VUSF006R900NA

Datasheet

General Description

$V_{(BR)DSS}$	$R_{DS(ON)\_max}$	I_D
60V	90mΩ@10V	3A
	125mΩ@4.5V	

Symbol

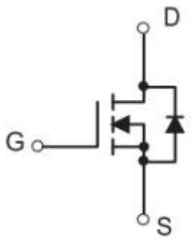


Figure 1 Symbol of VUSF006R900NA

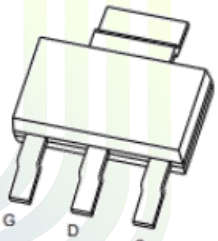
Features

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

Application

- Power Switch Application
- Load Switch

Package Type



SOT-223

Figure 2 Package Type of VUSF006R900NA

Ordering Information

Product Name	Package
VUSF006R900NA	SOT-223

Absolute Maximum Ratings (T_A= 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]	T_C= 25 ºC	I_D	3	A
Pulsed Drain Current [Note2]		I_{DM}	10	
Total Power Dissipation[Note4]	T_A= 25 ºC	P_D	2	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]	$R_{\theta JA}$		100		ºC/W

Electrical Characteristics (T_A= 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			±100	nA
Gate Threshold Voltage[Note3]	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.5	1.2	2	V
Static Drain-Source On-Resistance[Note3]	$R_{DS(ON)}$	V_{GS}=10V, I_D= 3A		70	90	mΩ
		V_{GS}=4.5V, I_D= 3A		82	125	
Forward Transconductance[Note3]	g_{FS}	V_{DS}=15V, I_D= 2A		2.5		S
Dynamic Characteristics						
Input Capacitance	C_{ISS}	V_{DS}=30V		414.3		pF
Output Capacitance	C_{OSS}	V_{GS}=0V		29.05		pF
Reverse Transfer Capacitance	C_{RSS}	f=1MHz		23.06		pF
Total Gate Charge	Q_g	V_{DS}=30V		7		nC
Gate-Source Charge	Q_{gs}	V_{GS}=4.5V		1.2		
Gate-Drain Charge	Q_{gd}	I_D=3A		1.5		
Gate Resistance	Rg	f = 1MHz, Open drain		2.35		Ω
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}= 30V		4.7		ns
Turn-on Rise Time	t_r	V_{GS}= 10V		1.8		
Turn-off Delay Time	$t_{d(off)}$	R_L=10Ω		20		
Turn-off Fall Time	t_f	R_G=3Ω		17.5		
Diode Characteristics						
Diode Forward Voltage [Note3]	V_{SD}	V_{GS}=0V, I_S= 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 ≤ 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.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°C.

Typical Performance Characteristics

Figure 3: Transfer Characteristics

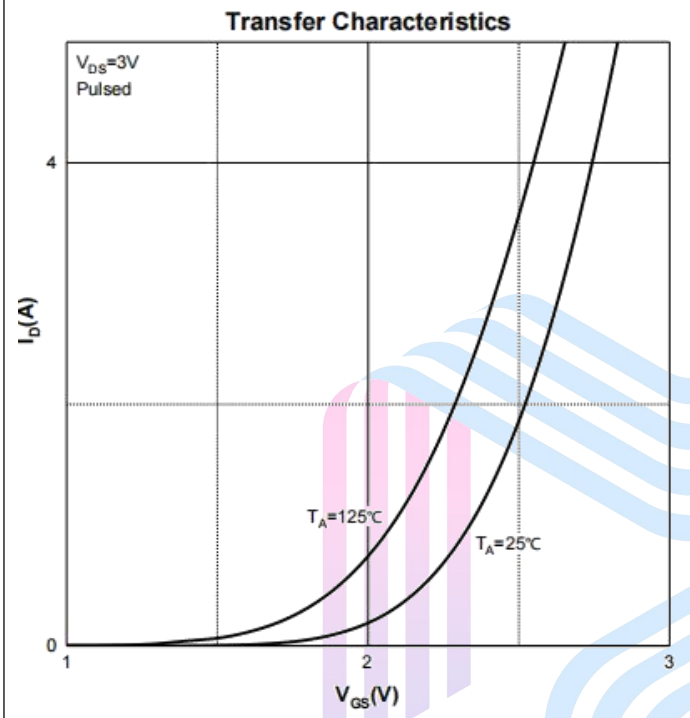


Figure 4: Output Characteristics

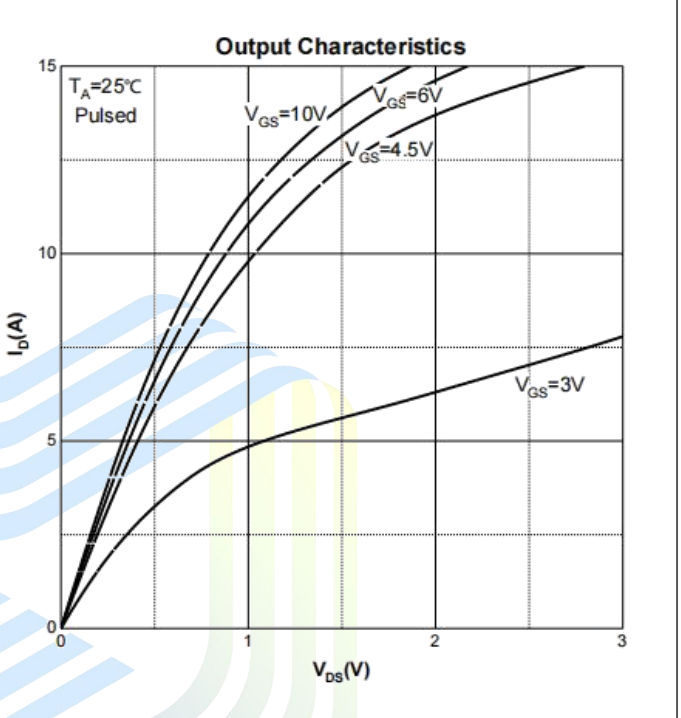


Figure 5: On-Resistance vs. Drain Current

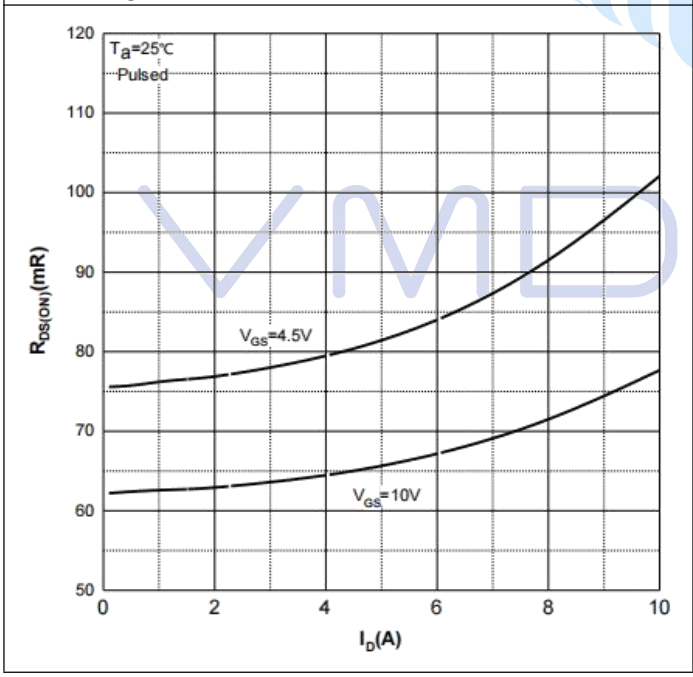


Figure 6: On-Resistance vs. Gate Voltage

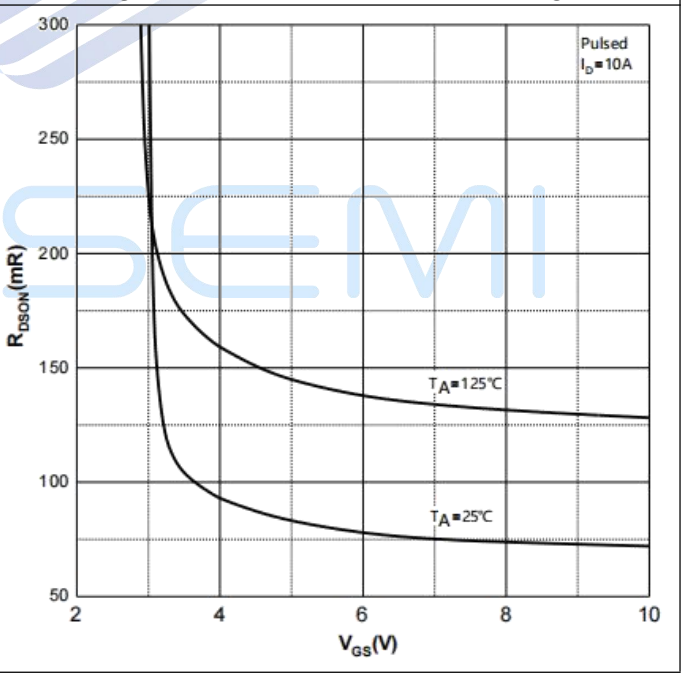


Figure 7: Body Diode Characteristics

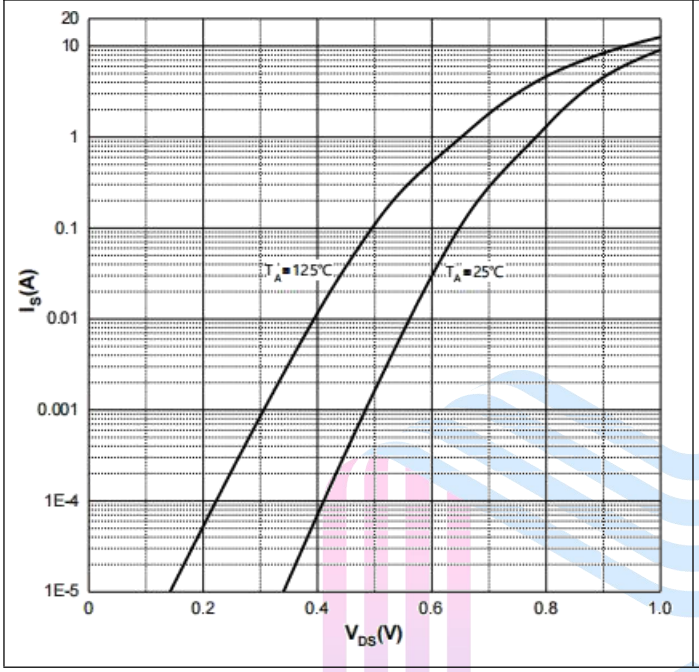
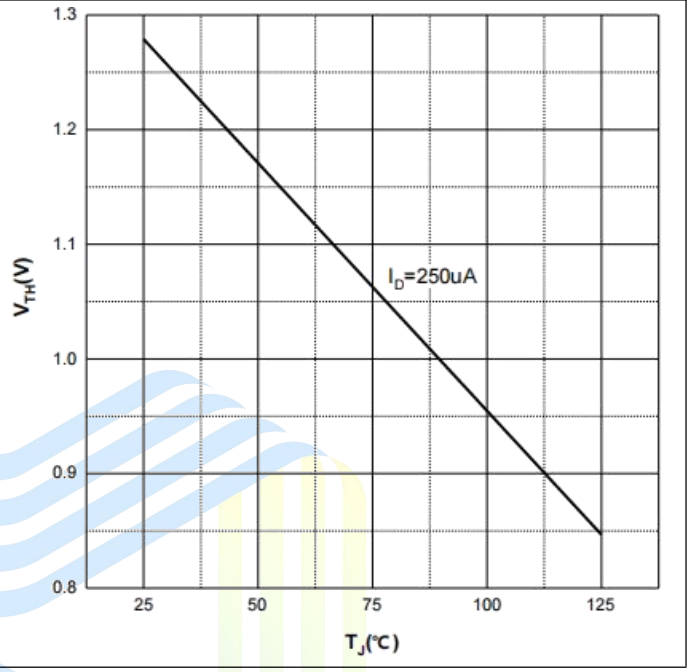
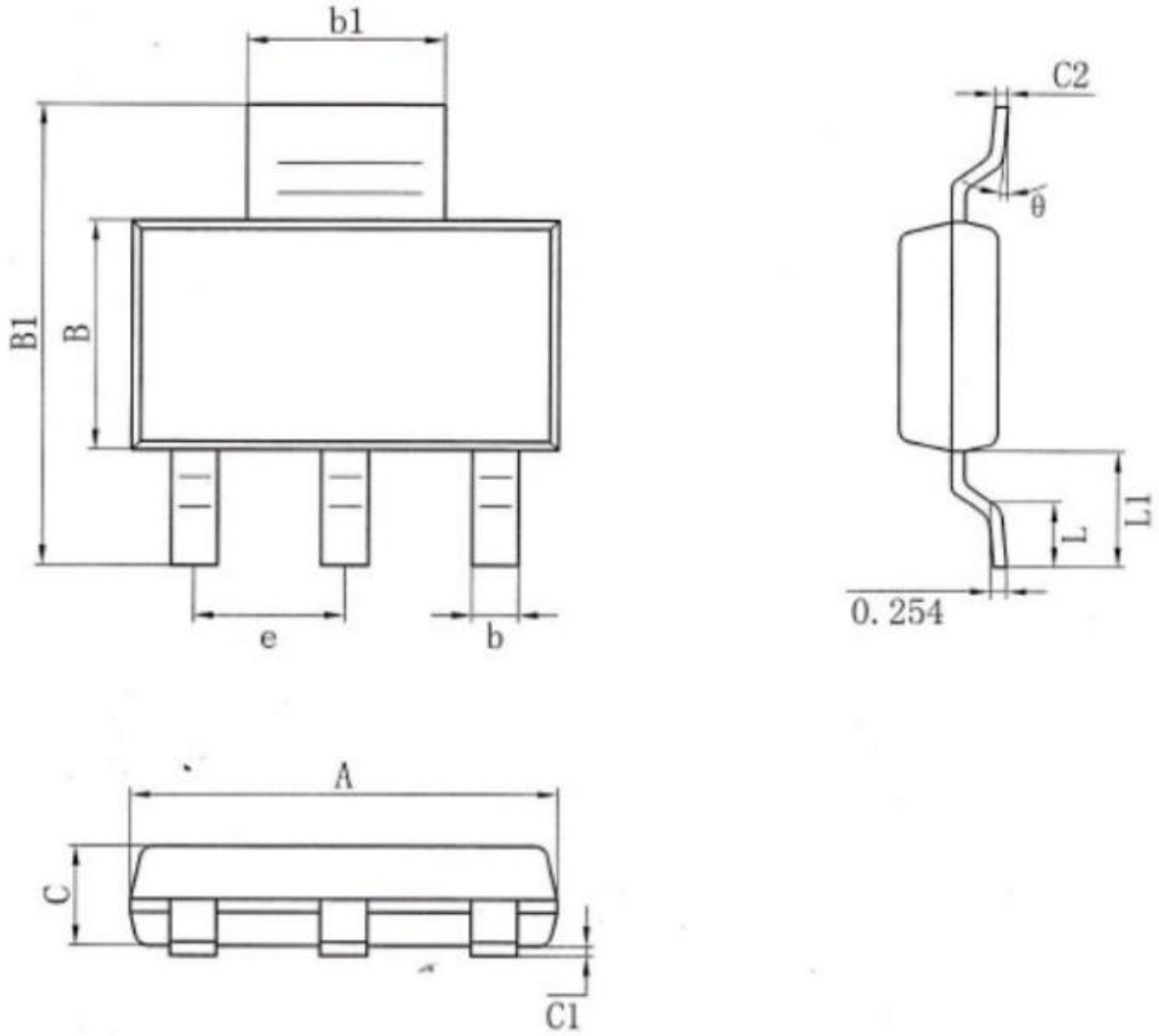


Figure 8: Threshold Voltage



Mechanical Dimensions:

SOT-223 Package Information



尺寸 / 标注	最小(mm)	最大(mm)	尺寸 / 标注	最小(mm)	最大(mm)
A	6.40	6.60	C	1.45	1.65
e	2.286 (BSC)		C1	0.03	0.15
b	0.66	0.76	C2	0.20	0.35
b1	2.95	3.05	L	0.76	1.16
B	3.40	3.60	L1	1.70	1.80
B1	6.85	7.15	θ	0°	8°

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