COMPLIANT

HALOGEN FREE



Vishay General Semiconductor

High Current Density Surface Mount Dual Common Cathode Schottky Rectifiers

eSMP® Series



PRIMARY CHARACTERISTICS					
I _{F(AV)}	2 x 5.0 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				
Package	TO-277A (SMPC)				
Diode variations	Dual Common Cathode				

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
- MSL level J-STD-020. 1, per LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishav.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/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, RoHS-compliant, and

commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and automotive grade

Terminals: Matte tin plated leads, solderable J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

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	1	1	0	Α
	per diode	I _{F(AV)}	5	.0	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I _{FSM}	200		А
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



SS10P2CL, SS10P3CL

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I _F = 2.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.391	-	V
	$I_F = 5.0 \text{ A}$			0.440	0.52	
	$I_F = 2.5 A$	T _A = 125 °C		0.272	-	
	I _F = 5.0 A			0.338	0.42	
Reverse current per diode	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	95	850	μΑ
	nateu v _R	T _A = 125 °C		37	55	mA
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	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 specified)						
PARAMETER	SYMBOL	SS10P2CL SS10P3CL		UNIT		
Typical thermal resistance per diode	$R_{\theta JA}$ ⁽¹⁾	60		°C/W		
Typical thermal resistance per diode	$R_{ hetaJL}$	3				

Note

(1) Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS10P3CL-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel		
SS10P3CL-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel		
SS10P3CLHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel		
SS10P3CLHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel		

Note

(1) Automotive grade

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RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

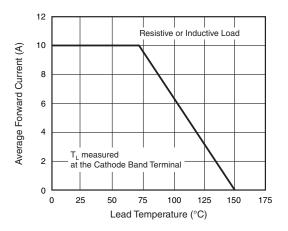


Fig. 1 - Maximum Forward Current Derating Curve

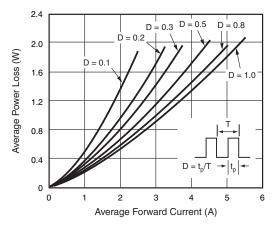


Fig. 2 - Forward Power Loss Characteristics Per Diode

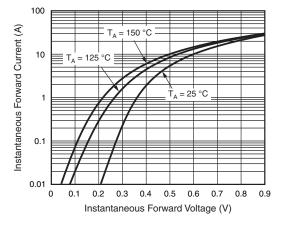


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

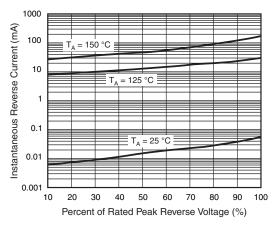


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

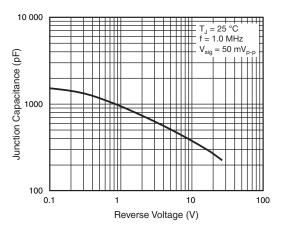


Fig. 5 - Typical Junction Capacitance Per Diode

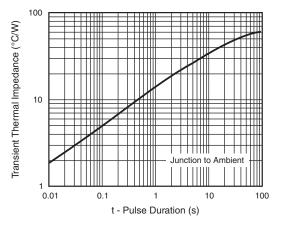
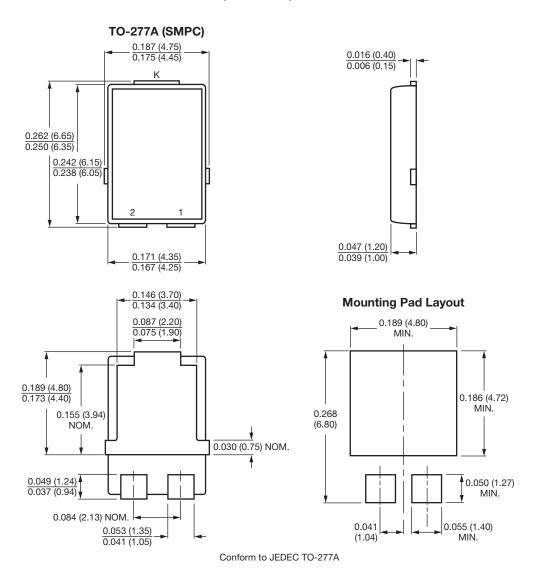


Fig. 6 - Typical Transient Thermal Impedance Per Diode



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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