VUDB006R25BNA

Datasheet

General Description

$V_{(BR)DSS}$	$R_{DS(ON)\_max}$	I_D
60V	2.5Ω@10V	0.34A
	3Ω@4.5V	

Symbol

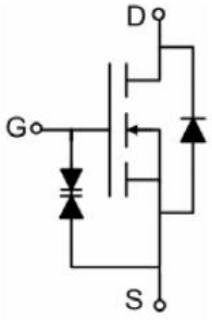
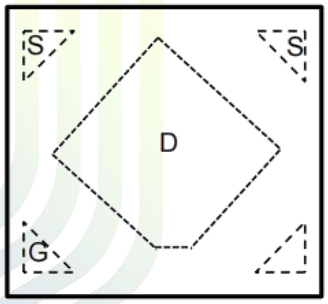


Figure 1 Symbol of VUDB006R25BNA

Features

- Trench Technology Power MOSFET
- Low R_{DSON}
- Low Gate Charge
- ESD Protected

Package Type



WBHFBP-04C

Figure 2 Package Type of VUDB006R25BNA

Application

- Load Switch
- DC/DC Converter

Ordering Information

Product Name	Package
VUDB006R25BNA	WBHFBP-04C

Absolute Maximum Ratings (T_C= 25 ºC, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[Note1]	I_D	0.34	A
Pulsed Drain Current [Note2]	I_{DM}	1.36	
Total Power Dissipation[Note4]	P_D	0.35	W
Junction Temperature	T_J	150	ºC
Storage Temperature	T_{STG}	-55 to 150	ºC

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Ambient [Note5]	$R_{\theta JA}$		350		ºC/W

Electrical Characteristics (T_J= 25 ºC, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D= 250uA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 60V, V_{GS}=0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS}= 0V			±5	uA
Gate Threshold Voltage[Note3]	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1	1.5	2.5	V
Static Drain-Source On-Resistance[Note3]	$R_{DS(ON)}$	V_{GS}=10V, I_D= 0.5A		1.3	2.5	Ω
		V_{GS}=4.5V, I_D= 0.2A		1.4	3	
Dynamic Characteristics						
Input Capacitance	C_{ISS}	V_{DS}=30V		24.3		pF
Output Capacitance	C_{OSS}	V_{GS}=0V		4.32		pF
Reverse Transfer Capacitance	C_{RSS}	f=1MHz		2.28		pF
Total Gate Charge	Q_g	V_{DS}=30V		0.29		nC
Gate-Source Charge	Q_{gs}	V_{GS}=10V		0.23		
Gate-Drain Charge	Q_{gd}	I_D=0.3A		0.12		
Gate Resistance	Rg	f=1MHz, Open Drain		162		Ω
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}= 30V		3.5		ns
Turn-on Rise Time	t_r	V_{GS}= 10V		3.2		
Turn-off Delay Time	$t_{d(off)}$	R_L=100Ω		12		
Turn-off Fall Time	t_f	R_G=3.0Ω		10		
Diode Characteristics						
Diode Forward Voltage [Note3]	V_{SD}	V_{GS}=0V, I_S= 0.3A ºC			1.2	V

Notes :

1.The maximum current rating is limited by package.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Performance Characteristics

Figure 3: Transfer Characteristics

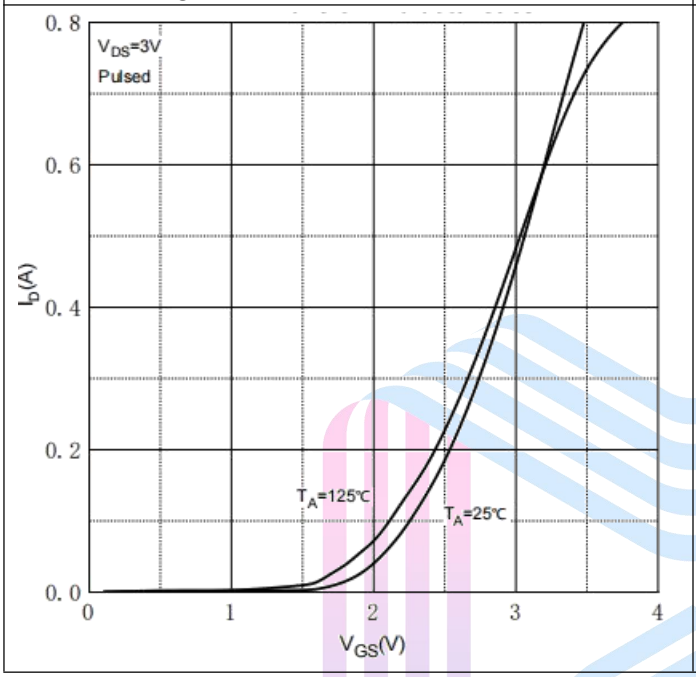


Figure 4: Output Characteristics

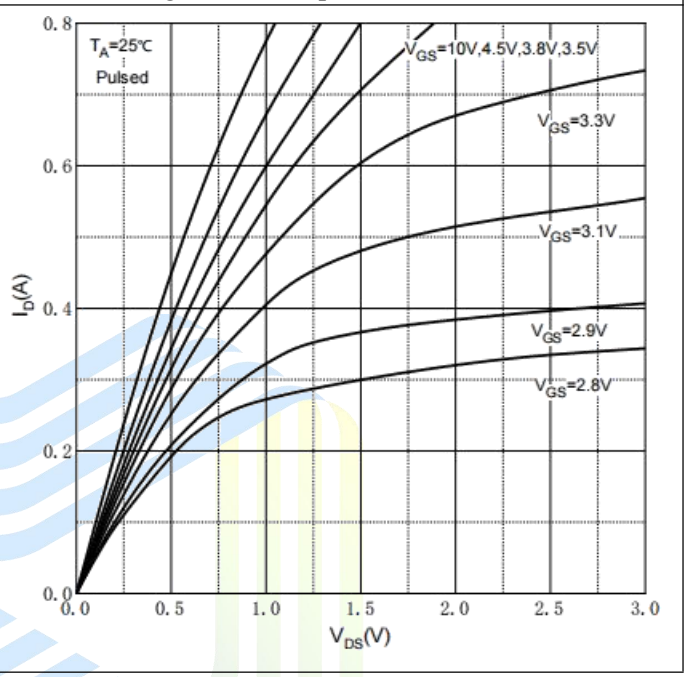


Figure 5: On-Resistance vs. Drain Current

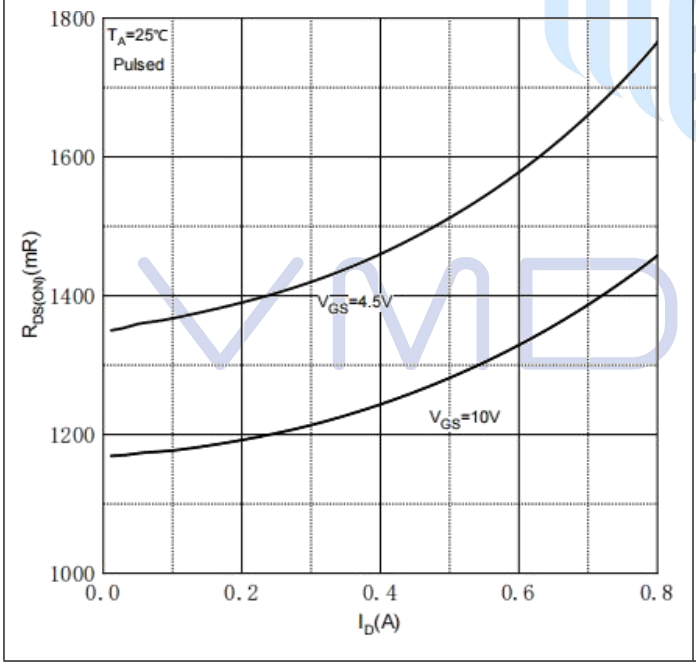


Figure 6: On-Resistance vs. Gate Voltage

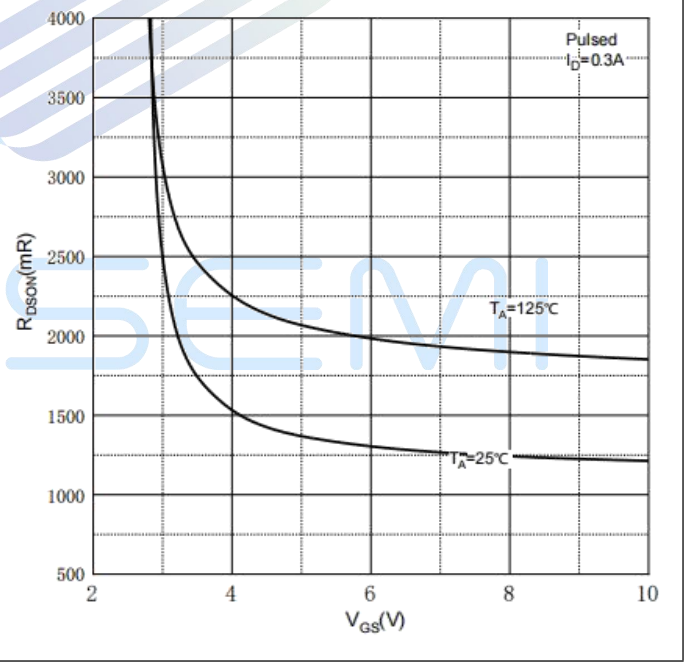


Figure 7: Body Diode Characteristics

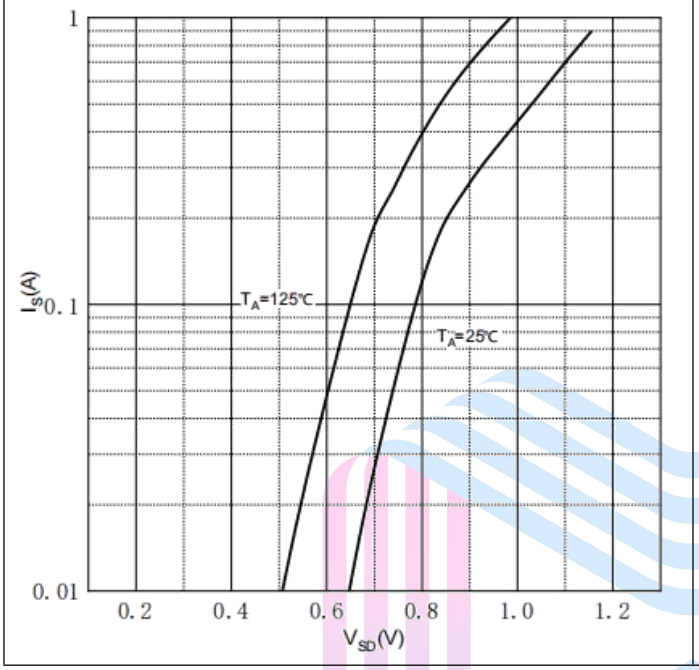
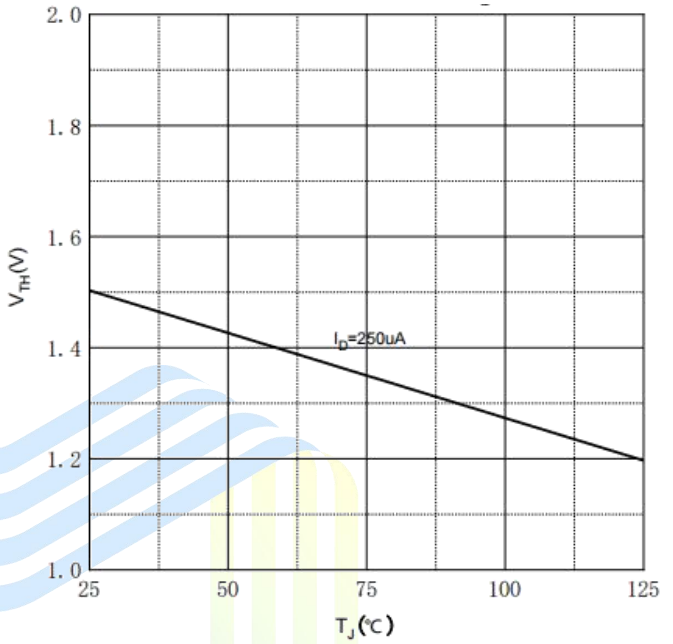
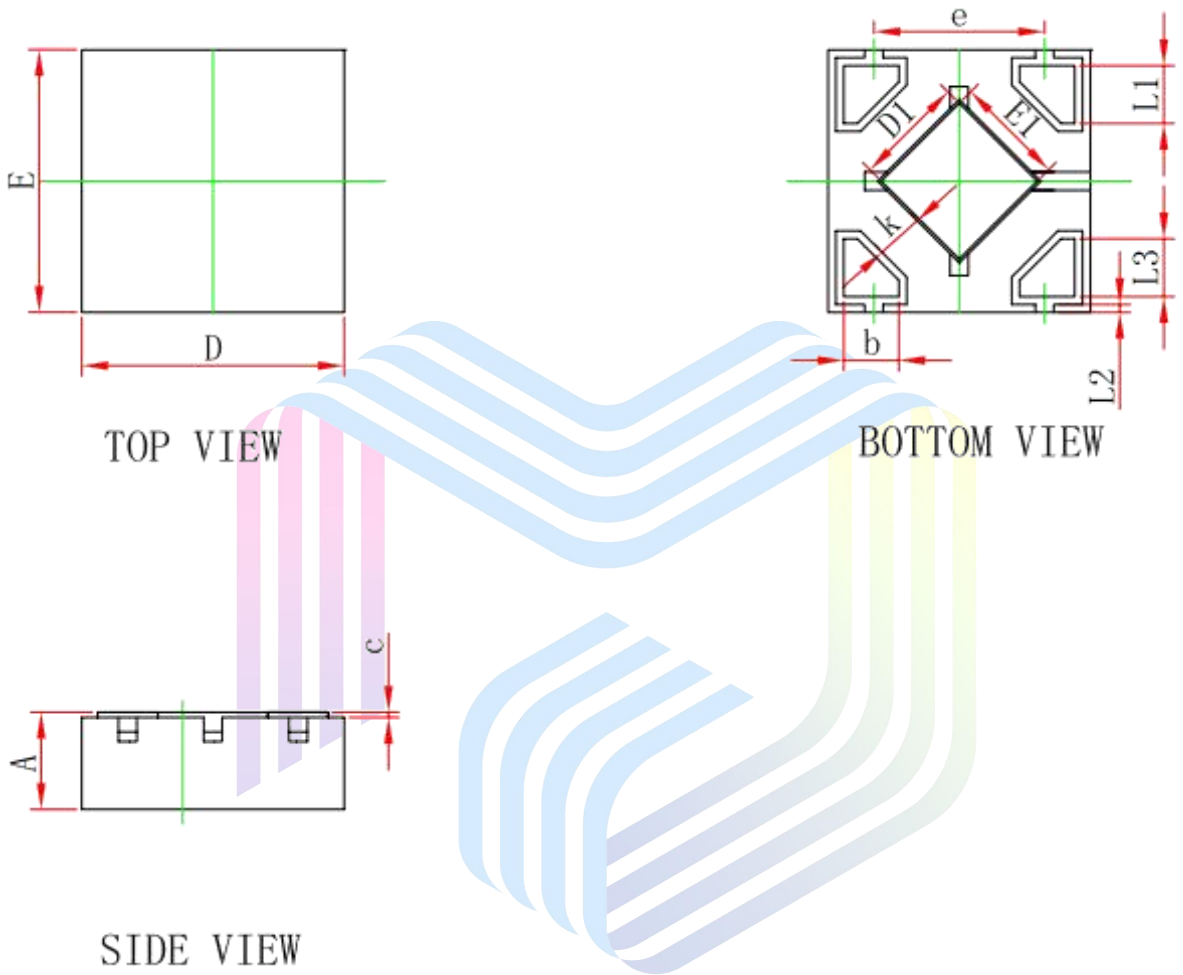


Figure 8: Threshold Voltage



Mechanical Dimensions:

WBHFBP-4C Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.335	0.405	0.013	0.016
D	0.950	1.050	0.037	0.041
E	0.950	1.050	0.037	0.041
D1	0.370	0.470	0.015	0.019
E1	0.370	0.470	0.015	0.019
k	0.17MIN.		0.007MIN.	
b	0.160	0.260	0.006	0.010
c	0.010	0.090	0.000	0.004
e	0.600	0.700	0.024	0.028
L1	0.185	0.255	0.007	0.010
L2	0.030 REF.		0.001 REF.	
L3	0.185	0.255	0.007	0.010

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