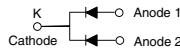


## High Current Density Surface Mount Dual Common-Cathode Schottky Rectifiers

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
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, 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-002 and JESD22-B102

E3 suffix for commercial grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5 A
$V_{RRM}$	20 V, 30 V
$I_{FSM}$	200 A
$E_{AS}$	20 mJ
$V_F$ at $I_F = 5$ A	0.338 V
$T_J$ max.	150 °C

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	SS10P2CL	SS10P3CL	UNIT
Device marking code		S102CL	S103CL	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	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



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> = 2.5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.391	-	V
	I <sub>F</sub> = 5.0 A			0.440	0.52	
	I <sub>F</sub> = 2.5 A	T <sub>A</sub> = 125 °C		0.272	-	
	I <sub>F</sub> = 5.0 A			0.338	0.42	
Reverse current per diode <sup>(1)</sup>	rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub>	95	850	μA
		T <sub>A</sub> = 125 °C		37	55	mA
Typical junction capacitance per diode	4.0 V, 1 MHz		C <sub>J</sub>	560	-	pF

Note:

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SS10P2CL	SS10P3CL	UNIT
Typical thermal resistance per diode	R <sub>θJA</sub> <sup>(1)</sup>	60		°C/W
	R <sub>θJL</sub>	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
SS10P3CL-E3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS10P3CL-E3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS10P3CLHE3/86A <sup>(1)</sup>	0.10	86A	1500	7" diameter plastic tape and reel
SS10P3CLHE3/87A <sup>(1)</sup>	0.10	87A	6500	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

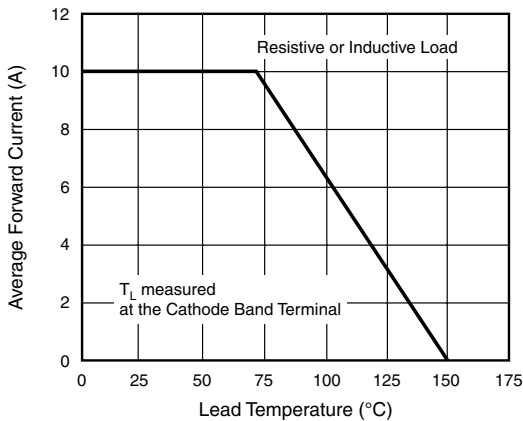


Figure 1. Maximum Forward Current Derating Curve

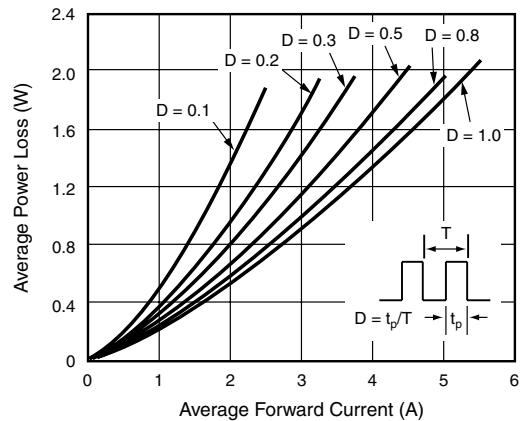


Figure 2. Forward Power Loss Characteristics Per Diode

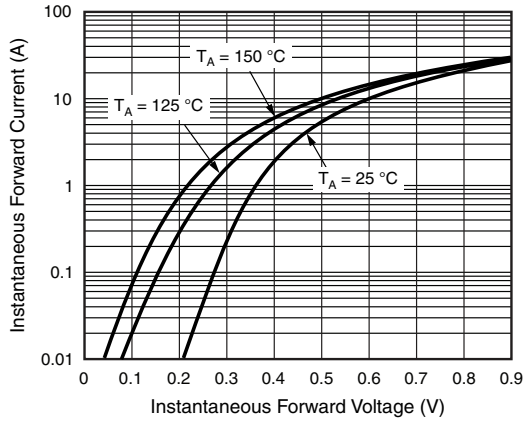


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

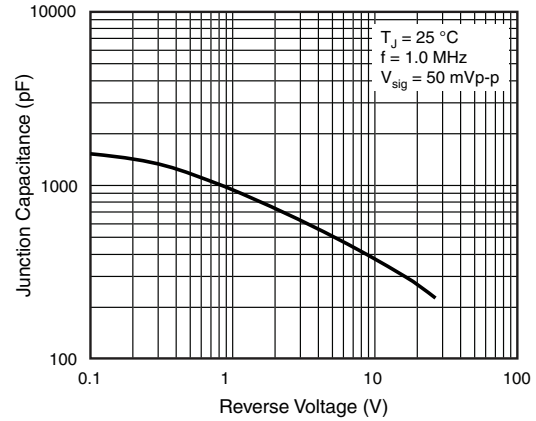


Figure 5. Typical Junction Capacitance Per Diode

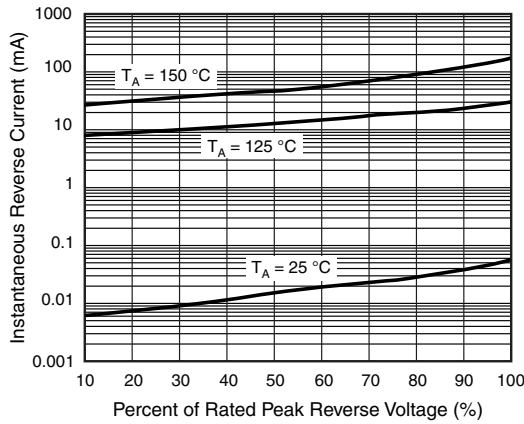


Figure 4. Typical Reverse Leakage Characteristics Per Diode

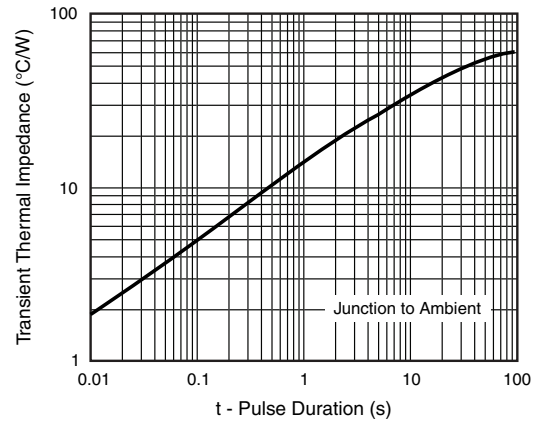


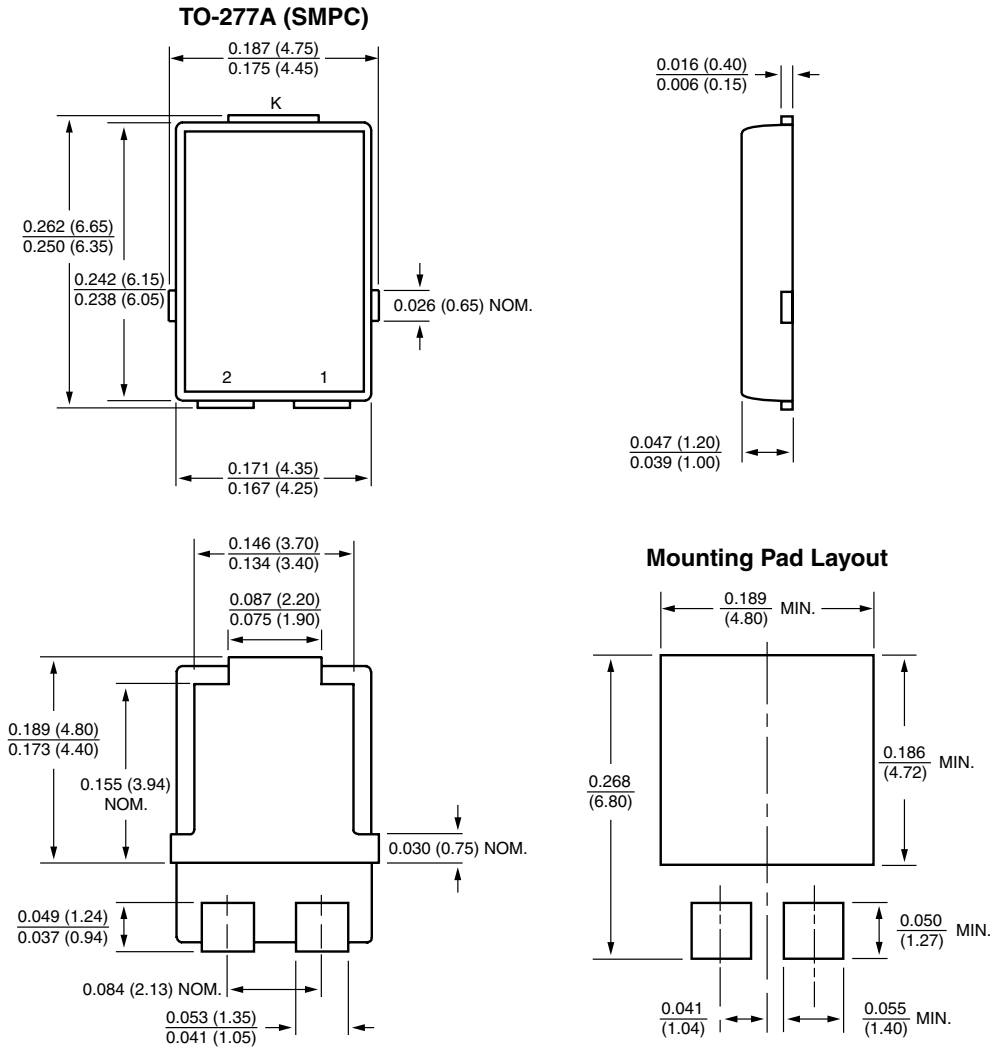
Figure 6. Typical Transient Thermal Impedance Per Diode

# SS10P2CL & SS10P3CL

Vishay General Semiconductor



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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