V8P45

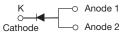
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High Current Density Surface Mount TMBS[®] (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.34$ V at $I_F = 4$ A

eSMP[®] Series K SMPC (TO-277A)



ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	8.0 A			
V _{RRM}	45 V			
I _{FSM}	140 A			
V_F at I_F = 8.0 A (T_A = 125 °C)	0.41 V			
T _J max.	150 °C			
Package	SMPC (TO-277A)			
Circuit configuration	Single			

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 <u>www.vishay.com/doc?99912</u>

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_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified

("_X" denotes revision code e.g. A, B,....)

Terminals: matte tin plated leads, solderable per 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 ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	V8P45	UNIT	
Device marking code		V845		
Maximum repetitive peak reverse voltage	V _{RRM}	45	V	
Maximum average forward rectified current (fig. 1)	I _F ⁽¹⁾	8.0	Α	
	I _F ⁽²⁾	4.3		
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 copper pad area

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 4.0 A	– T _A = 25 °C		0.44	-	V
	I _F = 8.0 A			0.49	0.58	
	I _F = 4.0 A	– T _A = 125 °C		0.34	-	
	I _F = 8.0 A			0.41	0.49	
Reverse current	V _R = 45 V	T _A = 25 °C	I _R ⁽²⁾	-	0.6	mA
	V _R = 45 V T _A = 125 °C	IR 🖓	5.0	20	ША	

Notes

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

⁽²⁾ Pulse test: pulse width \leq 5 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	V8P45	UNIT	
Typical thermal registeries	R _{0JA} ⁽¹⁾⁽²⁾	75	°C/W	
Typical thermal resistance	R _{0JM} ⁽³⁾	4		

Notes

⁽¹⁾ The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D/dT_J < 1/R_{0JA}$

 $^{(2)}$ Free air mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

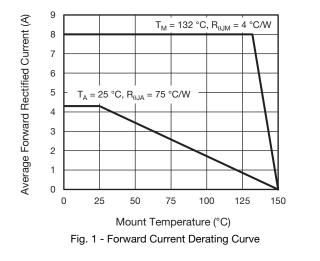
 $^{(3)}$ Mounted on 30 mm x 30 mm aluminum PCB; thermal resistance $R_{\theta JM}$ - junction to mount

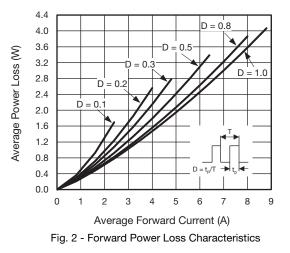
ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V8P45-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel	
V8P45-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel	
V8P45HM3_A/H ⁽¹⁾	0.10	Н	1500	7" diameter plastic tape and reel	
V8P45HM3_A/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel	

Note

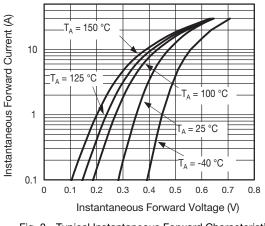
⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)



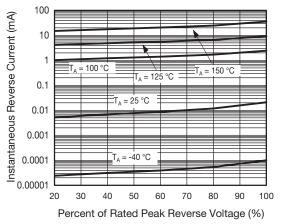


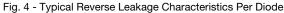
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Fig. 3 - Typical Instantaneous Forward Characteristics





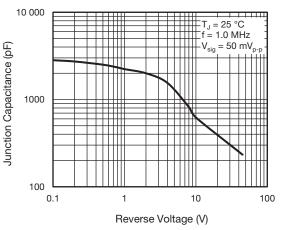
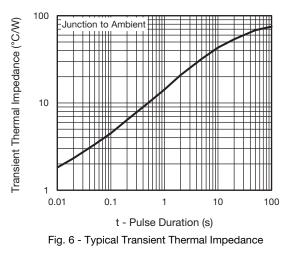


Fig. 5 - Typical Junction Capacitance



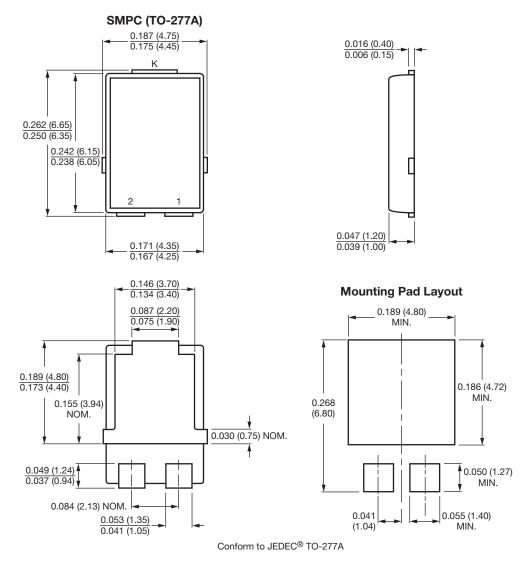
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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