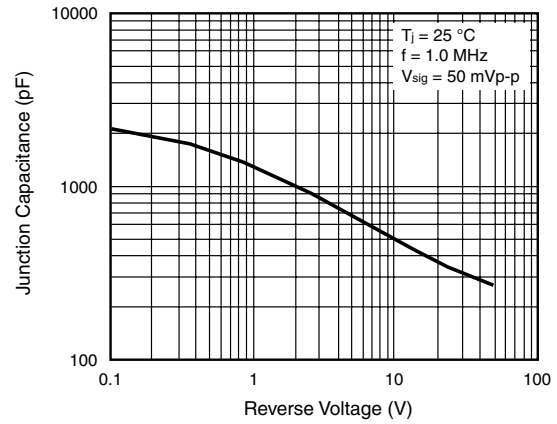


Figure 5. Typical Junction Capacitance

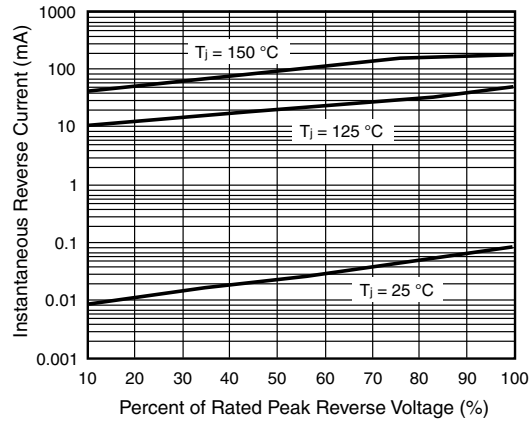


Figure 4. Typical Reverse Leakage Characteristics

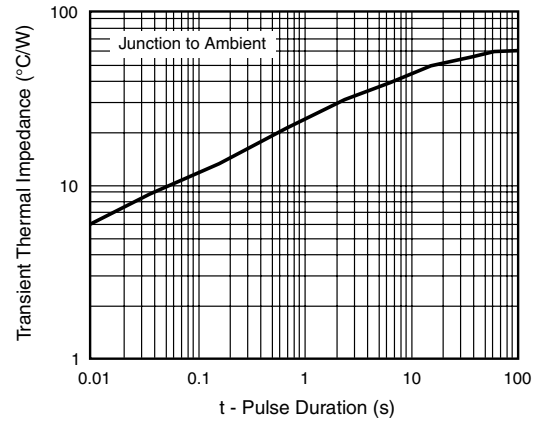
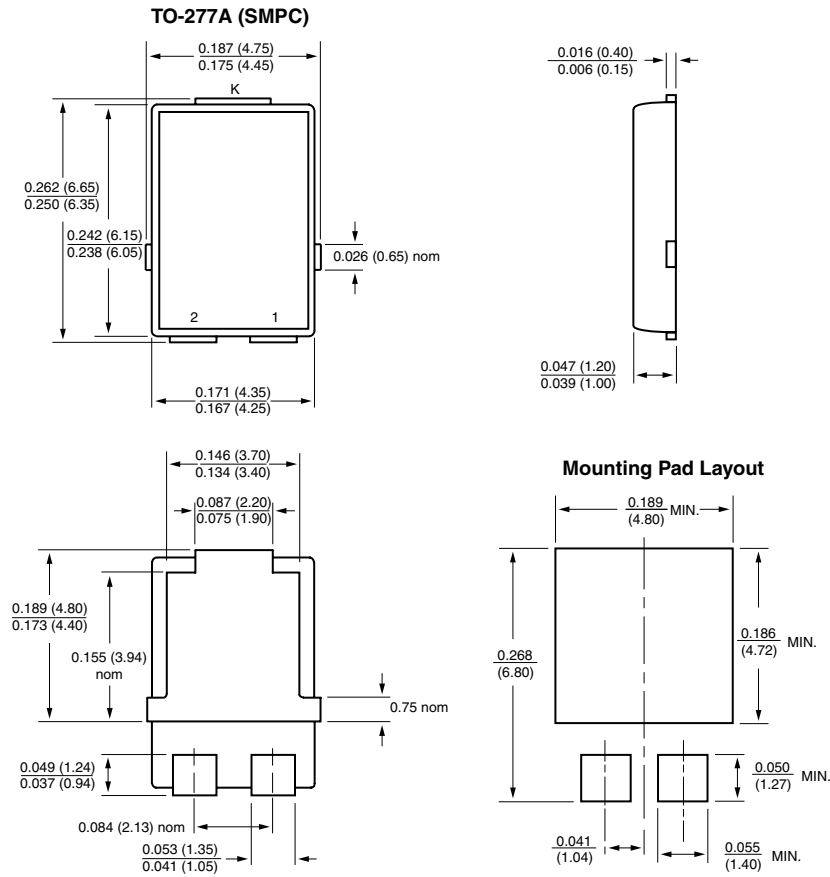


Figure 6. Typical Transient Thermal Impedance

SS10P3 & SS10P4

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

Conform to JEDEC TO-277A



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