VUSE010R15ANA

Datasheet

VMDSEMI

General Description

$V_{(BR)DSS}$	$R_{DS(ON)\_max}$	I_D
100V	145mΩ@10V	3A
	170mΩ@4.5V	

Symbol

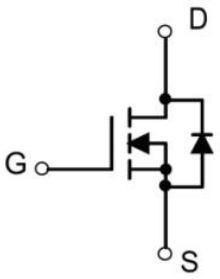


Figure 1 Symbol of VUSE010R15ANA

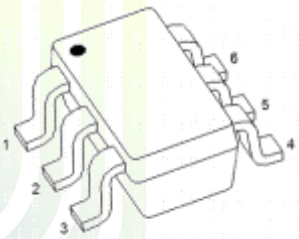
Features

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

Application

- Load Switch
- DC/DC Converter

Package Type



SOT-23-6L

Figure 2 Package Type of VUSE010R15ANA

Ordering Information

Product Name	Package
VUSE010R15ANA	SOT-23-6L

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current[Note1]	I_D	3	A
Pulsed Drain Current [Note2]	I_{DM}	12	
Total Power Dissipation[Note4]	P_D	0.8	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]	$R_{\theta JA}$		156		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	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 100V, 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	1	2	3	V
Static Drain-Source On-Resistance[Note3]	$R_{DS(ON)}$	V_{GS}=10V, I_D= 3A		77	145	mΩ
		V_{GS}=4.5V, I_D= 2A		102	170	
Dynamic Characteristics						
Input Capacitance	C_{ISS}	V_{DS}=45V		817.2		pF
Output Capacitance	C_{OSS}	V_{GS}=0V		34.3		pF
Reverse Transfer Capacitance	C_{RSS}	f=1MHz		30.7		pF
Total Gate Charge	Q_g	V_{DS}=50V		20.5		nC
Gate-Source Charge	Q_{gs}	V_{GS}=10V		4.6		
Gate-Drain Charge	Q_{gd}	I_D= 3A		3.3		
Gate Resistance	Rg	f = 1MHz, Open drain		1.6		Ω
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}= 25V		14.2		ns
Turn-on Rise Time	t_r	V_{GS}= 10V		33.7		
Turn-off Delay Time	$t_{d(off)}$	R_L=1Ω		40.2		
Turn-off Fall Time	t_f	R_G=5Ω		6		
Diode Characteristics						
Diode Forward Voltage [Note3]	V_{SD}	V_{GS}=0V, I_S= 1A			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

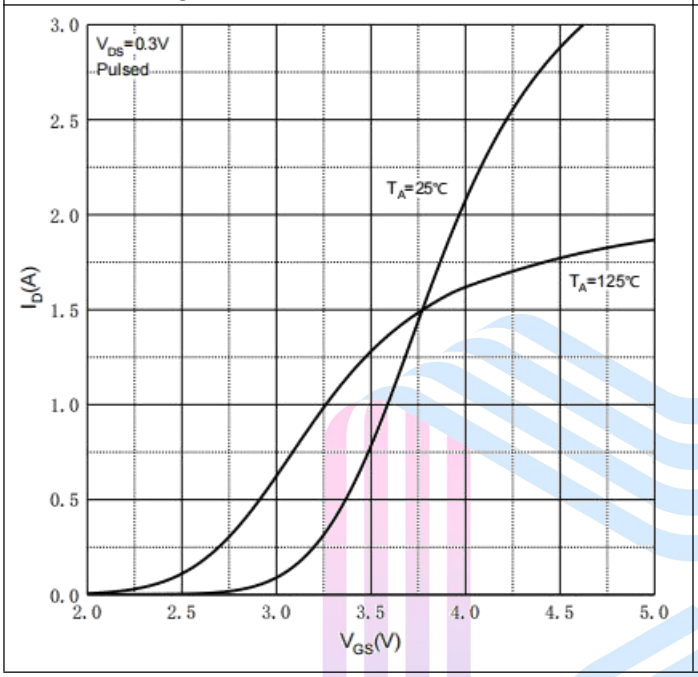


Figure 4: Output Characteristics

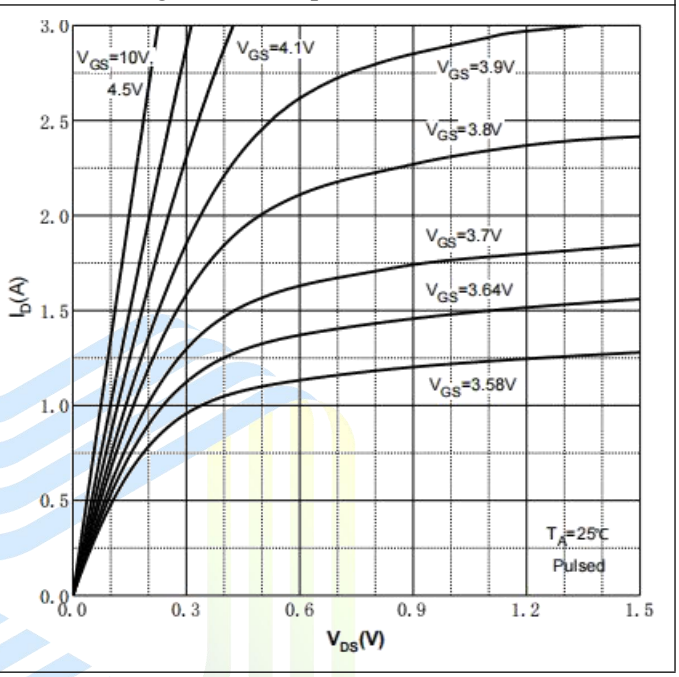


Figure 5: On-Resistance vs. Drain Current

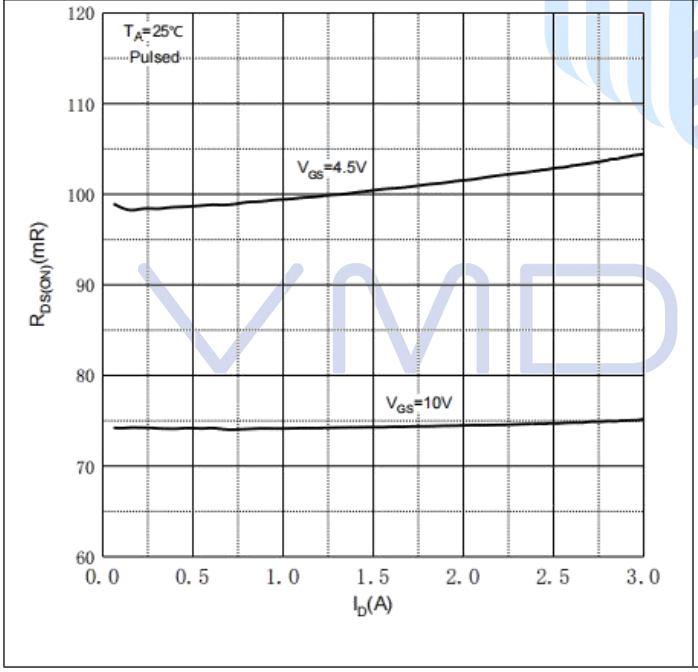


Figure 6: On-Resistance vs. Gate Voltage

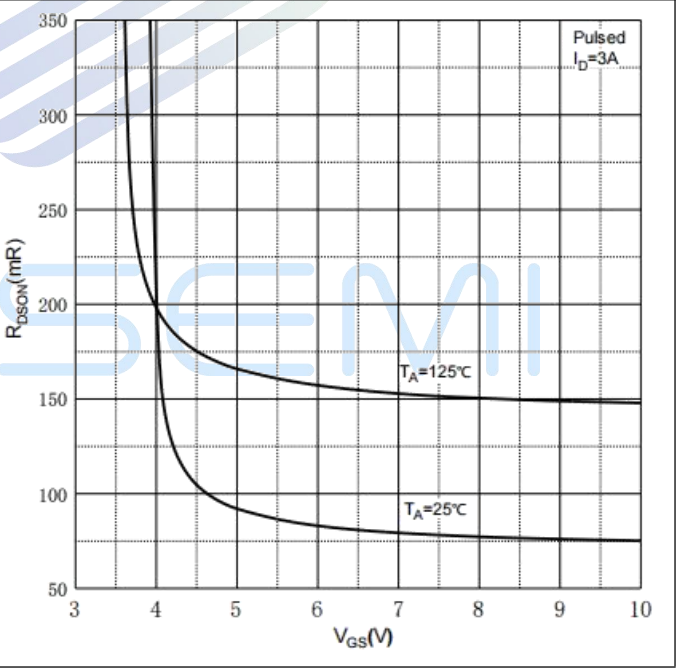


Figure 7: Body Diode Characteristics

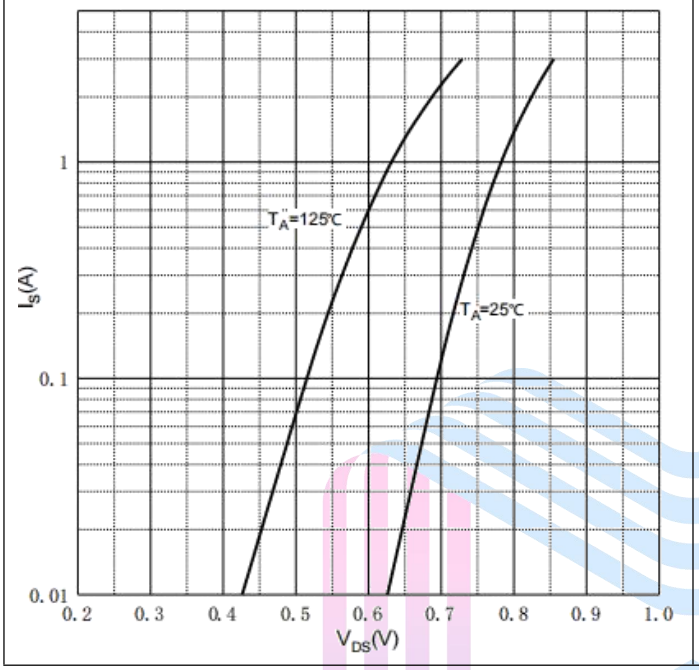
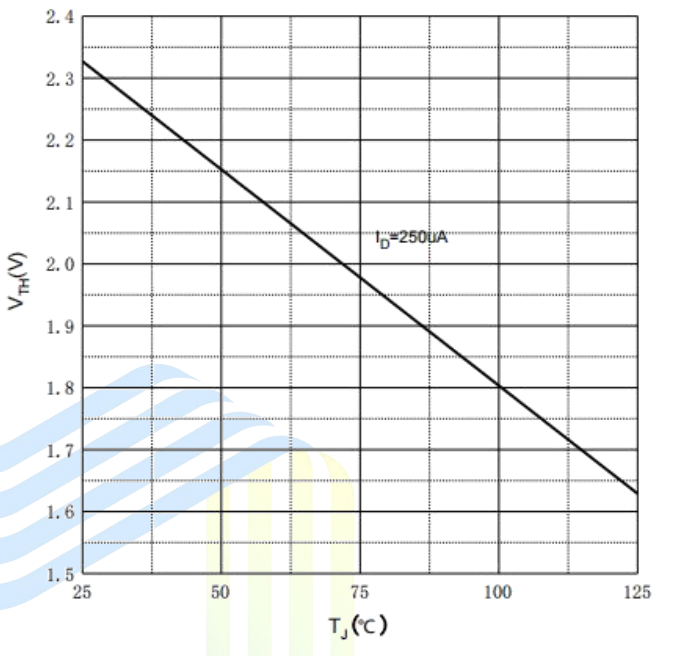
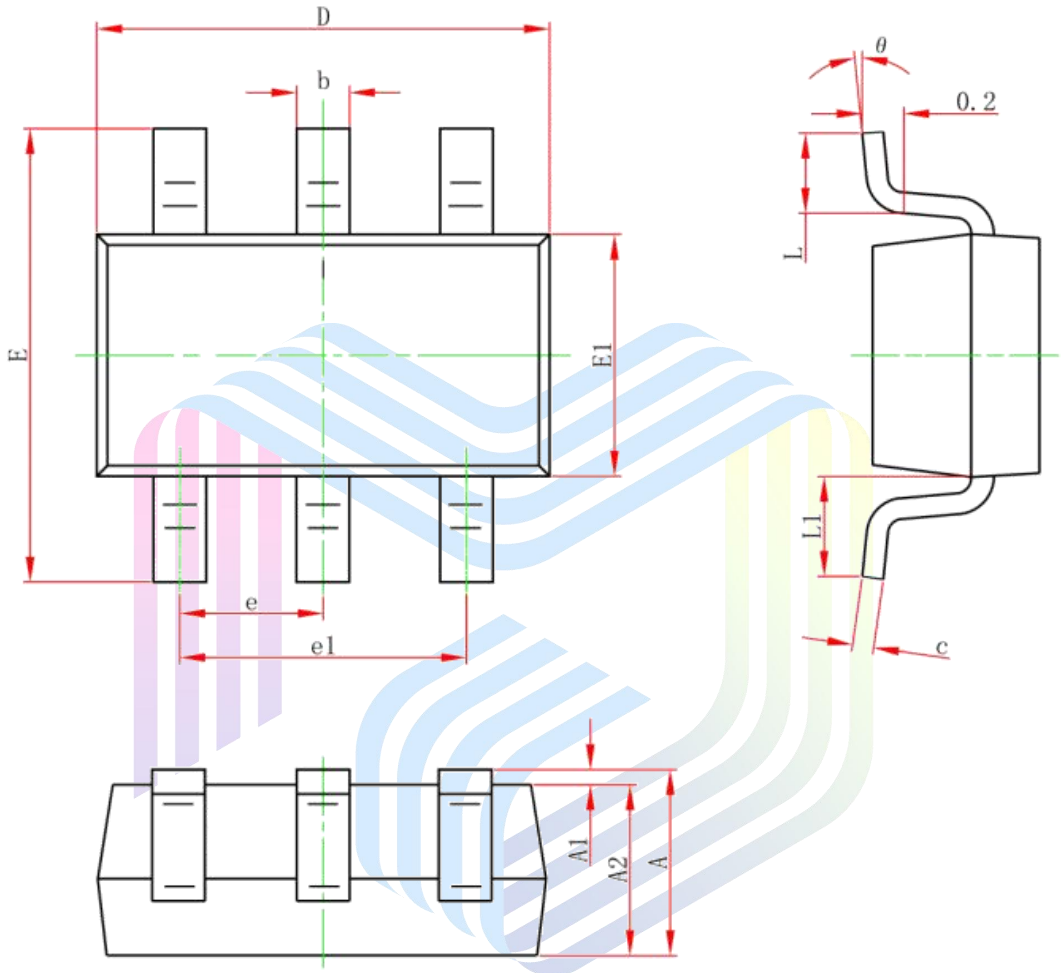


Figure 8: Threshold Voltage



Mechanical Dimensions:

SOT-23-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0	0.150	0.000	0.006
A2	1.050	1.250	0.041	0.049
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF		0.024REF	
θ	0°	8°	0°	8°

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