FEATURES AUTOMOTIV GRAD



- Very low profile typical height of 1.7 mm
- Low forward voltage drop, low power losses
- High efficiency operation
- MSL J-STD-020. level 1, per 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 high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection in commercial, industrial, and automotive application.

MECHANICAL DATA

Case: SMPD (TO-263AC)

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 qualified

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

M3 and HM3 suffix meet JESD 201 class 2 whisker test Polarity: as marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V30DM100C	UNIT	
Device marking code			V30DM100C		
Maximum repetitive peak reverse voltage		V _{RRM}	100	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)} ⁽¹⁾	30	A	
	per diode		15	A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	160	А	
Operating junction temperature range		T _J ⁽²⁾	-40 to +175	°C	
Storage temperature range		T _{STG}	-55 to +175		

Notes

⁽¹⁾ Mounted on infinite heatsink

 $^{(2)}$ The heat generated must be less than the thermal conductivity from junction-to-ambient: dP_D/dT_J < 1/R_{0,JA}

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Anode 1 O-

Anode 2 C

Top View



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 15 A			
V _{RRM}	100 V			
I _{FSM}	160 A			
V_F at I_F = 15 A (T_A = 125 °C)	0.66 V			
T _J max.	175 °C			
Package	SMPD (TO-263AC)			
Circuit configuration	Common cathode			

Ultra Low V_F = 0.49 V at I_F = 5.0 A

- · Ideal for automated placement

- Meets
- FREE

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RoHS

COMPLIANT

HALOGEN



eSMP[®] Series SMPD (TO-263AC)

Bottom View

Cathode





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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 = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.55	-	V	
	I _F = 7.5 A			0.61	-		
	I _F = 15 A			0.76	0.81		
	$I_F = 5 A$	T _A = 125 °C		0.49	-		
	I _F = 7.5 A			0.54	-		
	I _F = 15 A			0.66	0.74		
Reverse current at rated V_R per diode	V _R = 70 V	T _A = 25 °C	I _R (2)	0.01	-	mA	
		T _A = 125 °C		2.5	-		
	V _R = 100 V	T _A = 25 °C		-	0.4		
		T _A = 125 °C		5	14		
Typical junction capacitance	4.0 V, 1 MHz		CJ	1300	-	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	V30DM100C	UNIT	
Typical thermal resistance per device	R _{0JC} ⁽¹⁾	1.6	°C/W	
	R _{0JA} ⁽²⁾⁽³⁾	58		

Notes

⁽¹⁾ Mounted on infinite heatsink

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

⁽³⁾ Free air, without heatsink

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V30DM100C-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel		
V30DM100CHM3/I (1)	0.55	I	2000/reel	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)

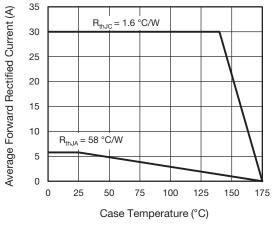
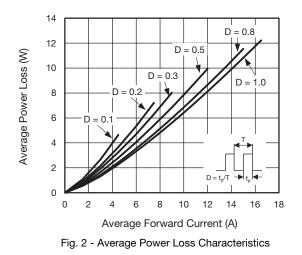
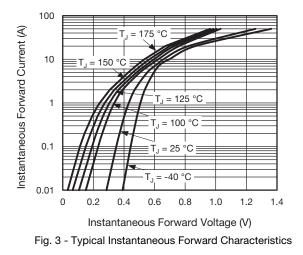


Fig. 1 - Maximum Forward Current Derating Curve





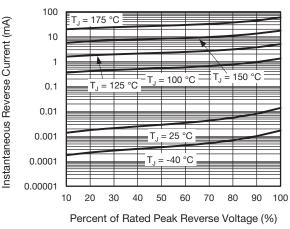
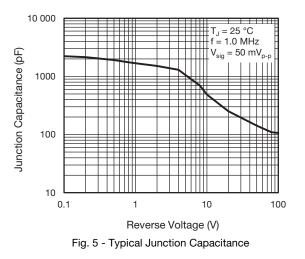


Fig. 4 - Typical Reverse Leakage Characteristics



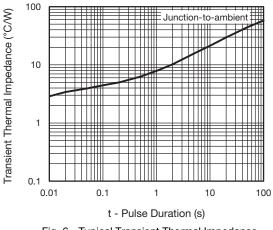


Fig. 6 - Typical Transient Thermal Impedance

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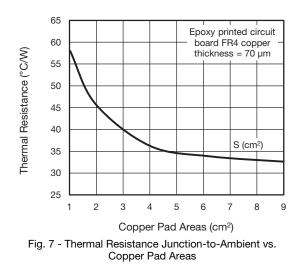
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V30DM100C

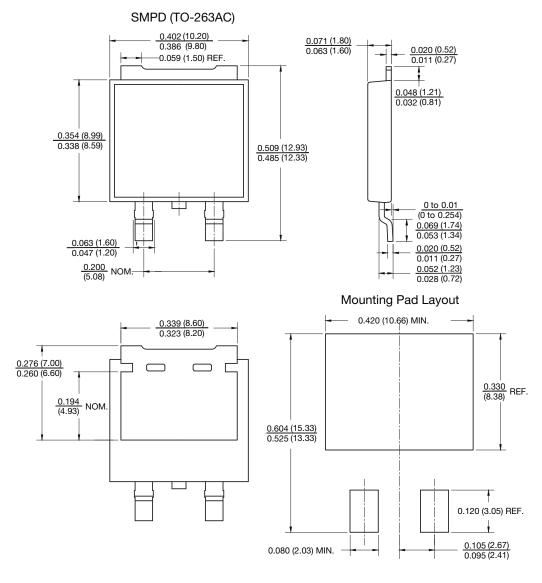




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