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# V30DL63C

Vishay General Semiconductor

# Dual Low-Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low  $V_F = 0.36$  V at  $I_F = 5.0$  A



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# LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 15 A				
V <sub>RRM</sub>	60 V				
I <sub>FSM</sub>	170 A				
$V_{F}$ at $I_{F}$ = 15 A ( $T_{J}$ = 125 °C)	0.54 V				
T <sub>J</sub> max.	150 °C				
Package	SMPD (TO-263AC)				
Circuit configuration	Common cathode				

### FEATURES

- Trench MOS Schottky technology
- Very low profile typical height of 1.7 mm
- 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 <u>www.vishay.com/doc?99912</u>

### **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

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V30DL63C	UNIT	
Device marking code			V30DL63C		
Maximum repetitive peak reverse voltage		V <sub>RRM</sub> 60		V	
Maximum average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub> <sup>(1)</sup>	30	A	
	per diode	IF(AV)	15	~	
Peak forward surge current 8.3 ms single half superimposed on rated load per diode	sine-wave	I <sub>FSM</sub>	170	А	
Operating junction temperature range		T <sub>J</sub> <sup>(2)</sup>	-40 to +150		
Storage temperature range		T <sub>STG</sub>	-55 to +150	U	

#### Notes

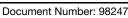
<sup>(1)</sup> Mounted on infinite heatsink

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





ROHS COMPLIANT HALOGEN





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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_J$ = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I <sub>F</sub> = 5 A	T <sub>J</sub> = 25 °C		0.45	-	- V	
	I <sub>F</sub> = 7.5 A			0.48	-		
	I <sub>F</sub> = 15 A			0.58	0.65		
	I <sub>F</sub> = 5 A	T <sub>J</sub> = 125 °C		0.36	-		
	I <sub>F</sub> = 7.5 A			0.41	-		
	I <sub>F</sub> = 15 A			0.54	0.62		
Reverse current at rated $V_R$ per diode	V - 60 V	T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	0.2	mA	
	$V_{\rm R} = 60 \text{ V}$ $T_{\rm J} = 125 \text{ °C}$	'R <sup>(-)</sup>	9	20	ША		
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	1900	-	pF	

#### Notes

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

 $^{(2)}$  Pulse test: Pulse width  $\leq 5\mbox{ ms}$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	V30DL63C	UNIT		
Typical thermal resistance per device	$R_{\theta JC}^{(1)}$	1.8	°C/W		
	R <sub>0JA</sub> <sup>(2)(3)</sup>	58	0/10		

#### Notes

<sup>(1)</sup> 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

<sup>(3)</sup> Free air, without heatsink

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V30DL63C-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel		
V30DL63CHM3/I (1)	0.55	l	2000/reel	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified



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# RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

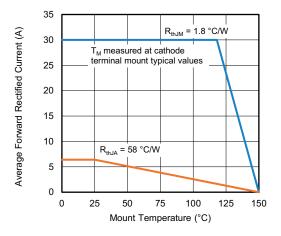


Fig. 1 - Maximum Forward Current Derating Curve

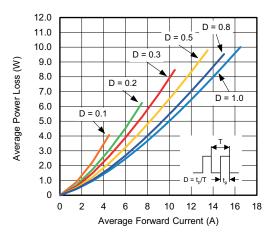


Fig. 2 - Average Power Loss Characteristics Per Diode

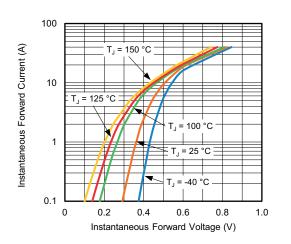


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

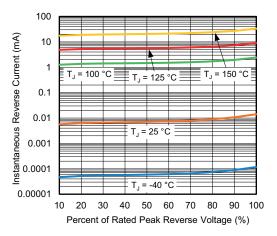


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

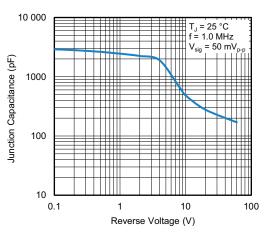


Fig. 5 - Typical Junction Capacitance Per Diode

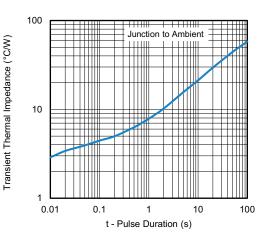


Fig. 6 - Typical Transient Thermal Impedance

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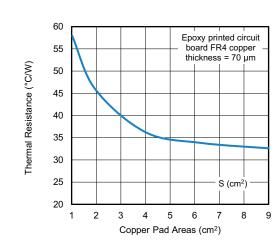
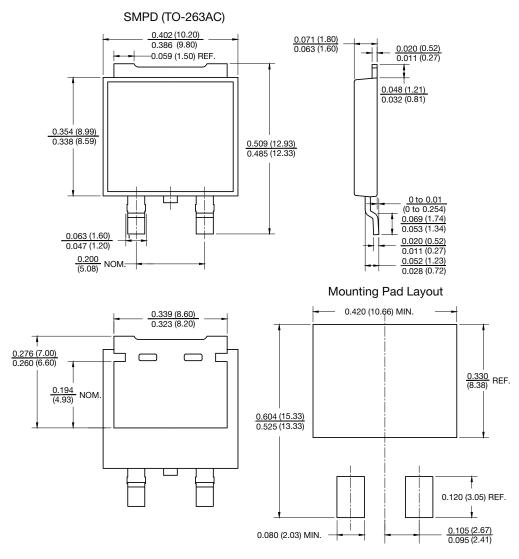


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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