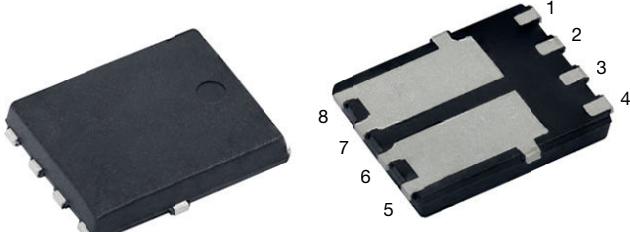
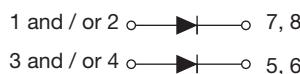


High Current Density Surface-Mount Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.30 V at I_F = 1.5 A



FlatPAK 5 x 6



DESIGN SUPPORT TOOLS



[click logo to get started](#)



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Trench MOS Schottky technology
- 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: FlatPAK 5 x 6

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 meets JESD 201 class 2 whisker test

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)	0.36 V
T_J max.	150 °C
Package	FlatPAK 5 x 6
Circuit configuration	Separated cathode

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

PARAMETER	SYMBOL	V6KL45DU	UNIT
Device marking code		V6L45D	
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum DC forward current per diode	$I_{F(AV)}$ ⁽¹⁾	3	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	80	A
Operating junction temperature range	T_J ⁽²⁾	-40 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Notes

(1) Free air, mounted on recommended pad area

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 1.5 \text{ A}$	$T_A = 25^\circ\text{C}$	V_F ⁽¹⁾	0.41	-	V	
	$I_F = 3 \text{ A}$			0.46	0.54		
	$I_F = 1.5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.30	-		
	$I_F = 3 \text{ A}$			0.36	0.44		
Reverse current per diode	$V_R = 45 \text{ V}$	$T_A = 25^\circ\text{C}$	I_R ⁽²⁾	-	0.45	mA	
		$T_A = 125^\circ\text{C}$		5	15		
Typical junction capacitance per diode	$4.0 \text{ V}, 1 \text{ MHz}$		C_J	550	-	pF	

Notes

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

(2) Pulse test: pulse width $\leq 5 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	TYP.	MAX.	UNIT	
Thermal resistance per diode	$R_{\theta JA}$ ⁽¹⁾⁽²⁾	100	-	°C/W	
	$R_{\theta JM}$ ⁽³⁾	3.5	4.5		

Notes

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

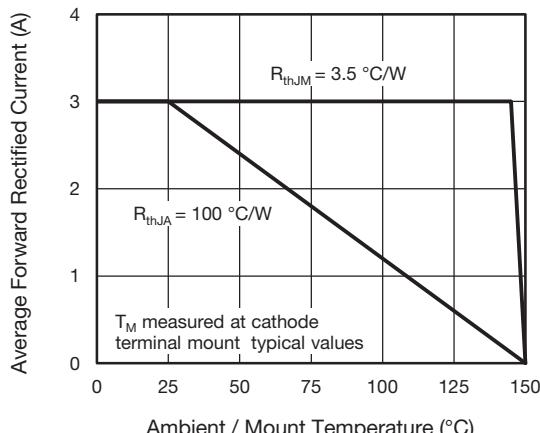
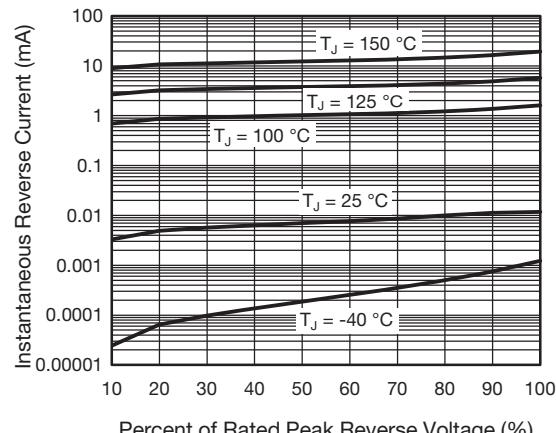
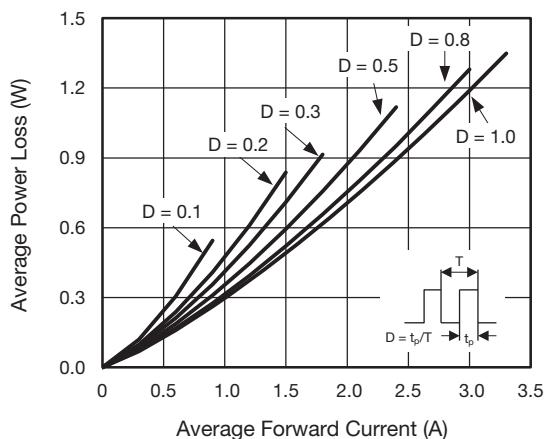
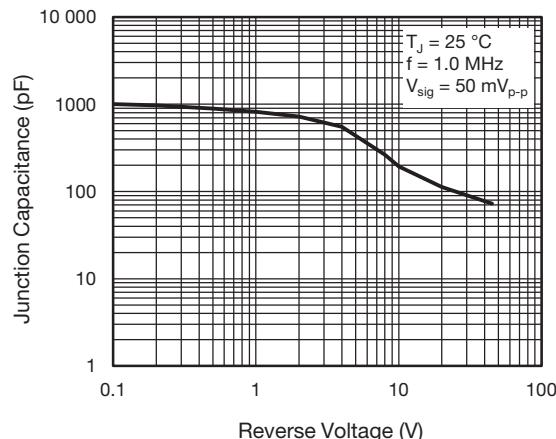
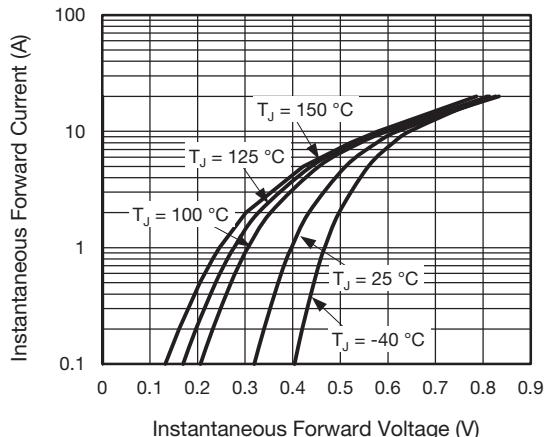
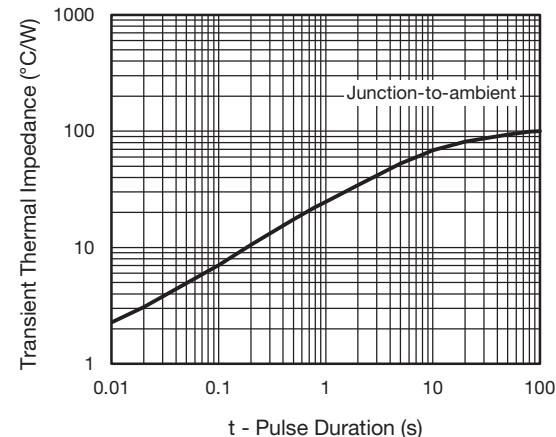
(2) Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction-to-ambient

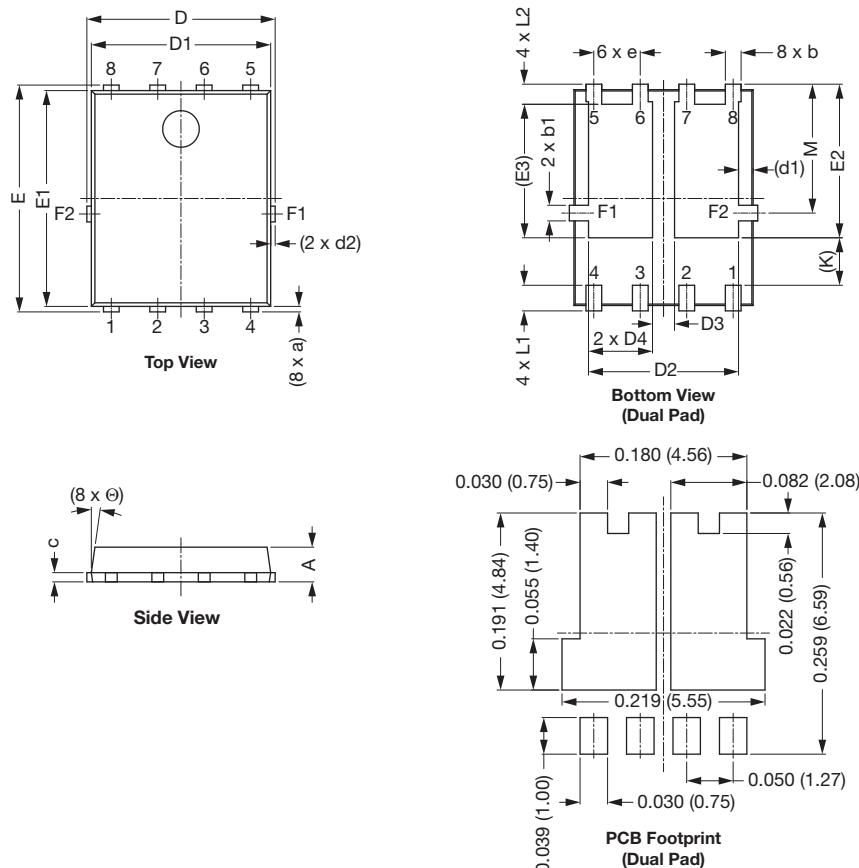
(3) Mounted on infinite heat sink; thermal resistance $R_{\theta JM}$ - junction-to-mount

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V6KL45DU-M3/H	0.10	H	1500	7" diameter plastic tape and reel	
V6KL45DU-M3/I	0.10	I	6000	13" diameter plastic tape and reel	
V6KL45DUHM3/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel	
V6KL45DUHM3/I ⁽¹⁾	0.10	I	6000	13" diameter plastic tape and reel	

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

Fig. 4 - Typical Reverse Leakage Characteristics

Fig. 2 - Forward Power Loss Characteristics

Fig. 5 - Typical Junction Capacitance

Fig. 3 - Typical Instantaneous Forward Characteristics

Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)


DIM.	INCHES			MILLIMETERS		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.035	0.039	0.043	0.89	0.99	1.09
(a)	-	0.006	-	-	0.15	-
b	0.013	0.017	0.020	0.32	0.43	0.52
b1	0.013	0.017	0.020	0.32	0.43	0.52
c	0.008	-	0.014	0.20	-	0.35
D	0.197	0.203	0.209	5.00	5.15	5.30
D1	0.189	0.193	0.197	4.80	4.90	5.00
D2	0.154	0.161	0.169	3.90	4.10	4.30
D3	0.020	0.024	0.031	0.50	0.60	0.80
D4	0.063	0.069	0.075	1.60	1.75	1.90
(d1)	-	0.016	-	-	0.40	-
(d2)	-	0.005	-	-	0.125	-
E	0.238	0.244	0.250	6.05	6.20	6.35
E1	0.228	0.232	0.236	5.80	5.90	6.00
E2	0.157	0.165	0.173	4.00	4.20	4.40
(E3)	-	0.144	-	-	3.65	-
e	0.050 BSC			1.27 BSC		
(K)	0.039	-	-	1.00	-	-
L1	0.019	-	0.043	0.48	-	1.10
L2	0.012	-	0.031	0.30	-	0.80
M	0.128	0.138	0.148	3.25	3.50	3.75
Θ	0°	-	10°	0°	-	10°

Notes

- Dimensioning and tolerancing per ASME Y14.5-2009
- Dimensions D1 and E1 do not include mold flash or gate burrs
- Dimension (XX) means reference only

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