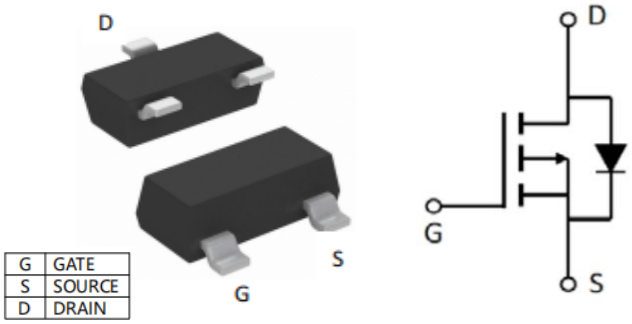
Features

- Low $R_{DS(on)}$@V_{GS}=-10V
- -3.3V Logic Level Control
- RoHS Compliant
- Pb−Free
- Halogen Free

V_{DS}	-30V
I_D@T_A=25℃	-4.2A
$R_{DS(on)}$@V_{GS}=-10V,I_D=-4A Typ. ~ Max.(T_J=25℃)	44 ~ 55mΩ

特征

- 低导通电阻@V_{GS}=10V
- -3.3V 逻辑电平控制
- 符合 RoHS 标准
- 不含铅
- 不含卤素



G	GATE
S	SOURCE
D	DRAIN

SOT-23-3L

Application 应用

- Load Switch 负载开关
- Switching Circuits 开关电路
- High speed line driver 高速线路驱动器
- Power Management Functions 电源管理功能

MARKING CONTENT 丝印内容

Device Type 器件型号	Device Marking 器件印字
AO3401A-CN	A19T

Ordering information 订购信息

Device Type 器件型号	Package 封装	Reel Size 卷盘尺寸	SPQ 标准包装量	MPQ 最小包装数量	MOQ 最小订购数量
AO3401A-CN	SOT-23-3L	7 Inch 英寸	3000/Reel 卷	45000/Box 盒	180000/Carton 箱

1、Package 封装

Table 1__Characteristic values

表 1__特征数值

Parameter 参数	Symbol 符号	Note or test condition 注释或测试条件	Values 数值			Unit 单位
			Min. 最小	Typ. 典型	Max. 最大	
Storage temperature 储存温度	T_{stg}	/	-50	/	+150	°C
Thermal resistance, Junction-Ambient 结至环境热阻	$R_{\theta JA}$	/	/	/	80	°C/W

2、MOSFET

Table 2__Maximum Ratings (T_A= 25°C unless otherwise noted)

表 2__极限参数(如无另外标识，环境温度=25°C)

Parameter 参数	Symbol 符号	Note or test condition 注释或测试条件	Value 数值	Unit 单位
Drain-Source Voltage 漏极-源极电压	V_{DS}	/	-30	V
Gate-Source Voltage 栅极-源极电压	V_{GS}	/	±12	V
Continuous Drain Current 持续漏极电流	I_D	T_A= 25°C	-4.2	M
		T_A= 70°C	-3.3	
Pulse Drain Current 脉冲漏极电流	I_{DM}	Pulse width limited by maximum allowable junction temperature	-16.8	A
Power Dissipation 耗散功率	P_D	T_A= 25°C	1.2	W
		T_A= 70°C	0.9	

Table 3_Electrical Characteristic Values(T_A=25°C,unless otherwise noted)

表 3_电气特性数值(如无另外标识，环境温度=25°C**)**

Parameter 参数	Symbol 符号	Note or test condition 注释或测试条件	Limits 限值			Unit 单位
			Min.	Typ.	Max.	
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated) 静态电气特性						
Drain-source breakdown voltage 漏源极击穿电压	$V_{(BR)DSS}$	V_{GS}=0V I_D=-250μA	-30	/	/	V
Zero Gate Voltage Drain Current 零栅压漏极-源极漏电流	I_{DSS}	V_{DS}=-30V V_{GS}=0V	/	/	-1	μA
		V_{DS}=-24V V_{GS}=0V	/	/	-100	
Gate-Source Leakage Current 栅极驱动漏电流	I_{GSS}	V_{GS}=±12V V_{DS}=0V	/	/	±100	nA
Gate threshold voltage 开启电压 (阈值电压)	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-0.5	-0.8	-1.2	V
Drain-Source on-state resistance 导通电阻②	$R_{DS(on)}$	V_{GS}=-10V,I_D=-4A	/	44	55	mΩ
		V_{GS}=-4.5V,I_D=-3A	/	51	60	
		V_{GS}=-3.3V,I_D=-3A	/	58	75	
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) 动态电气特性						
Input Capacitance 输入电容	C_{iss}	V_{DS}=-15V V_{GS}=0V f=1MHz	/	655	/	pF
Output Capacitance 输出电容	C_{oss}		/	65	/	
Reverse Transfer Capacitance 反向传输电容	C_{rss}		/	53	/	

Total Gate Charge 栅极总充电电量	Q_g	V_{DS}=-15V I_D=-4A V_{GS}=-4.5V	/	7.2	/	nC
Gate-Source Charge 栅源极总充电电量	Q_{gs}		/	1.5	/	
Gate-Drain Charge 栅漏极总充电电量	Q_{gd}		/	2.6	/	

② Pulse test:Pulse width≤300μs,duty cycle≤2%.
脉冲测试：脉冲宽度≤300μs，占空比≤2%。

Table 4__Characteristic Values

表 4__特征数值

Parameter 参数	Symbol 符号	Note or test condition 注释或测试条件	Limits 限值			Unit 单位
			Min.	Typ.	Max.	
Turn-on delay time 漏源极导通延迟时间	$t_{d(on)}$	V_{DD}=-15V I_D=-2A V_{GS}=-10V R_G=3.3Ω	/	7.0	/	ns
Rise Time 漏源极电流上升时间	t_r		/	3.8	/	
Turn-off delay time 漏源极关断延迟时间	$T_{d(off)}$		/	35	/	
Fall time 漏源极电流下降时间	t_f		/	10.5	/	
Operating junction temperature 工作结温度	T_j		/	/	+150	℃

3、Source-Drain Diode characteristics 源极-漏极二极管特性

Table 5__Maximum rated values (T_A= 25°C unless otherwise noted)

表 5 最大额定值(如无另外标识，环境温度=25°C)

Parameter 参数	Symbol 符号	Note or test condition 注释或测试条件	Value 数值		Unit 单位
			Typ.	Max.	
Diode forward voltage 二极管正向导通电压②	V_{SD}	T_j=25℃ I_{SD}=-4A V_{GS}=	-0.88	-1.2	V
Source drain current (Body Diode) 源漏电流 (体二极管)	I_{SD}	0V /	/	-2.0	A

② Pulse test:Pulse width≤300μs,duty cycle≤2%.
脉冲测试：脉冲宽度≤300μs，占空比≤2%。

4、Characteristics diagrams 特性图

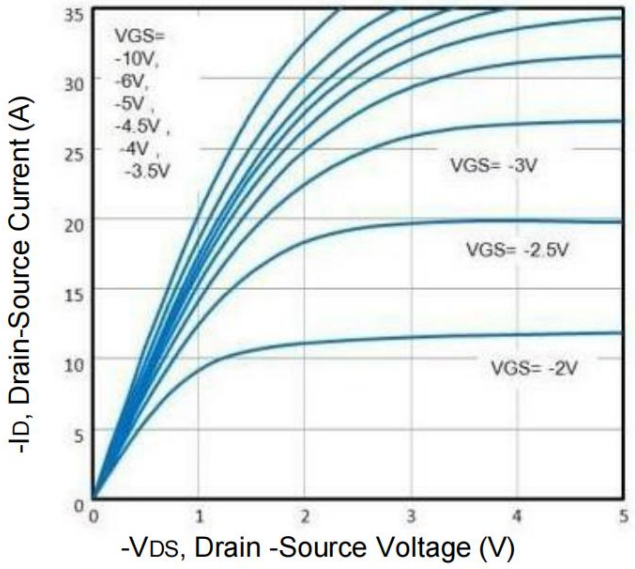


Fig1. Typical Output Characteristics

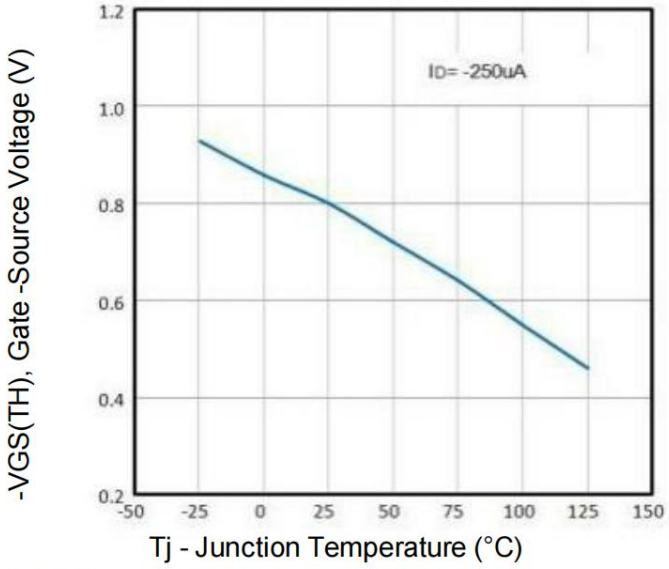


Fig2. Normalized Threshold Voltage Vs. Temperature

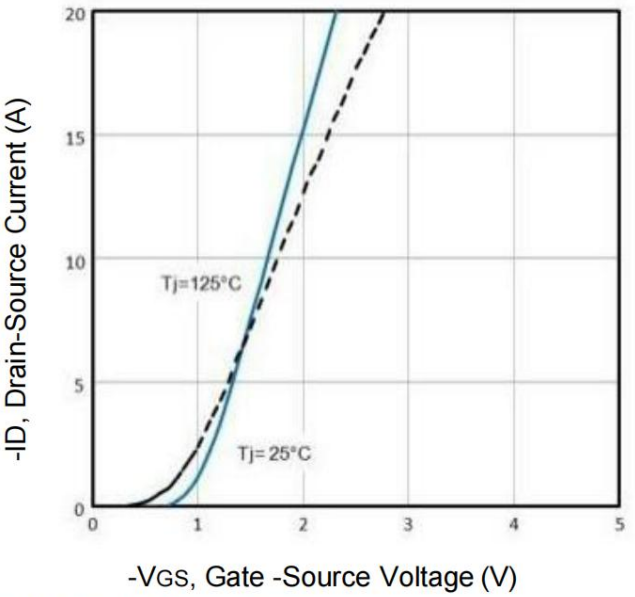


Fig3. Typical Transfer Characteristics

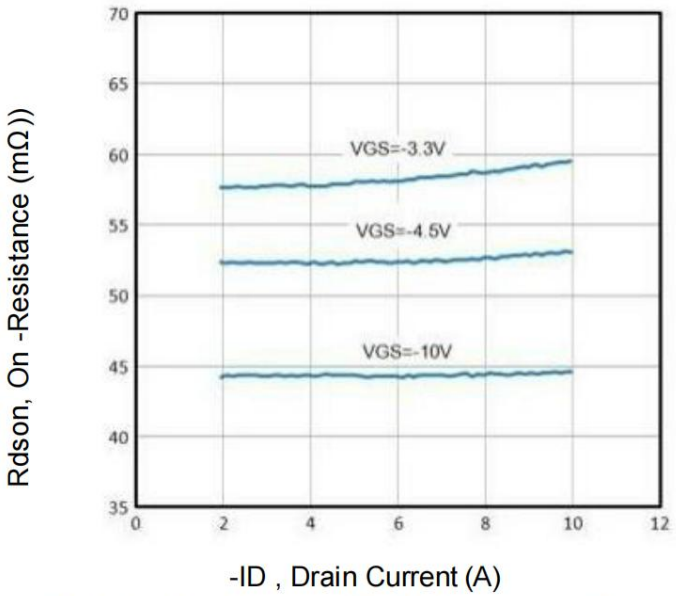


Fig4. On-Resistance vs. Drain Current and Gate

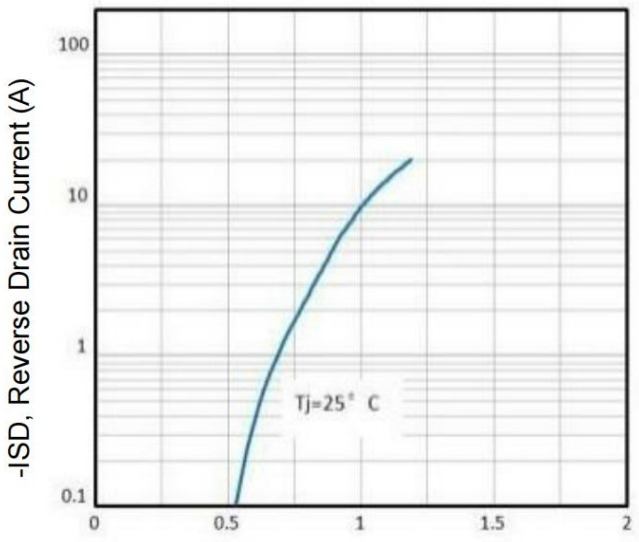


Fig5. Typical Source-Drain Diode Forward Voltage

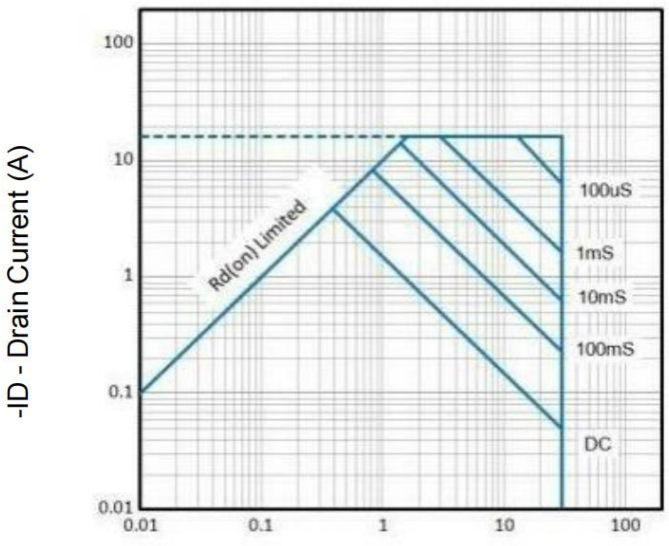


Fig6. Maximum Safe Operating Area

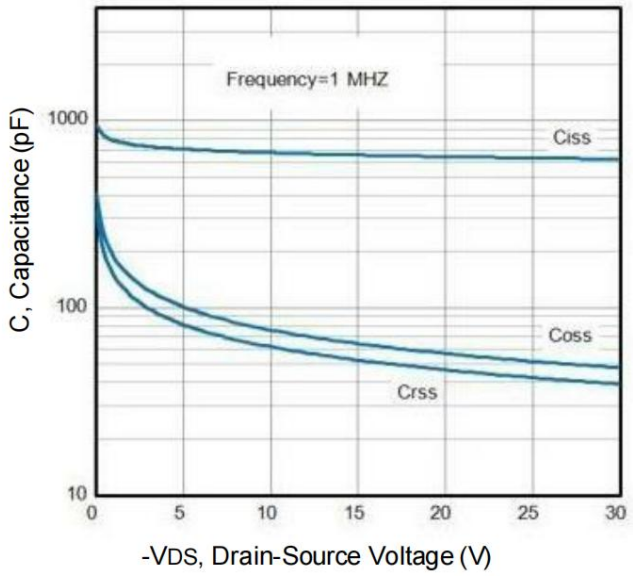


Fig7. Typical Capacitance Vs. Drain-Source Voltage

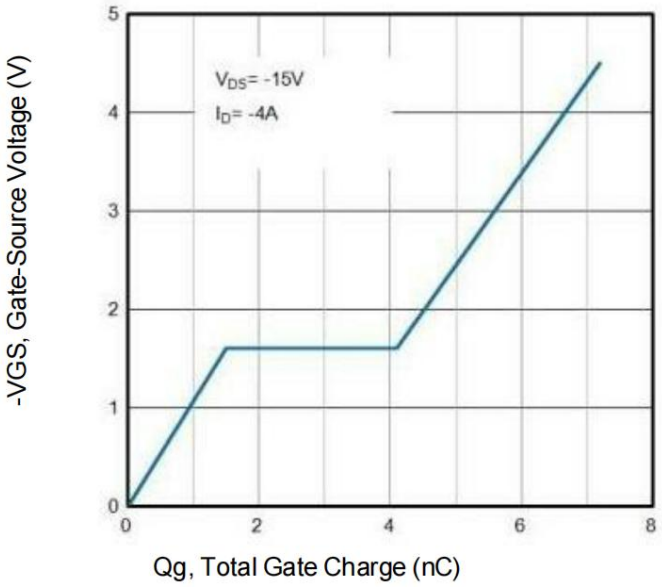


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

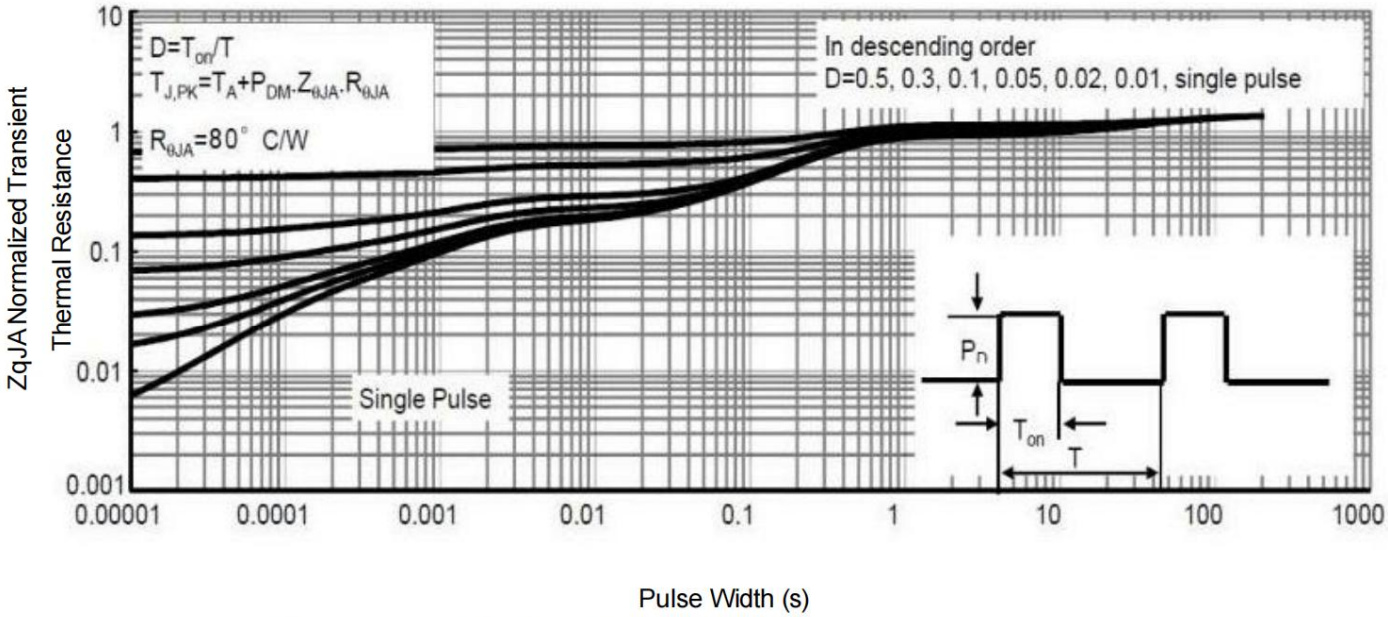


Fig9. Normalized Maximum Transient Thermal Impedance

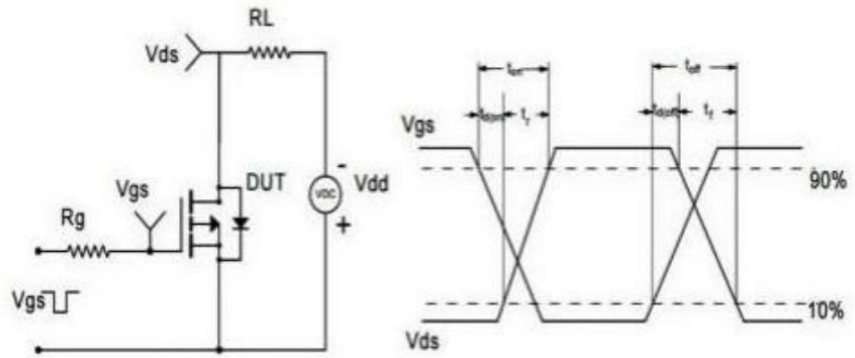
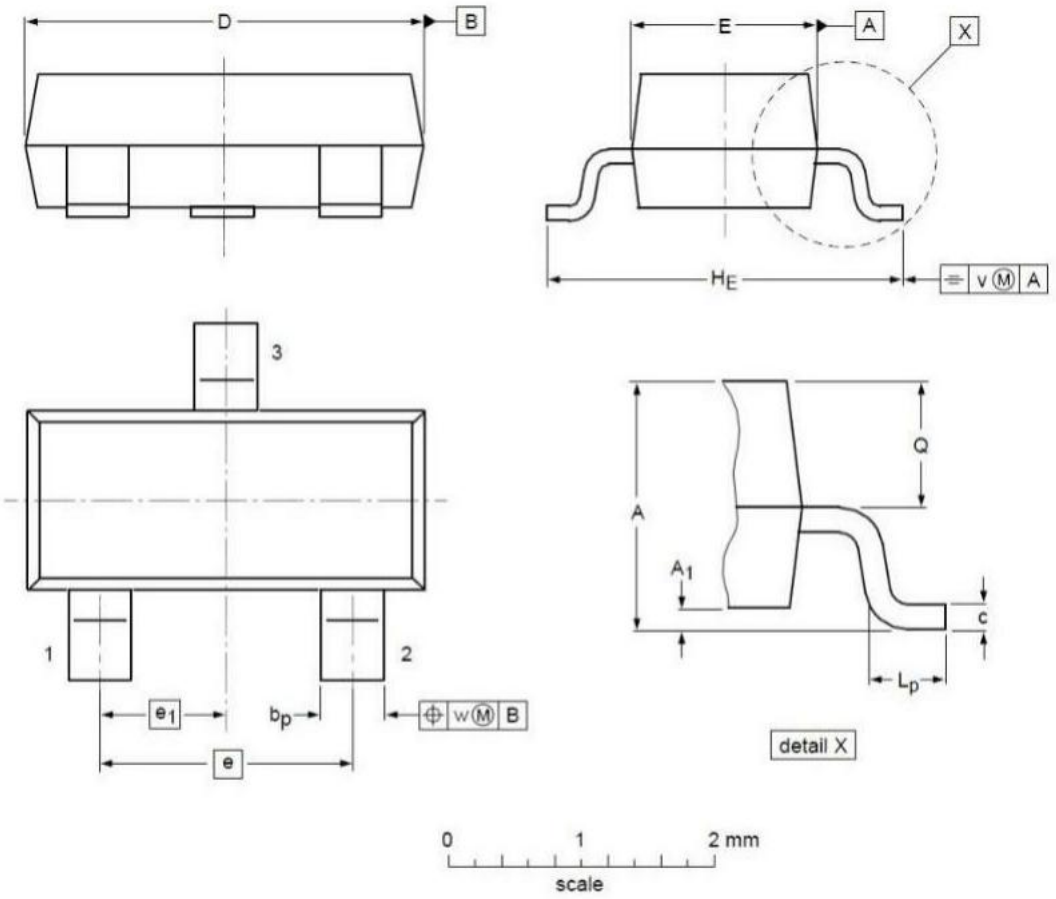


Fig10. Switching Time Test Circuit and waveforms

5、Package 封装信息

SOT-23-3L Package Information



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	1.00	1.17	1.30	A_1	0.01	0.05	0.10
b_p	0.35	0.39	0.50	c	0.10	0.20	0.26
D	2.70	2.90	3.10	E	1.50	1.60	1.70
e	--	1.90	–	e_1	–	0.95	--
H_E	2.50	2.78	3.00	L_p	0.20	0.32	0.60
Q	0.23	0.27	0.33	v	–	0.20	--
w	--	0.20	–				

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