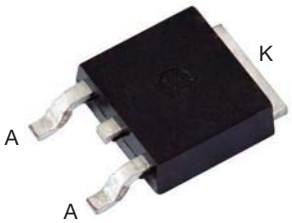
Dual Trench MOS Barrier Schottky Rectifier

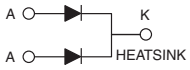
Ultra Low V_F = 0.34 V at I_F = 3 A

TMBS®

TO-252 (D-PAK)



V6WL45C



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

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.

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 3 A
V_{RRM}	45 V
I_{FSM}	80 A
V_F at I_F = 3 A (T_A = 125 °C)	0.34 V
T_J max.	150 °C
Package	TO-252 (D-PAK)
Diode variation	Single

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	V6WL45C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	45	V
Maximum average forward rectified current (fig. 1)	per device	$I_{F(AV)}$	6	A
	per diode		3	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	80	A
Operating junction and storage temperature range		T_J, T_{STG}	- 40 to + 150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I_F = 3 A	T_A = 25 °C	V_F (1)	0.43	0.52	V
		T_A = 125 °C		0.34	0.43	
Reverse current per diode	V_R = 45 V	T_A = 25 °C	I_R (2)	-	1000	µA
		T_A = 125 °C		8	15	mA

Notes

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

(2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	V6WL45C	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	3.6	°C/W
	per device		1.8	
	per device	$R_{\theta JA}$ (1) (2)	65	

Notes

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

(2) Free air, without heatsink

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V6WL45C-M3/I	0.38	I	2500/reel	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

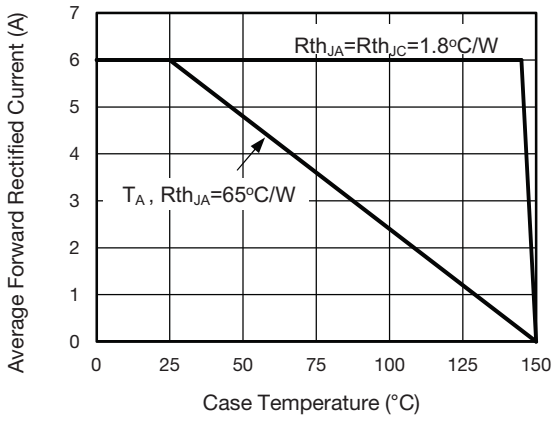


Fig. 1 - Maximum Forward Current Derating Curve

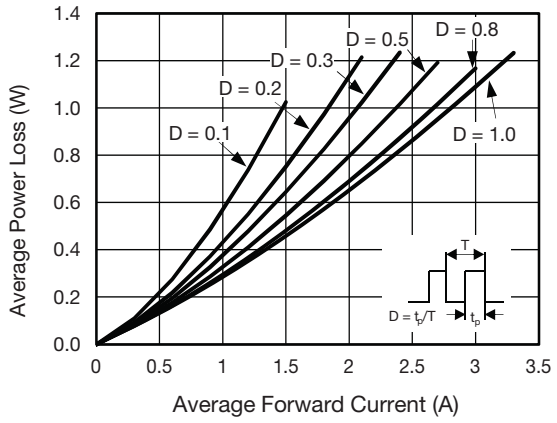


Fig. 2 - Forward Power Loss Characteristics Per Diode

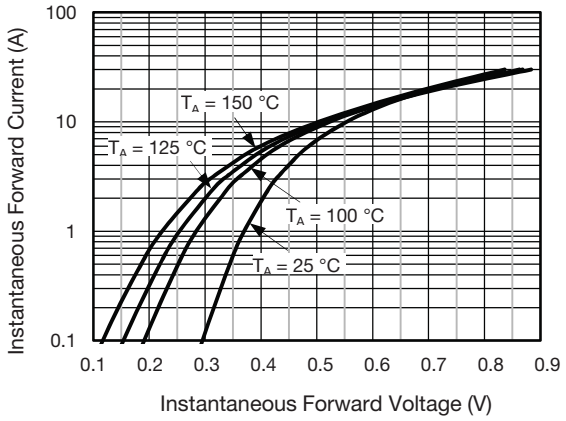


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

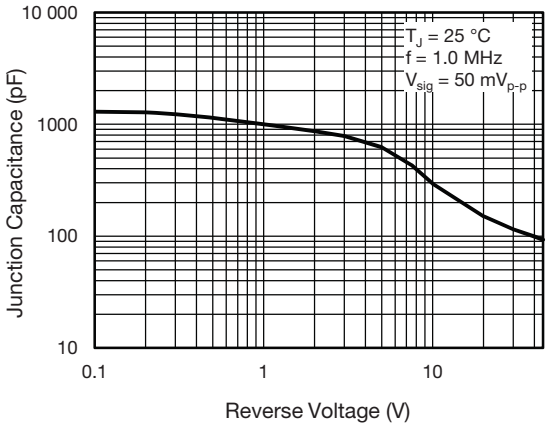


Fig. 5 - Typical Junction Capacitance Per Diode

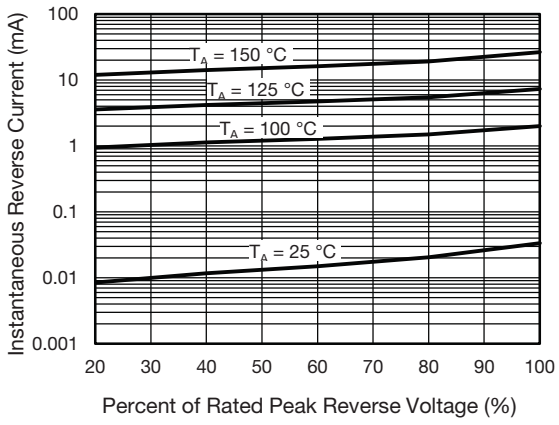


Fig. 4 - Typical Reverse Characteristics Per Diode

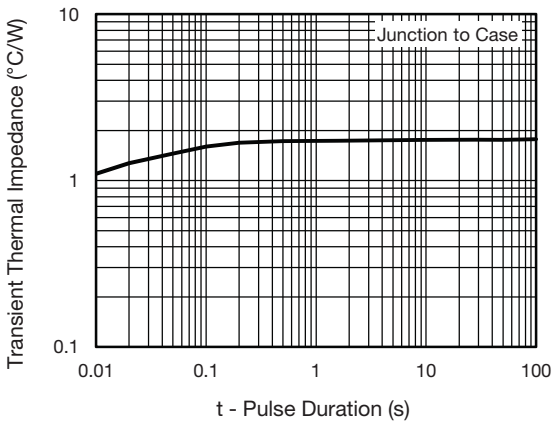
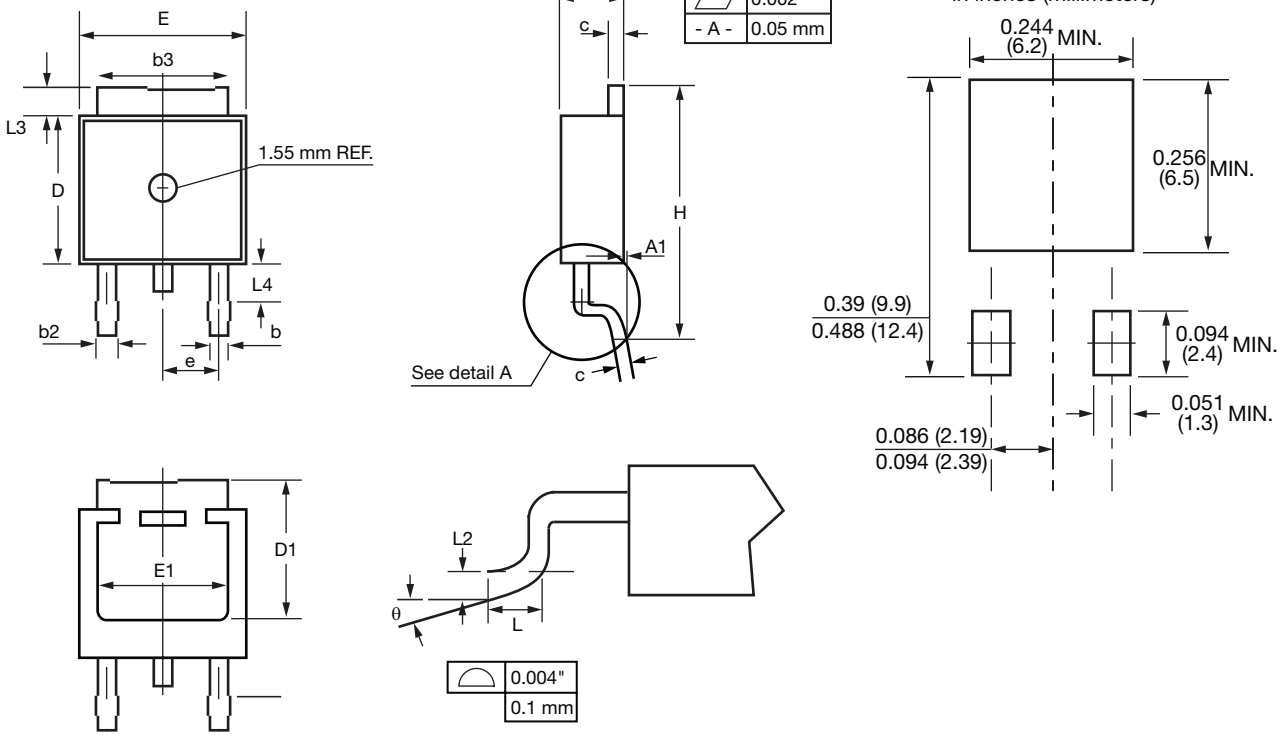


Fig. 6 - Typical Transient Thermal Impedance Per Device

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-252 (D-PAK)



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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