VUAA010R16ANA

Datasheet

General Description

$V_{(BR)DSS}$	$R_{DS(ON)\_max}$	I_D
100V	160mΩ@10V	3A
	170mΩ@4.5V	

Symbol

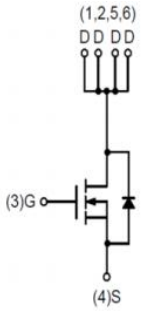


Figure 1 Symbol of VUAA010R16ANA

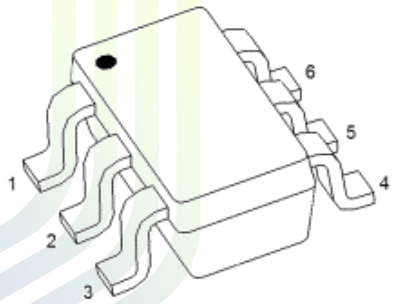
Features

- High density cell design for ultra low $R_{DS(on)}$
- Excellent package for good heat dissipation
- low gate charge

Application

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply

Package Type



TSOT-23-6L

Figure 2 Package Type of VUAA010R16ANA

Ordering Information

Product Name	Package
VUAA010R16ANA	TSOT-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}	20	
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]	$R_{\theta JA}$		357		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	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	1.6	2	V
Static Drain-Source On-Resistance[Note3]	$R_{DS(ON)}$	V_{GS}=10V, I_D= 3A		135	160	mΩ
		V_{GS}=4.5V, I_D= 2A		140	170	
Forward Transconductance[Note3]	g_{FS}	V_{DS}=5V, I_D= 3A	3			S
Dynamic Characteristics						
Input Capacitance	C_{ISS}	V_{DS}=25V		607		pF
Output Capacitance	C_{OSS}	V_{GS}=0V		38		pF
Reverse Transfer Capacitance	C_{RSS}	f=1MHz		20		pF
Total Gate Charge	Q_g	V_{DS}=30V		13.7		nC
Gate-Source Charge	Q_{gs}	V_{GS}=10V		3.1		
Gate-Drain Charge	Q_{gd}	I_D= 3A		4.5		
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}= 30V		9.7		ns
Turn-on Rise Time	t_r	V_{GS}= 10V		6.5		
Turn-off Delay Time	$t_{d(off)}$	I_D= 2A		31		
Turn-off Fall Time	t_f	R_G=2.5Ω, R_L=15Ω		8		
Diode Characteristics						
Diode Forward Voltage [Note3]	V_{SD}	V_{GS}=0V, I_S= 1A		0.73	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 1oz. Copper, in a still air environment with T_A =25°C.

Typical Performance Characteristics

Figure 3: Transfer Characteristics

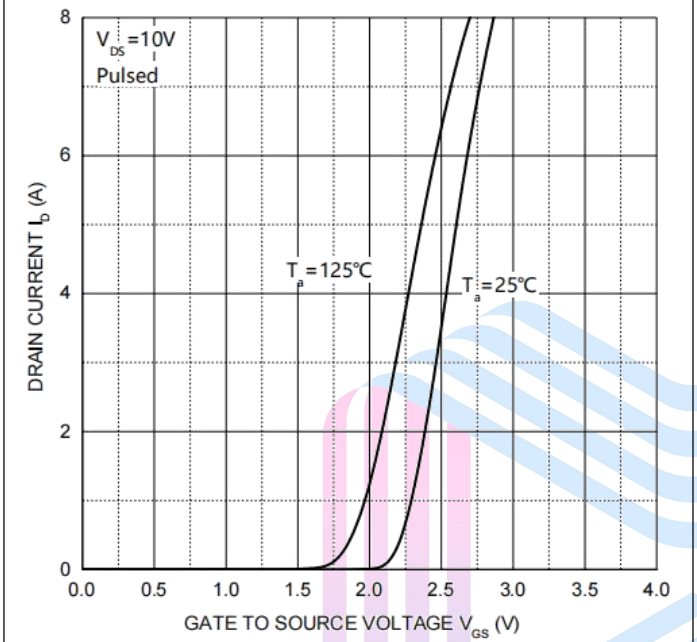


Figure 4: Output Characteristics

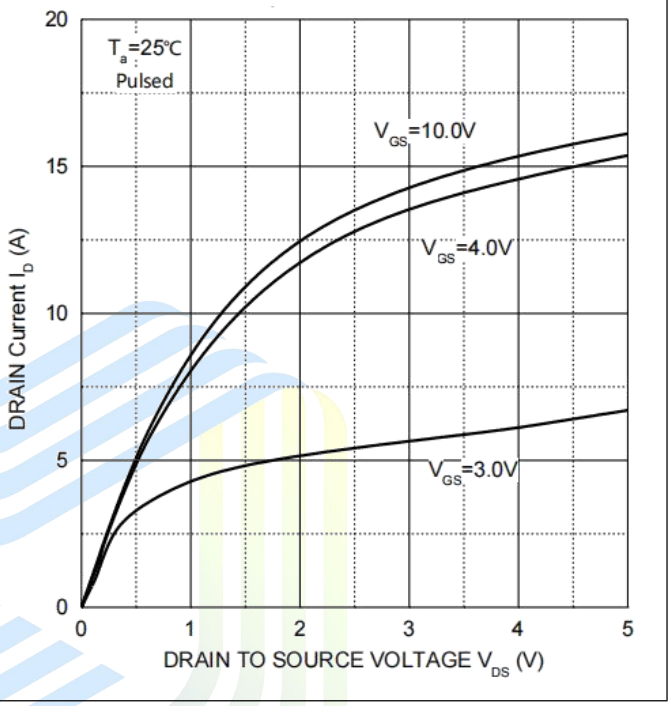


Figure 5: On-Resistance vs. Drain Current

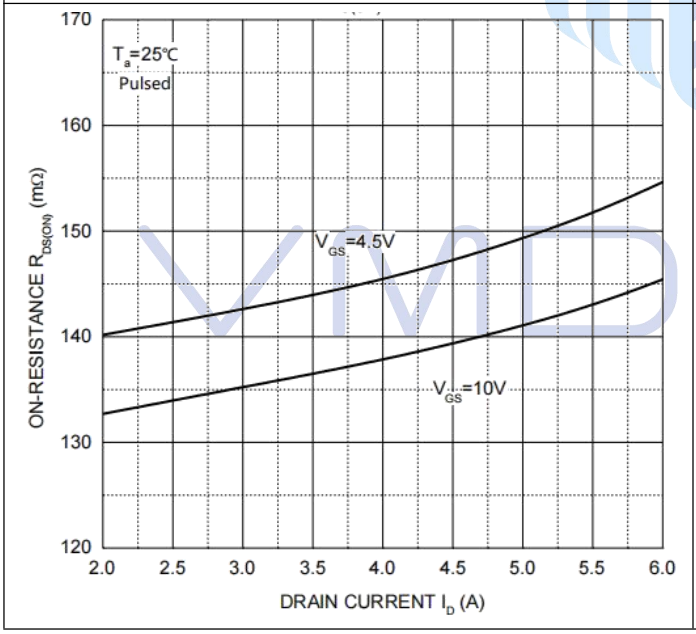


Figure 6: On-Resistance vs. Gate Voltage

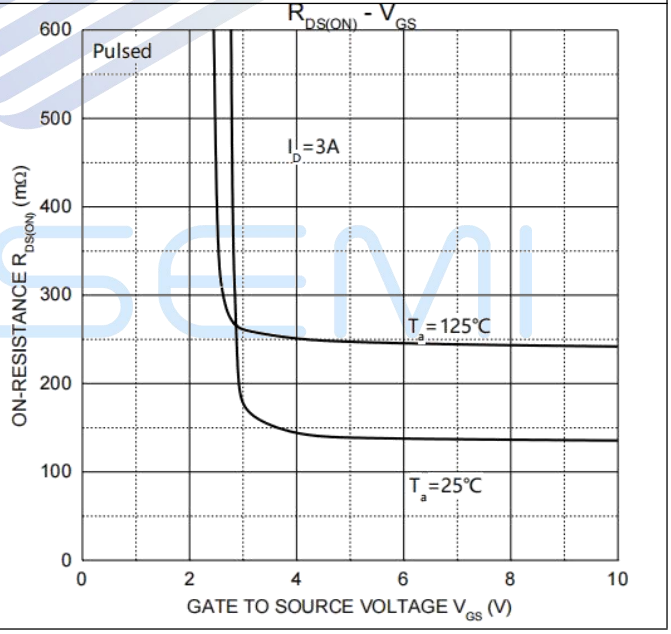


Figure 7: Body Diode Characteristics

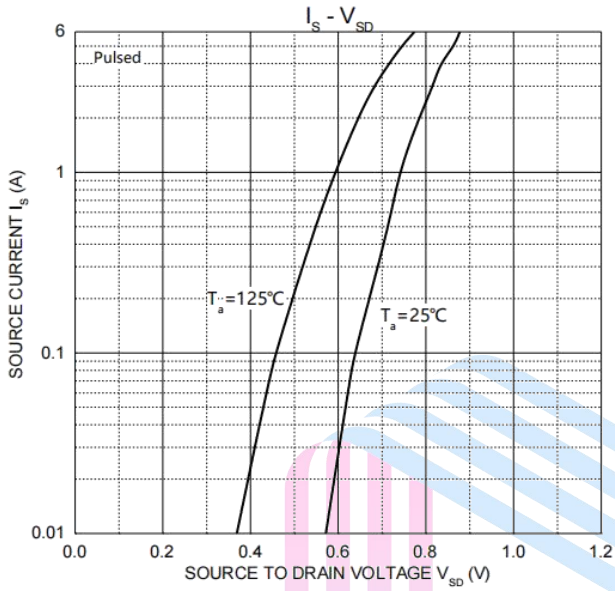
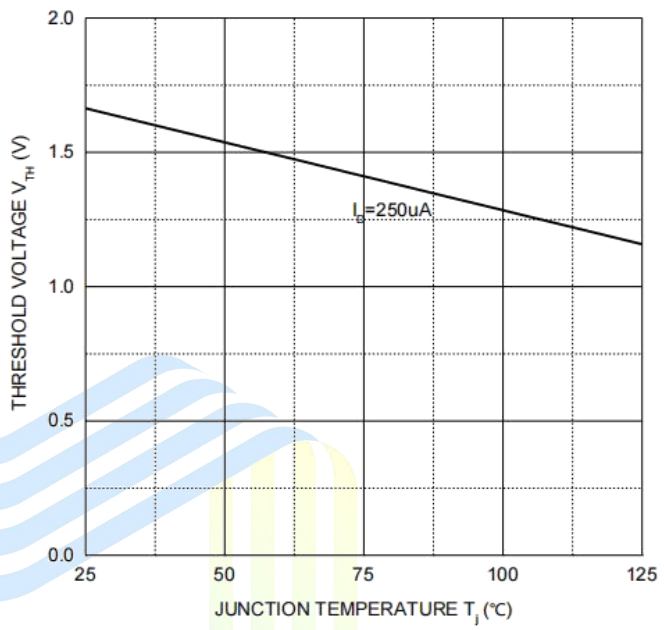
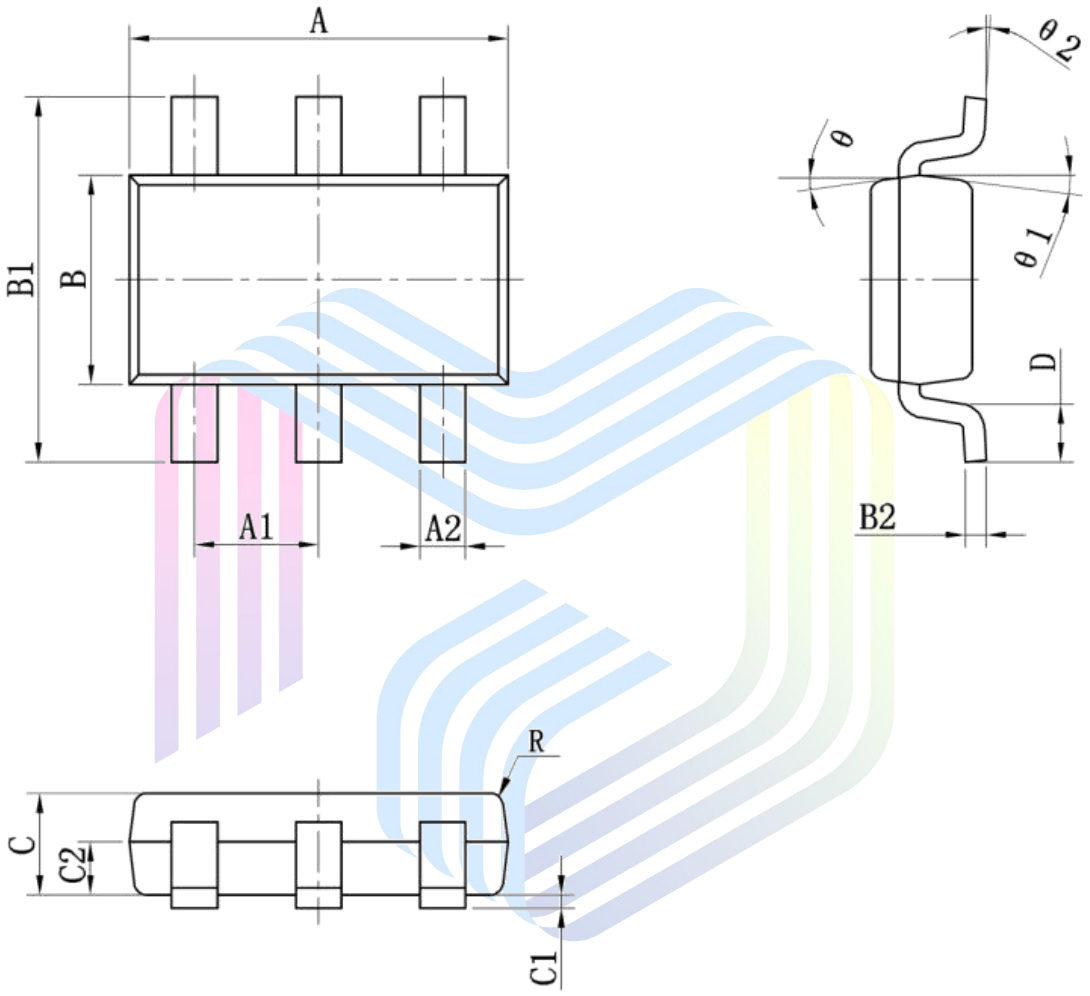


Figure 8: Threshold Voltage



Mechanical Dimensions:

TSOT-23-6L Package Information



尺寸/SIZE 标注/SYMBOL	最小/MIN(mm)	最大/MAX(mm)	尺寸/SIZE 标注/SYMBOL	最小/MIN(mm)	最大/MAX(mm)
A	2.820	3.020	C1	0.000	0.100
A1	0.950(BSC)		C2	0.378	0.438
A2	0.350	0.500	D	0.300	0.600
B	1.600	1.700	θ	9° TYP4	
B1	2.650	2.950	θ1	10° TYP4	
B2	0.080	0.200	θ2	0~8°	
C	0.700	0.800			

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