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[Vishay Semiconductor/Diodes Division](#)  
[V15WL45C-M3/I](#)

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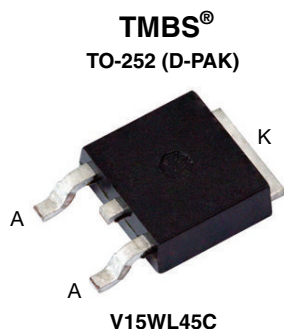
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## V15WL45C-M3

Vishay General Semiconductor

### Dual Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.38\text{ V}$  at  $I_F = 3\text{ A}$



#### FEATURES

- 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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

#### TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 7.5 A
$V_{RRM}$	45 V
$I_{FSM}$	90 A
$V_F$ at $I_F = 7.5\text{ A}$ ( $T_A = 125\text{ °C}$ )	0.40 V
$T_J$ max.	150 °C
Package	TO-252 (D-PAK)
Diode variation	Dual common cathode

#### MECHANICAL DATA

**Case:** TO-252 (D-PAK)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

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

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V15WL45C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	15
		per diode	7.5
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	90	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150	°C



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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I <sub>F</sub> = 3 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> (1)	0.41	-	V
	I <sub>F</sub> = 7.5 A			0.47	0.56	
	I <sub>F</sub> = 3 A	T <sub>A</sub> = 125 °C		0.30	-	
	I <sub>F</sub> = 7.5 A			0.40	0.49	
Reverse current per diode	V <sub>R</sub> = 45 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> (2)	-	1300	μA
		T <sub>A</sub> = 125 °C		13	36	mA

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	V15WL45C	UNIT
Typical thermal resistance	per diode	R <sub>θJC</sub>	2.6	°C/W
	per device		1.3	
	per device	R <sub>θJA</sub> (1)(2)	65	

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>
- (2) Free air, without heatsink

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V15WL45C-M3/I	0.38	I	2500/reel	13" diameter plastic tape and reel

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

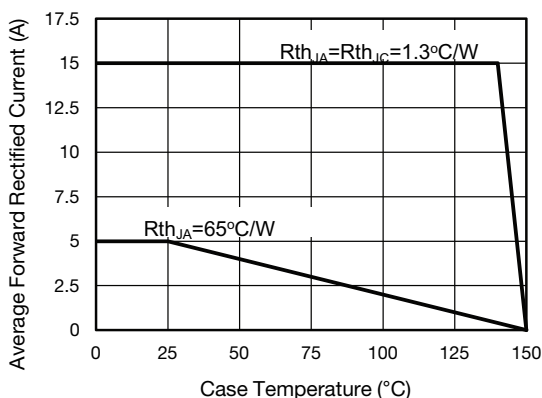


Fig. 1 - Maximum Forward Current Derating Curve

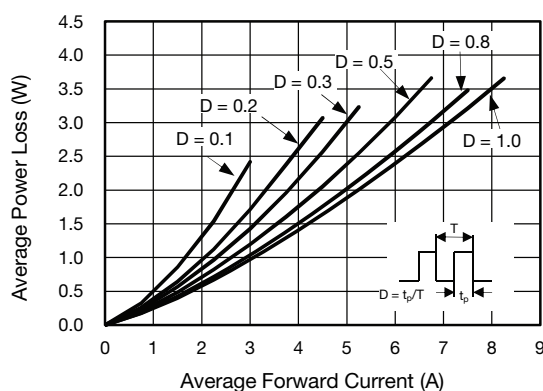


Fig. 2 - Forward Power Loss Characteristics Per Diode



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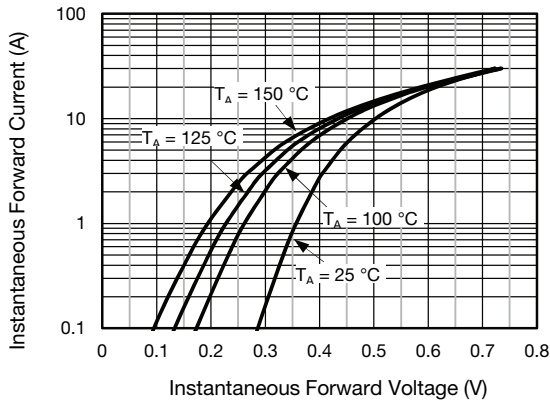


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

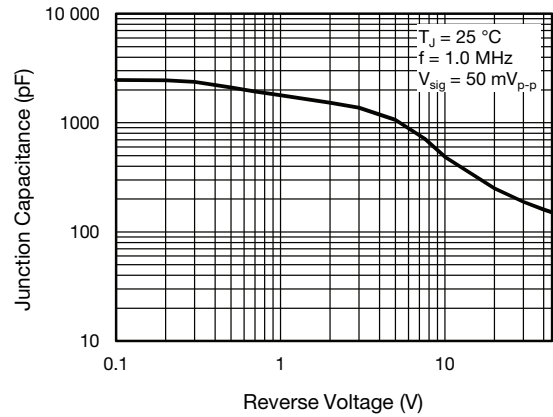


Fig. 5 - Typical Junction Capacitance Per Diode

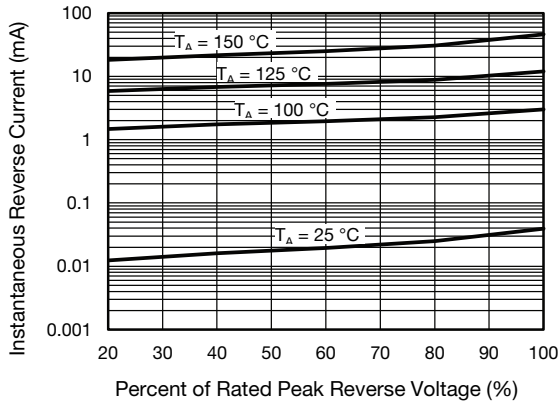


Fig. 4 - Typical Reverse Characteristics Per Diode

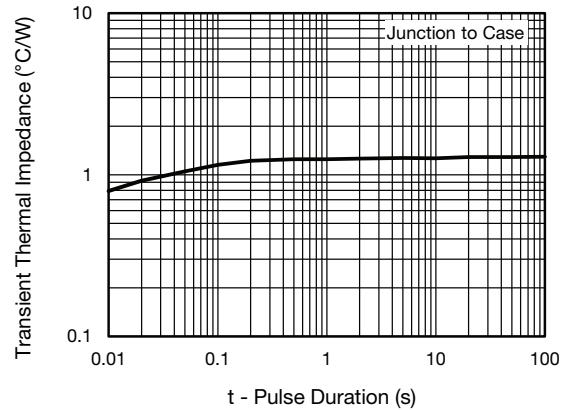


Fig. 6 - Typical Transient Thermal Impedance Per Device

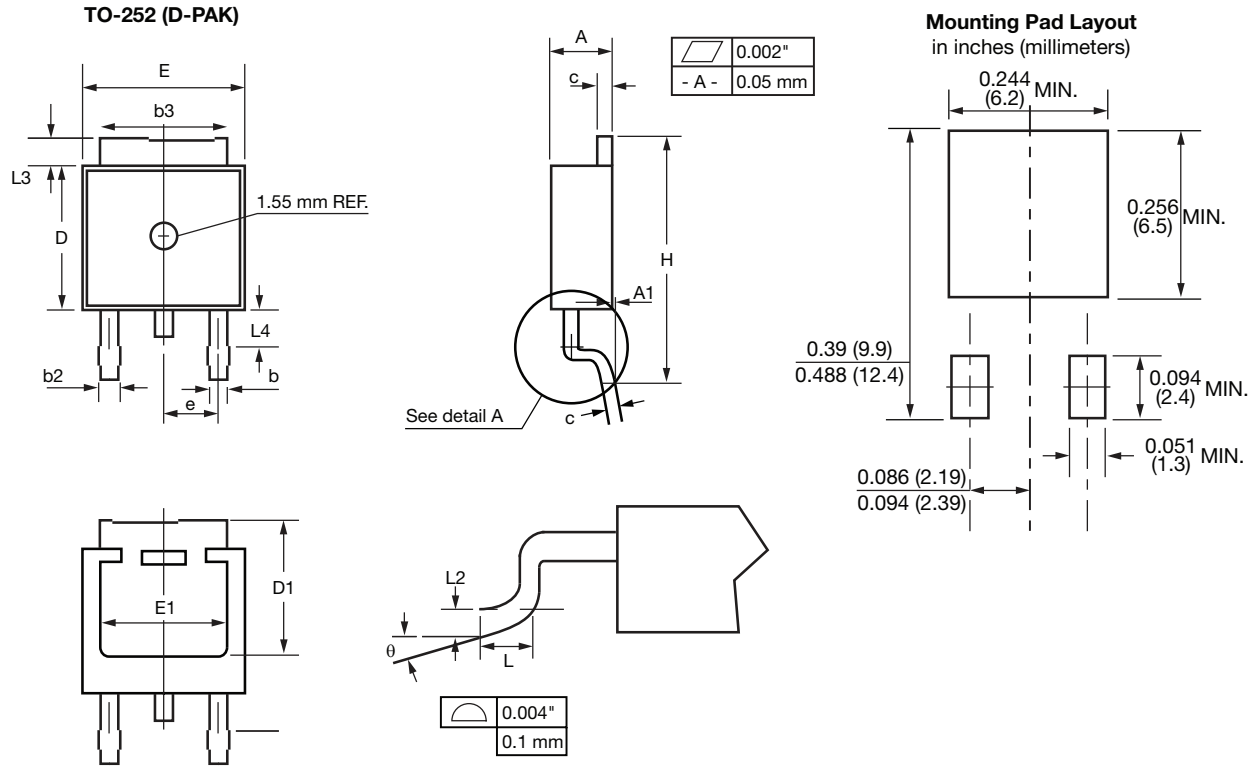


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**V15WL45C-M3**

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**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.086	0.094	2.19	2.38
A1	-	0.005	-	0.13
b	0.025	0.035	0.64	0.89
b2	0.033	0.045	0.84	1.14
b3	0.205	0.215	5.21	5.46
c	0.018	0.024	0.46	0.61
D	0.235	0.250	5.97	6.22
D1	0.205	-	5.21	-
E	0.250	0.265	6.35	6.73
E1	0.190	-	4.83	-
e	0.090 BSC.		2.29 BSC.	
H	0.380	0.410	9.65	10.41
L	0.055	0.070	1.40	1.78
L2	0.020 BSC.		0.51 BSC.	
L3	0.035	0.050	0.89	1.27
L4	0.025	0.039	0.64	1.01
θ	0°	8°	0°	8°

**Note**

- Conforms to JEDEC TO-252 variation AA except dimension "D"



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