V35PWM15

Vishay General Semiconductor

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

Ultra Low $V_F = 0.50$ V at $I_F = 5$ A



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LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	35 A			
V _{RRM}	150 V			
I _{FSM}	260 A			
V _F at I _F = 35 A (T _A = 125 °C)	0.71 V			
T _J max.	175 °C			
Package	SlimDPAK (TO-252AE)			
Circuit configuration	Single			

FEATURES

- Very low profile typical height of 1.3 mm
- Trench MOS Schottky technology
- · Ideal for automated placement
- · 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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SlimDPAK (TO-252AE) Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 gualified

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 ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	V35PWM15	UNIT	
Device marking code		V35PWM15		
aximum repetitive peak reverse voltage V _{RRM}		150	V	
Maximum average forward rectified current (Fig. 1)	I _{F(AV)} ⁽¹⁾	35	А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	260	A	
Operating junction temperature range	T _J ⁽²⁾	T _J ⁽²⁾ -40 to +175		
Storage temperature range	T _{STG}	-55 to +175	°C	

Notes

⁽¹⁾ With infinite heatsink

 $^{(2)}$ The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D/dT_J < 1/R_{\theta JA}$

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RoHS COMPLIANT

HALOGEN FREE

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 5.0 A	T _A = 25 °C	V _F (1)	0.61	-	V
	I _F = 17.5 A			0.90	-	
	I _F = 35 A			1.32	1.40	
	I _F = 5.0 A	T _A = 125 °C		0.50	-	
	I _F = 17.5 A			0.65	-	
	I _F = 35 A			0.71	0.79	
Reverse current	V _B = 100 V	$T_{A} = 25 \text{°C}$	I _R (2)	0.01	-	mA
	v _R = 100 v	T _A = 125 °C		4	-	
	V _B = 150 V	T _A = 25 °C		-	0.5	
	v _R = 150 v	T _A = 125 °C		9	25	
Typical junction capacitance	4.0 V, 1 MHz		CJ	1620	_	pF

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	V35PWM15	UNIT	
Typical thermal resistance	R _{0JA} (1)(2)	55	°C/W	
	R _{0JM} ⁽³⁾	1.5		

Notes

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

 $^{(2)}$ Free air, mounted on recommended copper pad area; thermal resistance R_{0JA} - junction to ambient

 $^{(3)}$ Mounted on infinite heat sink; thermal resistance R_{θ JM} - junction-to-mount

ORDERING INFORMATION (Example)					
PREFERRED P/N	PREFERRED P/N UNIT WEIGHT (g) PREFERRED PACKAGE CODE		BASE QUANTITY	DELIVERY MODE	
V35PWM15-M3/I	0.20	l	4500	13" diameter plastic tape and reel	
V35PWM15HM3/I ⁽¹⁾	0.20	I	4500	13" diameter plastic tape and reel	

Note

(1) AEC-Q101 qualified



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

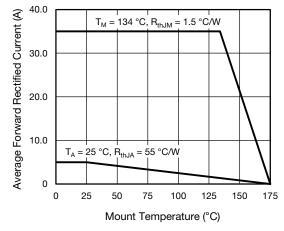


Fig. 1 - Maximum Forward Current Derating Curve

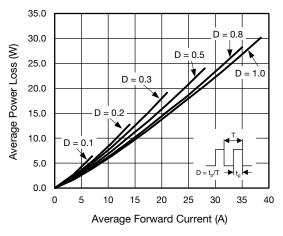


Fig. 2 - Forward Power Loss Characteristics

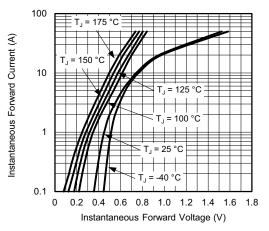


Fig. 3 - Typical Instantaneous Forward Characteristics

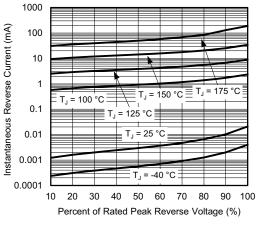


Fig. 4 - Typical Reverse Leakage Characteristics

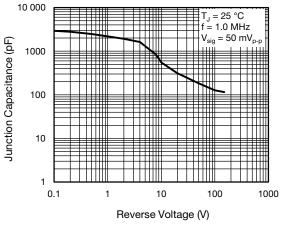


Fig. 5 - Typical Junction Capacitance

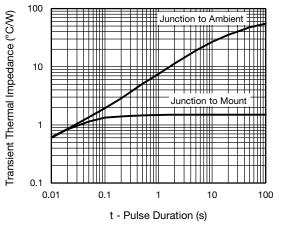


Fig. 6 - Typical Transient Thermal Impedance

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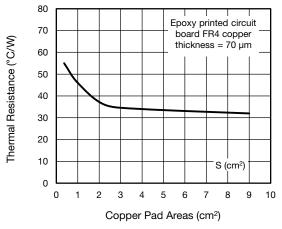
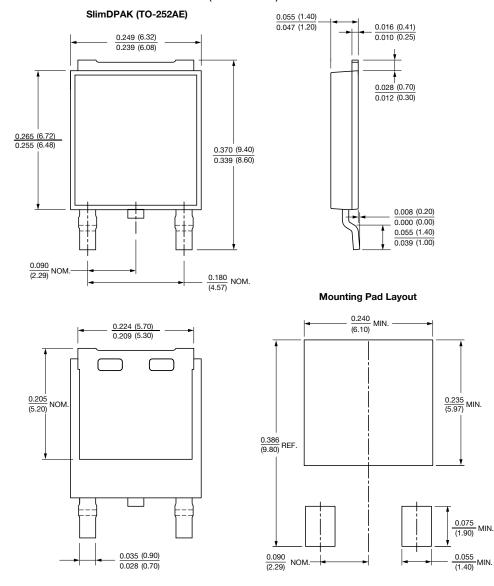


Fig. 7 - Typical Resistance Junction to Ambient vs. Copper Pad Areas



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