

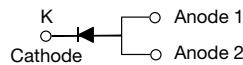
High Current Density Surface Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.58$ V at $I_F = 4$ A

eSMP® Series



SMPC (TO-277A)



FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code; base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE
Available



RoHS
COMPLIANT
HALOGEN
FREE

ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS

$I_{F(AV)}$	8 A
V_{RRM}	150 V
I_{FSM}	140 A
V_F at $I_F = 8$ A (125 °C)	0.66 V
T_J max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMPC (TO-277A)

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 AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 and HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	V8P15	UNIT
Device marking code		V815	
Maximum repetitive peak reverse voltage	V_{RRM}	150	V
Maximum DC forward current	$I_{F(AV)}^{(1)}$	8	A
	$I_{F(AV)}^{(2)}$	2.8	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	140	A
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C

Notes

(1) Mounted on 30 mm x 30 mm pad areas aluminum PCB

(2) Free air, mounted on recommended pad area

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

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 4 \text{ A}$	$T_A = 25^\circ\text{C}$	V_F ⁽¹⁾	0.75	-	V	
	$I_F = 8 \text{ A}$			1.00	1.08		
	$I_F = 4 \text{ A}$	$T_A = 125^\circ\text{C}$		0.58	-		
	$I_F = 8 \text{ A}$			0.66	0.72		
Reverse current	$V_R = 100 \text{ V}$	$T_A = 25^\circ\text{C}$	I_R ⁽²⁾	0.01	-	mA	
		$T_A = 125^\circ\text{C}$		1.5	-		
	$V_R = 150 \text{ V}$	$T_A = 25^\circ\text{C}$		-	0.15		
		$T_A = 125^\circ\text{C}$		3	10		

Notes

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

(2) Pulse test: Pulse width $\leq 40 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	V8P15	UNIT
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾	75	°C/W
	$R_{\theta JM}$ ⁽²⁾	4	

Notes

(1) Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

(2) Mounted on 30 mm x 30 mm pad areas aluminum PCB, thermal resistance $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V8P15-M3/H	0.10	H	1500	7" diameter plastic tape and reel
V8P15-M3/I	0.10	I	6500	13" diameter plastic tape and reel
V8P15HM3/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel
V8P15HM3/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

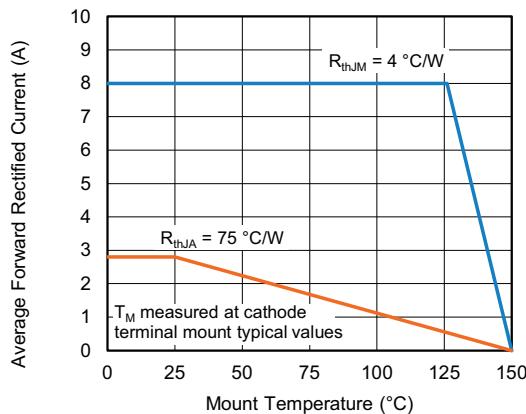
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise specified)


Fig. 1 - Maximum Forward Current Derating Curve

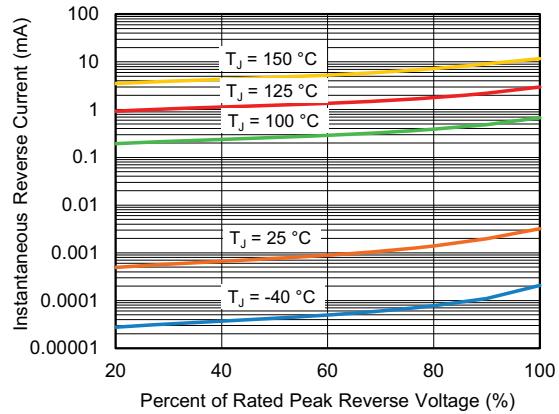


Fig. 4 - Typical Reverse Characteristics

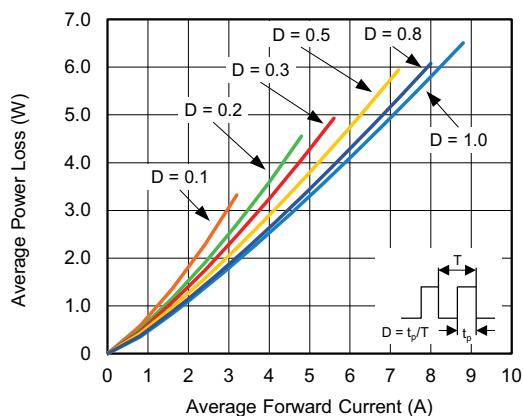


Fig. 2 - Forward Power Loss Characteristics

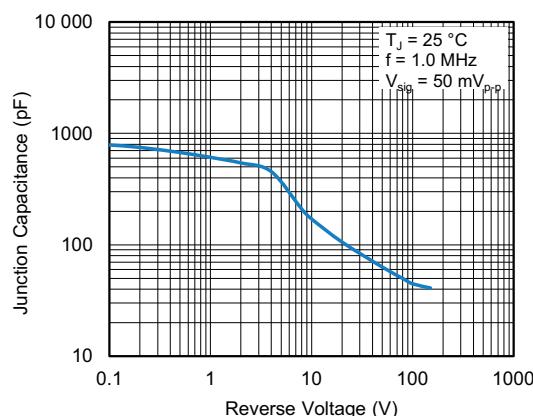


Fig. 5 - Typical Junction Capacitance

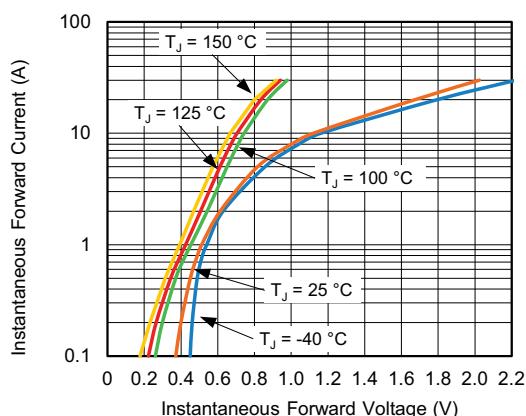


Fig. 3 - Typical Instantaneous Forward Characteristics

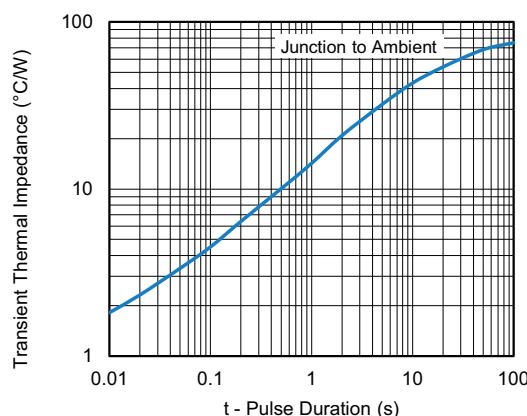
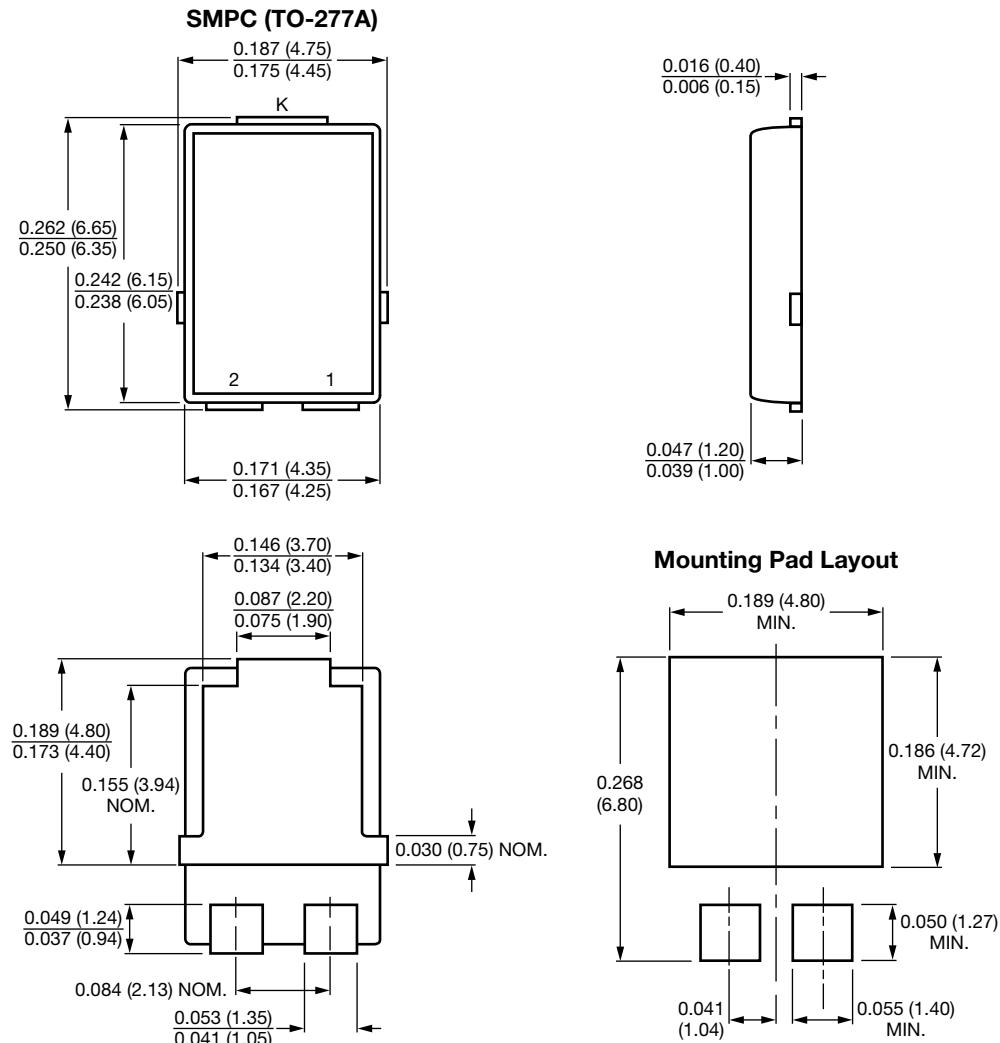


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)


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