



VMDSEMI

VUSN006R25BNA

Datasheet



VMDSEMI

General Description

Symbol

$V_{(BR)DSS}$	$R_{DS(ON)_{max}}$	I_D
60V	2.5Ω@10V	0.34A
	3.0Ω@4.5V	

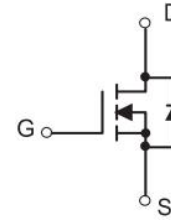


Figure 1 Symbol of VUSN006R25BNA

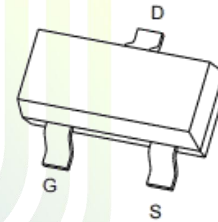
Features

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge

Application

- Power Switch Application
- Load Switch

Package Type



SOT-723

Figure 2 Package Type of VUSN006R25BNA

Ordering Information

Product Name	Package
VUSN006R25BNA	SOT-723

Absolute Maximum Ratings ($T_A = 25\text{ °C}$, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ^{Note1}	I_D	0.34	A
Pulsed Drain Current ^{Note2}	I_{DM}	1.0	
Total Power Dissipation ^{Note4}	P_D	0.2	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Ambient ^{Note5}	$R_{\theta JA}$		625		°C/W



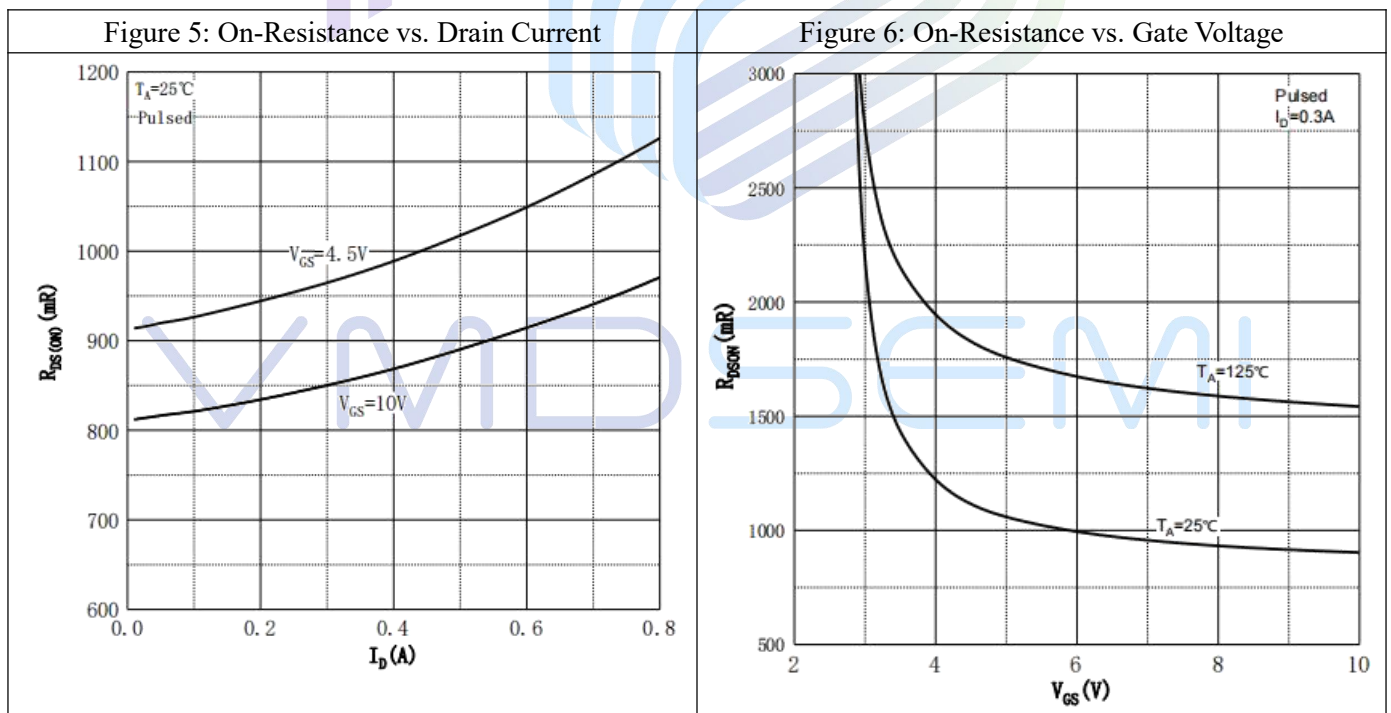
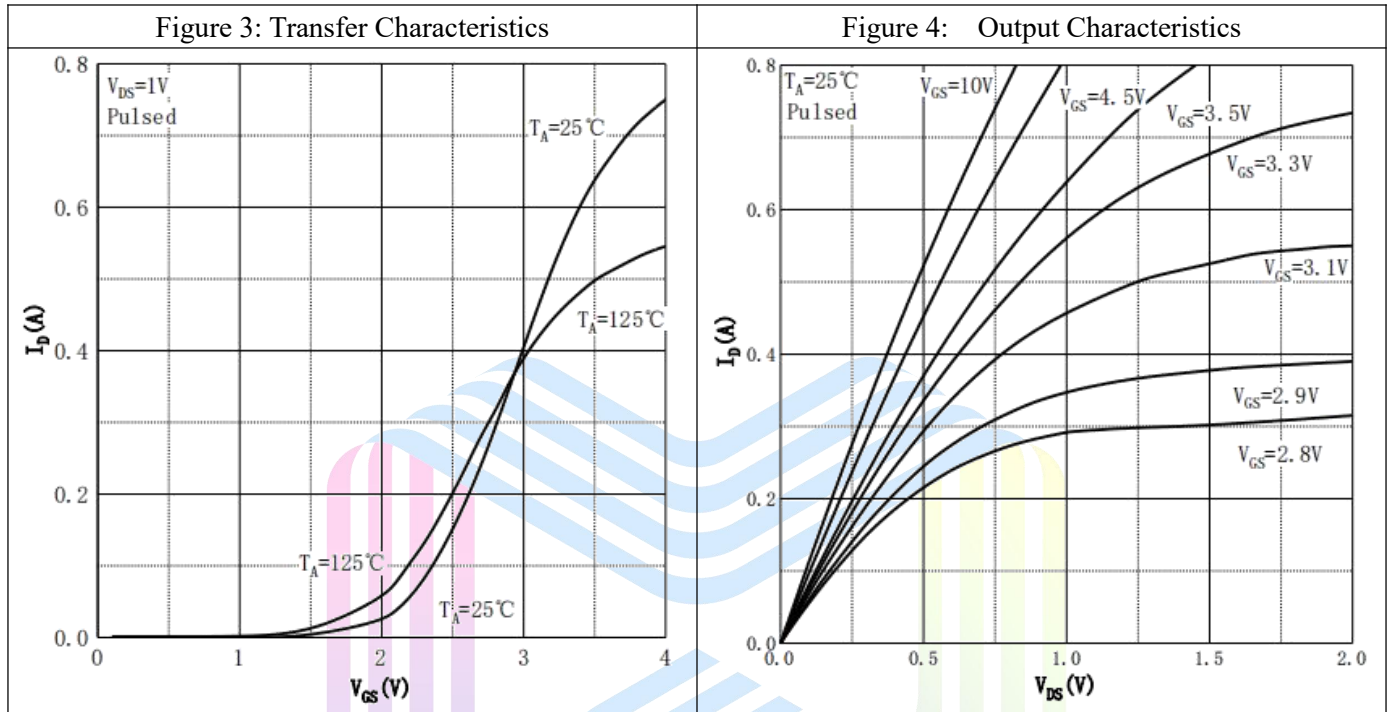
Electrical Characteristics ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise specified)

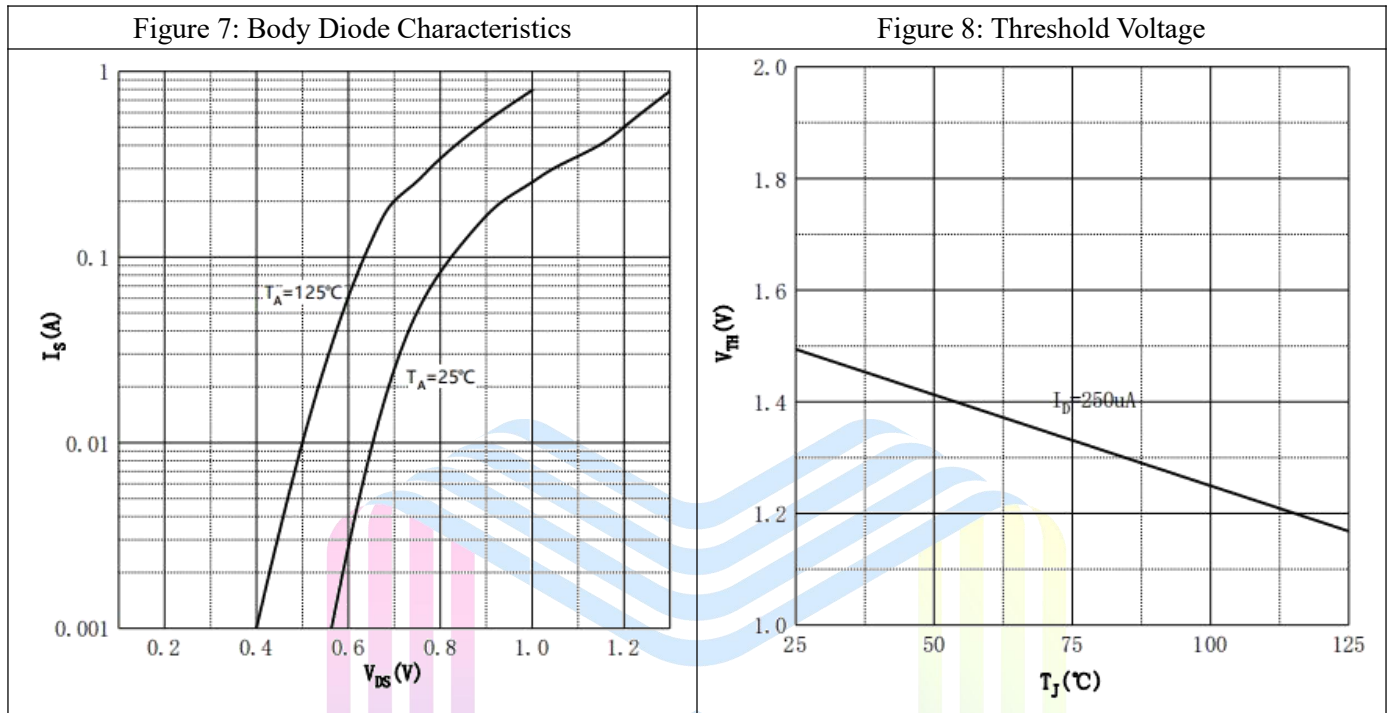
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS}=0V$			± 95	nA
Gate Threshold Voltage ^{Note3}	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.5	V
Static Drain-Source On-Resistance ^{Note3}	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.3A$		0.85	2.5	Ω
		$V_{GS}=4.5V, I_D=0.2A$		0.95	3	
Dynamic Characteristics						
Input Capacitance	C_{ISS}	$V_{DS}=30V$		34.8		pF
Output Capacitance	C_{OSS}	$V_{GS}=0V$		6.4		pF
Reverse Transfer Capacitance	C_{RSS}	$f=1MHz$		3.5		pF
Total Gate Charge	Q_g	$V_{DS}=30V$		0.32		nC
Gate-Source Charge	Q_{gs}	$V_{GS}=10V$		0.25		
Gate-Drain Charge	Q_{gd}	$I_D=0.3A$		0.17		
Gate Resistance	R_g	$f=1MHz, \text{Open drain}$		40		Ω
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V$		3.8		ns
Turn-on Rise Time	t_r	$V_{GS}=10V$		2.9		
Turn-off Delay Time	$t_{d(off)}$	$R_L=100\Omega$		14		
Turn-off Fall Time	t_f	$R_G=3\Omega$		8		
Diode Characteristics						
Diode Forward Voltage ^{Note3}	V_{SD}	$V_{GS}=0V, I_S=0.3A$			1.2	V

Notes :

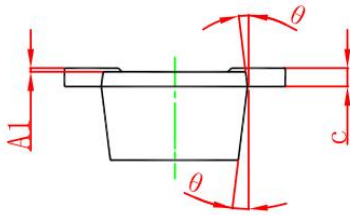
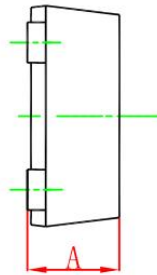
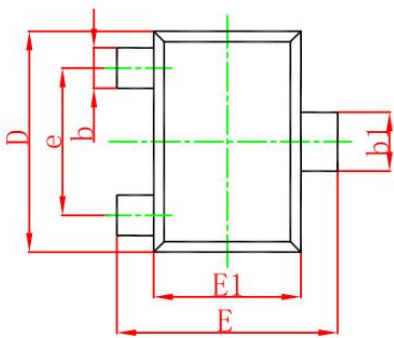
1. The maximum current rating is limited by package. And device mounted on a large heatsink.
2. Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$. And device mounted on a large heatsink
5. Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Performance Characteristics





VMDSEMI

Mechanical Dimensions:
SOT-723 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	



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