

## High Current Density Surface Mount Dual Common-Cathode Schottky Rectifier



### 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

$I_{F(AV)}$	2 x 4.0 A
$V_{RRM}$	30 V, 40 V
$I_{FSM}$	120 A
$E_{AS}$	20 mJ
$V_F$ at $I_F = 4$ A	0.42 V
$T_J$ max.	150 °C

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters and polarity protection application.

### MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

Base P/NHM3 - halogen-free and RoHS compliant, 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	SS8P3C	SS8P4C	UNIT
Device marking code		S83C	S84C	
Maximum repetitive peak reverse voltage	$V_{RRM}$	30	40	V
Maximum average forward rectified current (fig. 1) total device per diode	$I_{F(AV)}$	8.0 4.0		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	120		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

## SS8P3C, SS8P4C

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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 2.0 A I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.42 0.48	- 0.58	V
	I <sub>F</sub> = 2.0 A I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 125 °C		0.32 0.42	- 0.48	
Reverse current per diode <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	I <sub>R</sub>	130 26	300 35	μA mA
Typical junction capacitance per diode	4.0 V, 1 MHz		C <sub>J</sub>	230	-	pF

**Notes**<sup>(1)</sup> Pulse test: 300 μs pulse width, 1 % duty cycle<sup>(2)</sup> Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SS8P3C	SS8P4C	UNIT
Typical thermal resistance per diode	R <sub>θJA</sub> <sup>(1)</sup>	60		°C/W
	R <sub>θJL</sub>	3		

**Note**<sup>(1)</sup> 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
SS8P4C-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS8P4C-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS8P4CHM3/86A <sup>(1)</sup>	0.10	86A	1500	7" diameter plastic tape and reel
SS8P4CHM3/87A <sup>(1)</sup>	0.10	87A	6500	13" diameter plastic tape and reel

**Note**<sup>(1)</sup> Automotive grade



**RATINGS AND CHARACTERISTICS CURVES**

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

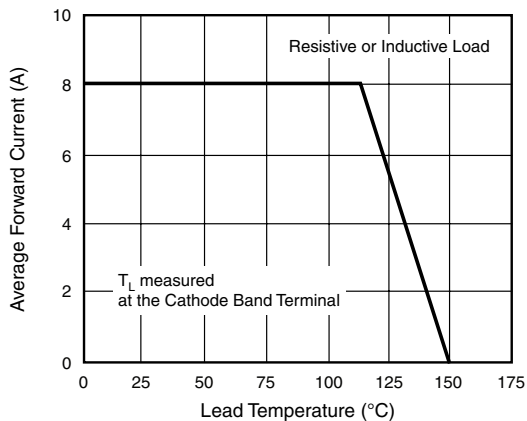


Figure 1. Maximum Forward Current Derating Curve

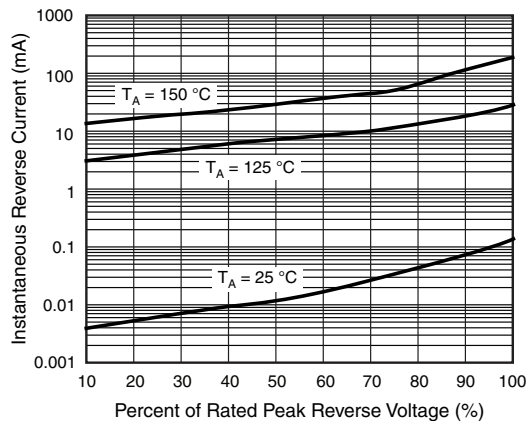


Figure 4. Typical Reverse Leakage Characteristics Per Diode

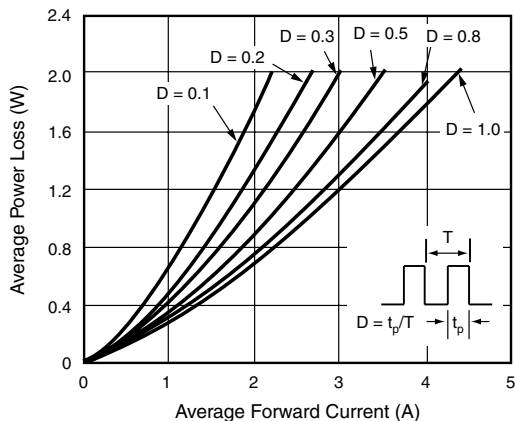


Figure 2. Forward Power Loss Characteristics Per Diode

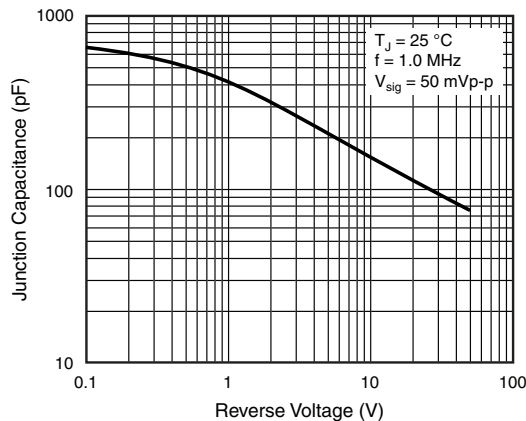


Figure 5. Typical Junction Capacitance Per Diode

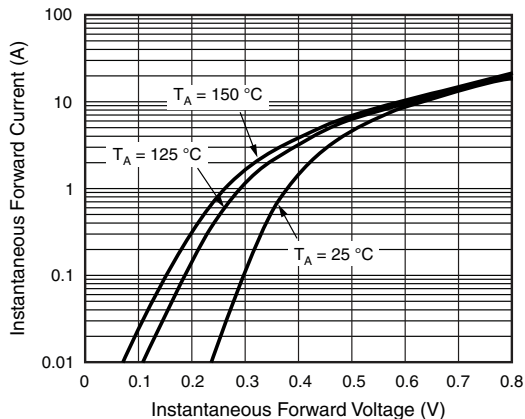


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

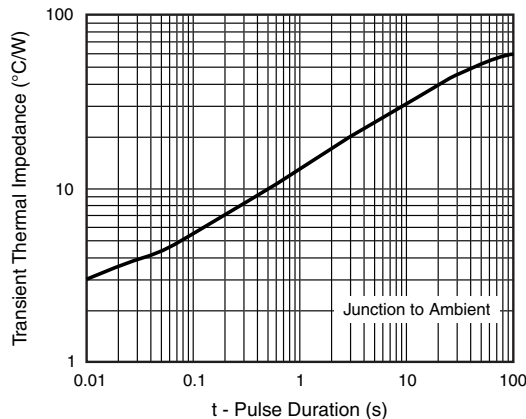


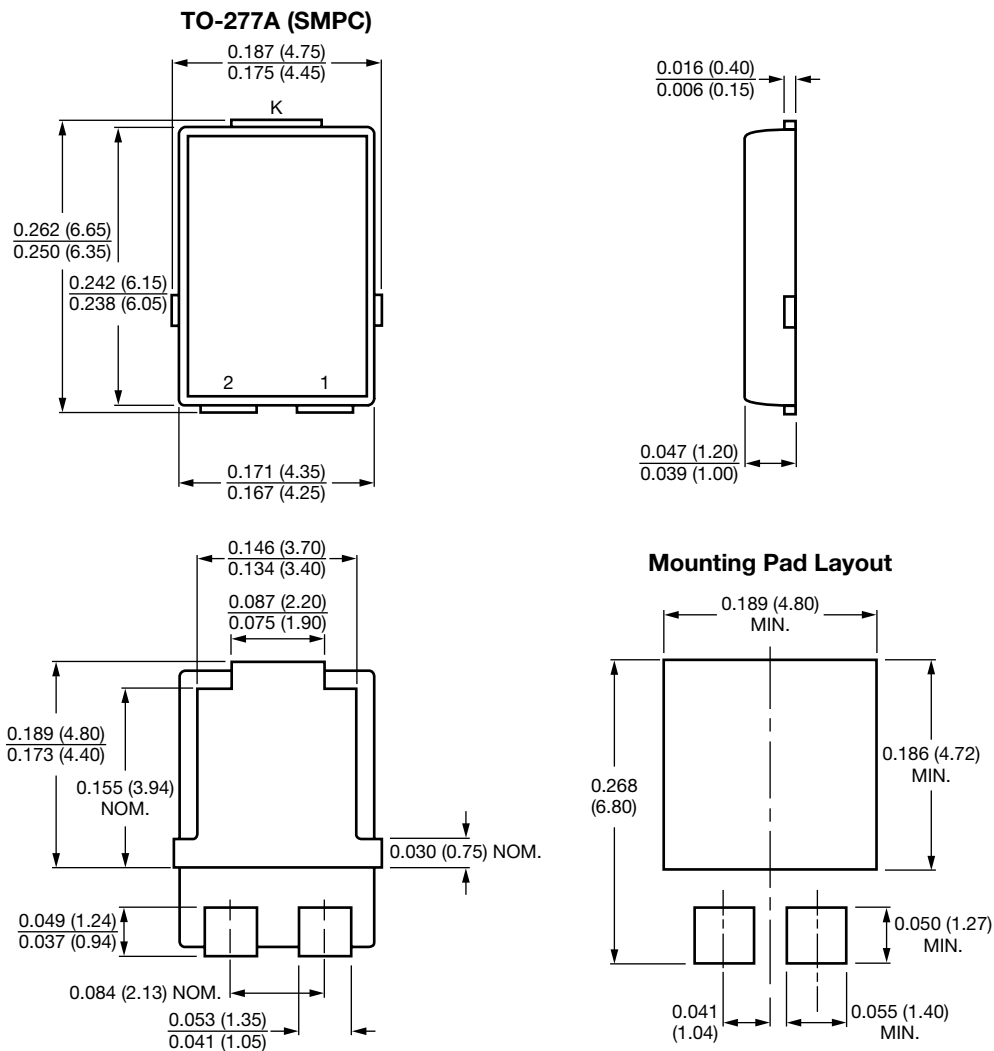
Figure 6. Typical Transient Thermal Impedance Per Diode

# SS8P3C, SS8P4C

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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC TO-277A



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