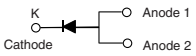
High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series

TO-277A (SMPC)



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	10 A
V_{RRM}	50 V, 60 V
I_{FSM}	280 A
E_{AS}	20 mJ
V_F at I_F = 10 A	0.55 V
T_J max.	150 °C

TYPICAL APPLICATIONS

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

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-020, LF maximum peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- **Halogen-free**

RoHS COMPLIANT

HALOGEN FREE

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94V-0 flammability rating.

Base P/N-E3 - RoHS compliant, commercial grade
Base P/NHE3 - RoHS compliant, high reliability/ automotive grade (AEC-Q101 qualified)
Base P/N-M3 - halogen-free and RoHS compliant, commercial grade
Base P/NHM3 - halogen-free and RoHS compliant, high reliability/automotive grade (AEC-Q101 qualified)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 and M3 suffix meets JESD 201 class 1A whisker test, HE3 and HM3 suffix meets JESD 201 class 2 whisker test

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

PARAMETER	SYMBOL	SS10P5	SS10P6	UNIT
Device marking code		S105	S106	
Maximum repetitive peak reverse voltage	V_{RRM}	50	60	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	10 (1) 7 (2)		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	280		A
Non-repetitive avalanche energy at I_{AS} = 2 A, T_J = 25 °C	E_{AS}	20		mJ
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150		°C

Notes:

(1) Units mounted on infinite heatsink

(2) Units mounted on 5 cm x 5 cm, 2 oz. copper pad

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage (1)	I_F = 5 A I_F = 7 A I_F = 10 A	T_A = 25 °C	V_F	0.51 0.55 0.59	- - 0.67	V
	I_F = 5 A I_F = 7 A I_F = 10 A	T_A = 125 °C		0.42 0.47 0.55	- - 0.63	
Reverse current (2)	rated V_R	T_A = 25 °C T_A = 125 °C	I_R	7.8 5.9	150 15	µA mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	560	-	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**	**SS10P5**	**SS10P6**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1) $R_{\theta JL}$	60 3		°C/W

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**
SS10P6-E3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS10P6-E3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS10P6HE3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel
SS10P6HE3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel
SS10P6-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS10P6-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS10P6HM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel
SS10P6HM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel

Note:

(1) High reliability/automotive grade (AEC-Q101 qualified)

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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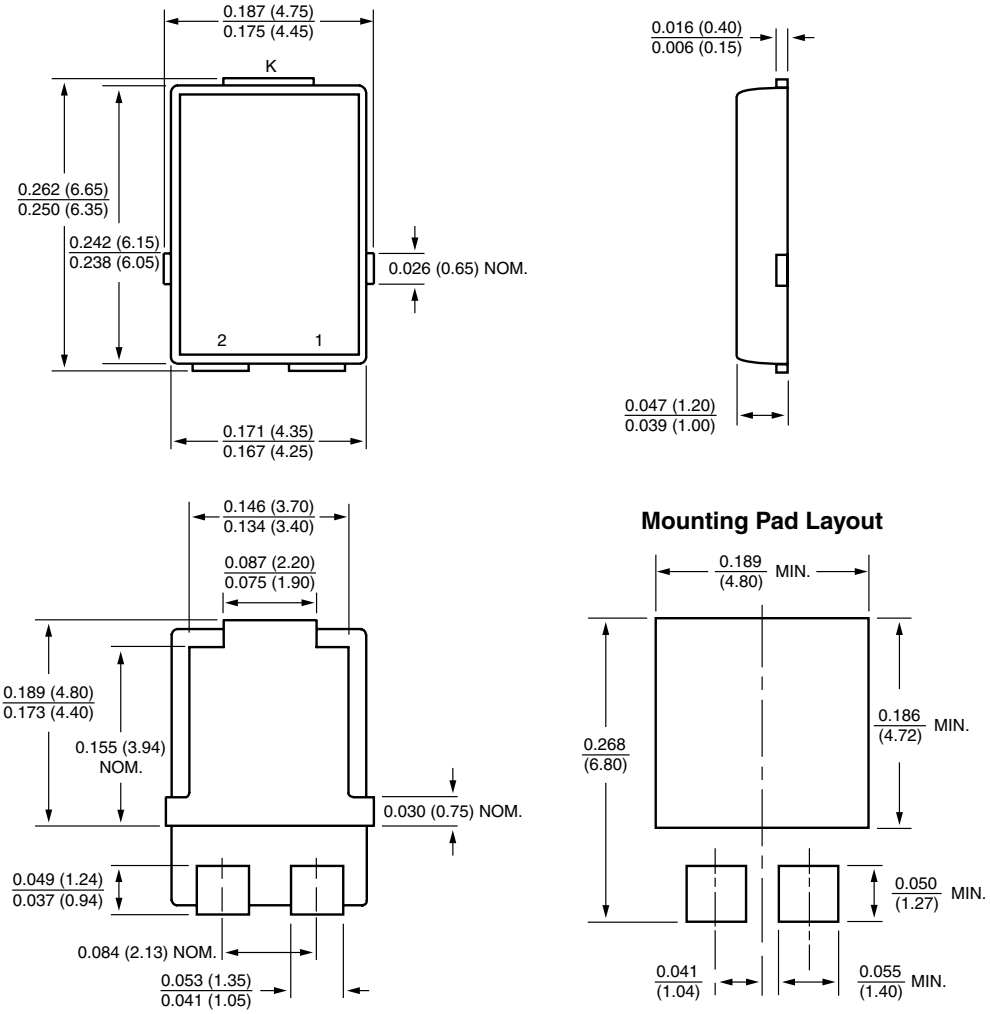

Conform to JEDEC TO-277A