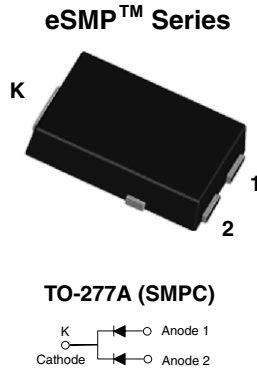


## High Current Density Surface Mount Schottky Barrier Rectifiers



### 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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- **Halogen-free**



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5.0 A
$V_{RRM}$	30 V, 40 V
$I_{FSM}$	200 A
$E_{AS}$	20 mJ
$V_F$ at $I_F = 5$ A	0.37 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.

### 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	SS10P3C	SS10P4C	UNIT
Device marking code		S103C	S104C	
Maximum repetitive peak reverse voltage	$V_{RRM}$	30	40	V
Maximum average forward rectified current (Fig. 1) total device per diode	$I_{F(AV)}$	10 5.0		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	200		A
Non-repetitive avalanche energy at 25 °C, $I_{AS} = 2$ A per diode	$E_{AS}$	20		mJ
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 2.5\text{ A}$ $I_F = 5.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F$	0.40 0.45	- 0.53	V
	$I_F = 2.5\text{ A}$ $I_F = 5.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.29 0.37	- 0.44	
Reverse current per diode <sup>(2)</sup>	rated $V_R$	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	$I_R$	56 28	550 45	$\mu\text{A}$ mA
Typical junction capacitance per diode	4.0 V, 1 MHz		$C_J$	430	-	pF

**Notes:**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SS10P3C	SS10P4C	UNIT
Typical thermal resistance per diode	$R_{\theta JA}$ <sup>(1)</sup>	60		$^\circ\text{C/W}$
	$R_{\theta JL}$	3		

**Note:**

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

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS10P4C-E3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS10P4C-E3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS10P4CHE3/86A <sup>(1)</sup>	0.10	86A	1500	7" diameter plastic tape and reel
SS10P4CHE3/87A <sup>(1)</sup>	0.10	87A	6500	13" diameter plastic tape and reel
SS10P4C-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS10P4C-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS10P4CHM3/86A <sup>(1)</sup>	0.10	86A	1500	7" diameter plastic tape and reel
SS10P4CHM3/87A <sup>(1)</sup>	0.10	87A	6500	13" diameter plastic tape and reel

**Note:**

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

**RATINGS AND CHARACTERISTICS CURVES**

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

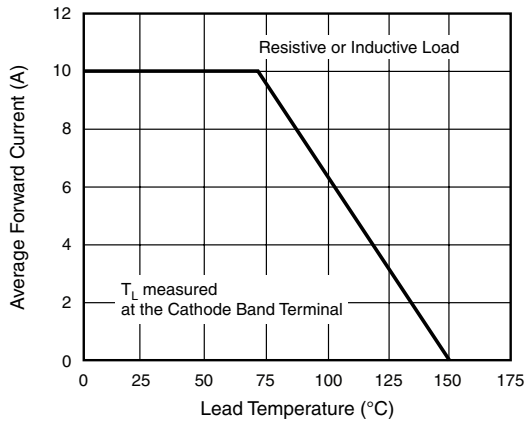


Figure 1. Maximum Forward Current Derating Curve

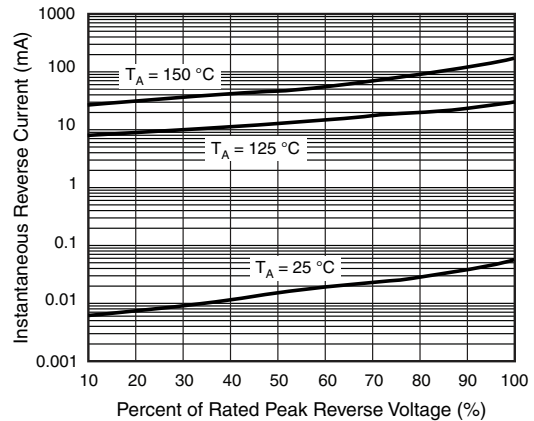


Figure 4. Typical Reverse Leakage Characteristics Per Diode

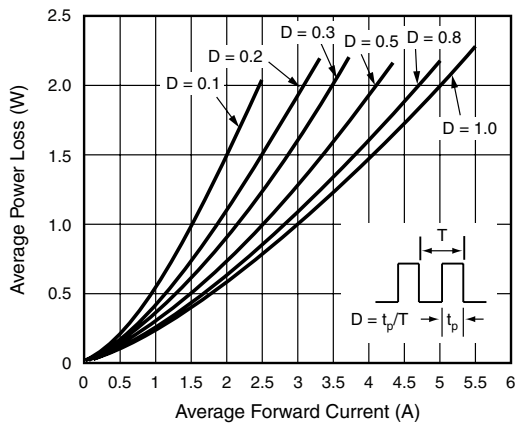


Figure 2. Forward Power Loss Characteristics Per Diode

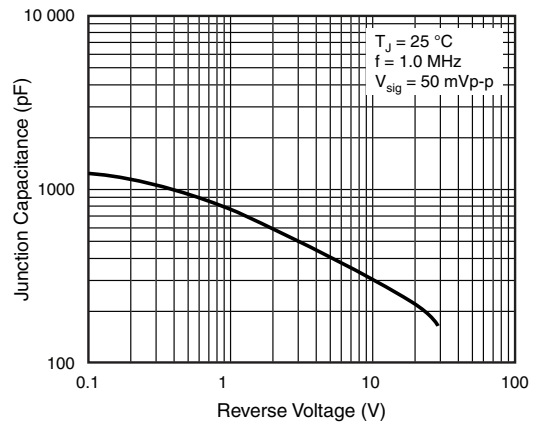


Figure 5. Typical Junction Capacitance Per Diode

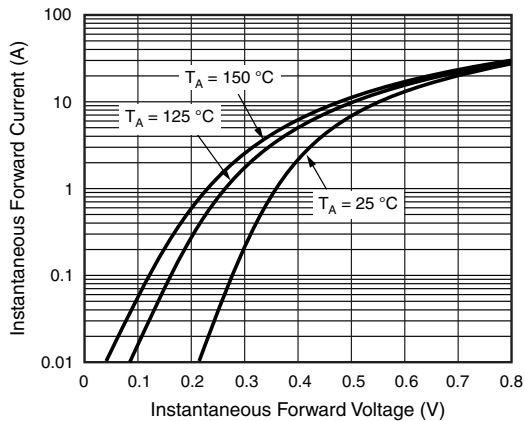


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

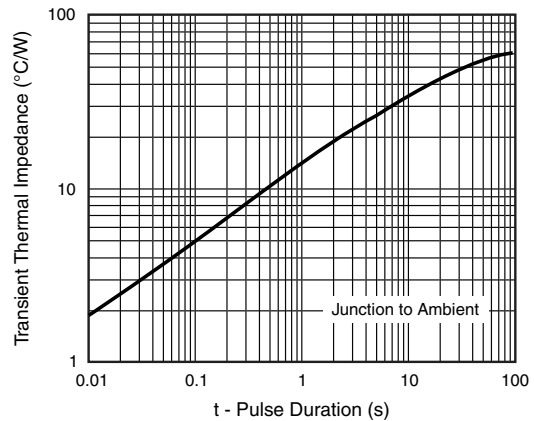
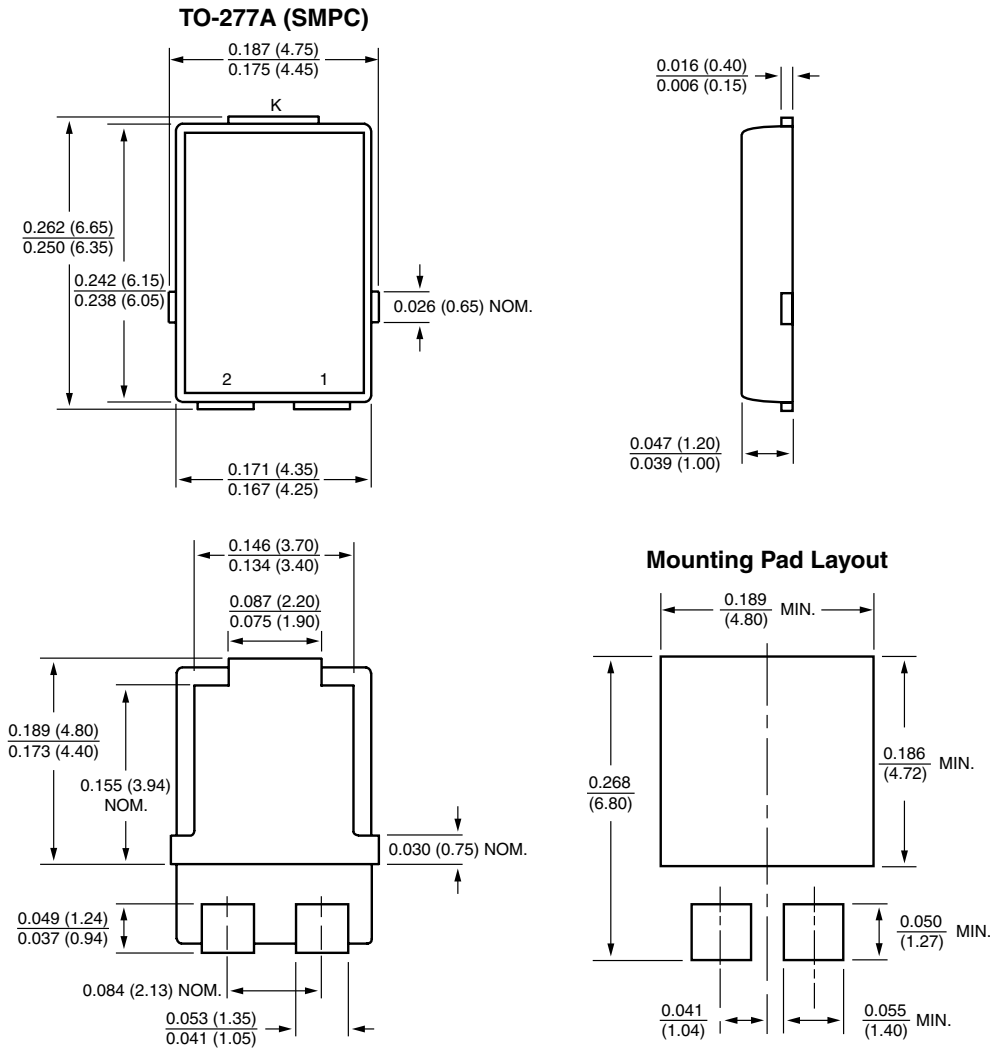


Figure 6. Typical Transient Thermal Impedance Per Diode



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





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