AUTOMOTIVE

Available

RoHS

COMPLIANT

HALOGEN



Vishay General Semiconductor

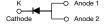
High Current Density Surface Mount Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.466 \text{ V}$ at $I_F = 4 \text{ A}$





TO-277A (SMPC)



PRIMARY CHARACTERISTICS				
I _{F(AV)}	8.0 A			
V _{RRM}	100 V			
I _{FSM}	150 A			
E _{AS}	100 mJ			
V _F at I _F = 8 A	0.582 V			
T _J max.	150 °C			

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

- Very low profile typical height of 1.1 mm
- · Ideal for automated placement
- Trench MOS Schottky technology
- Low forward volatge drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

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 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	V8P10	UNIT	
Device marking code		V810		
Maximum repetitive peak reverse voltage	V_{RRM}	100	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	8.0	А	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	150	А	
Non-repetitive avalanche energy at $I_{AS} = 2.0 \text{ A}$, $T_{J} = 25 ^{\circ}\text{C}$	E _{AS}	100	mJ	
Peak repetitive reverse current at t_p = 2 μ s, 1 kHz, T_J = 38 °C \pm 2 °C	I _{RRM}	1.0	А	
Operating junction and storage temperature range	T _J , T _{STG}	- 40 to + 150	°C	

V8P10

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	I _R = 1 mA	T _A = 25 °C	V_{BR}	100 (minimum)	-	V	
Instantaneous forward voltage	I _F = 4 A	- T _A = 25 °C		0.522	-	V	
	I _F = 8 A		V _E (1)	0.643	0.68		
	I _F = 4 A	T _A = 125 °C	'	V F (**/	0.466	-	V
	I _F = 8 A		'	0.582	0.62		
Reverse current	$V_R = 70 \text{ V}$ $T_A = 25 \text{ °C}$ $T_A = 125 \text{ °C}$	T _A = 25 °C		4.7	-	μΑ	
		T _A = 125 °C	I _R ⁽²⁾	3.0	-	mA	
	V _R = 100 V	T _A = 25 °C		14.5	70	μΑ	
		T _A = 125 °C		7.0	15	mA	

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	V8P10	UNIT	
Tuning they mal registered	R _{eJA} ⁽¹⁾	60	°C/W	
Typical thermal resistance	$R_{ heta JL}$	3	C/VV	

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	
V8P10-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel	
V8P10-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel	
V8P10HM3/86A ⁽¹⁾	0.10	86A	1500	7" diameter plastic tape and reel	
V8P10HM3/87A (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)

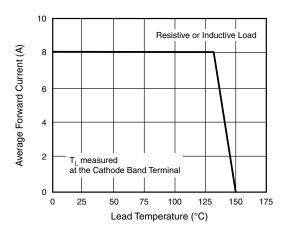


Fig. 1 - Maximum Forward Current Derating Curve

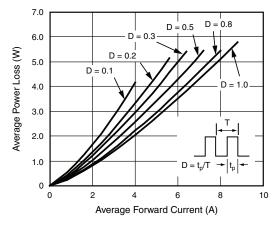


Fig. 2 - Forward Power Loss Characteristics

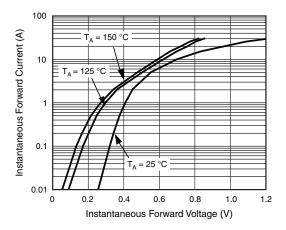


Fig. 3 - Typical Instantaneous Forward Characteristics

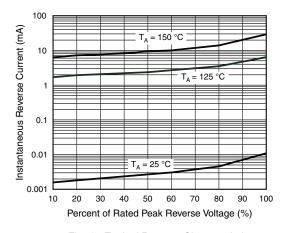


Fig. 4 - Typical Reverse Characteristics

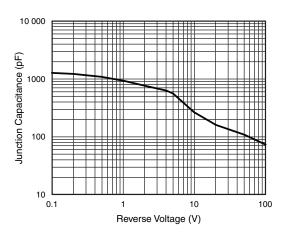


Fig. 5 - Typical Junction Capacitance

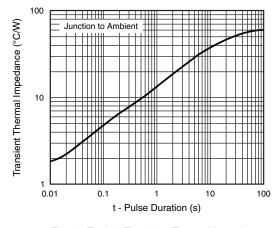
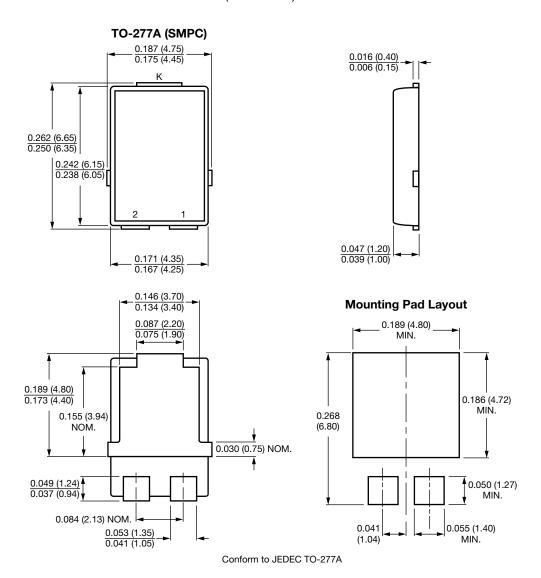


Fig. 6 - Typical Transient Thermal Impedance

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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