AO3401

SOT-23 Plastic-Encapsulate MOSFETS

30V P-Channel MOSFET

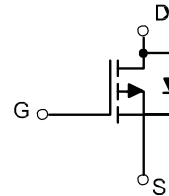| $V_{(BR)DSS}$	$R_{DS(on)}$Typ	I_D Max
-30V	44mΩ@-10V	-4.2A
	50mΩ@-4.5V	

SOT-23

1. GATE
2. SOURCE
3. DRAIN
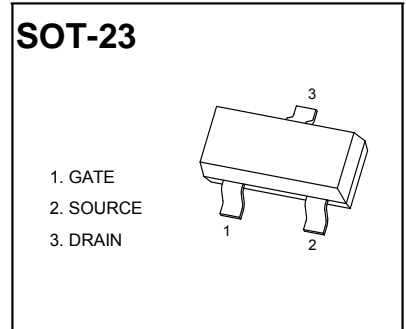
FEATURE

High dense cell design for extremely low RDS(ON)

Exceptional on-resistance and maximum DC current capability
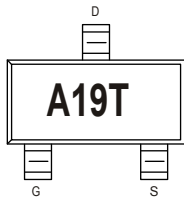
APPLICATION

- Load/Power Switching
- Interfacing Switching

MARKING

A19T

Equivalent circuit

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
SOT-23	7'	330	3000	203×203×195	45000	438×438×220	180000

Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	T_A = 25 °C	I_D	-4.2	A
	T_A= 70 °C		-3.2	
Pulsed Drain Current [1]		I_{DM}	-16	A
Maximum Power Dissipation [2]	T_A = 25 °C	P_D	1.2	W
	T_A = 70 °C		0.9	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-50 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted) [2]		R_{thJA}	80	°C/W

Notes
[1] Pulse width limited by maximum junction temperature.
[2] Surface Mounted on FR4 Board, t ≤ 5 sec.

The above data are for reference only.

AO3401

MOSFET ELECTRICAL CHARACTERISTICS

T$_a$=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	V$_{(BR)DSS}$	V$_{GS}$ = 0V, I$_D$ =-250uA	-30			V
Zero gate voltage drain current	I$_{DSS}$	V$_{DS}$ =-30V,V$_{GS}$ = 0V			-1	uA
Gate-source leakage current	I$_{GSS}$	V$_{GS}$ =±12V, V$_{DS}$ = 0V			±100	nA
On characteristics						
Drain-source on-resistance (note 3)	R$_{DS(on)}$	V$_{GS}$ =-10V, I$_D$ =-4.2A		44	55	m
		V$_{GS}$ =-4.5V, I$_D$ =-3A		50	60	m
		V$_{GS}$ =-3.3V,I$_D$=-3A		58	75	m
Forward tranconductance (note 3)	g$_{FS}$	V$_{DS}$ =-5V, I$_D$ =-5A	7			S
Gate threshold voltage	V$_{GS(th)}$	V$_{DS}$ =V$_{GS}$, I$_D$ =-250uA	-0.5	-0.8	-1.2	V
Dynamic Characteristics (note 4)						
Input capacitance	C$_{iss}$	V$_{DS}$ =-15V,V$_{GS}$ =0V,f =1MHz		655		pF
Output capacitance	C$_{oss}$			65		pF
Reverse transfer capacitance	C$_{rss}$			53		pF
Switching Characteristics (note 4)						
Turn-on delay time	t$_{d(on)}$	V$_{GS}$=-10V,V$_{DS}$=-15V, R$_L$=3.3 ,R$_{GEN}$=6		7		ns
Turn-on rise time	t$_r$			3.8		ns
Turn-off delay time	t$_{d(off)}$			35		ns
Turn-off fall time	t$_f$			10.5		ns
Drain-source diode characteristics and maximum ratings						
Diode forward voltage (note 3)	V$_{SD}$	I$_S$=1A,V$_{GS}$=0V			-1	V

Note :

3). Pulse test: pulse width ≤ 300us, duty cycle≤ 2%
4). Guaranteed by design, not subject to production testing

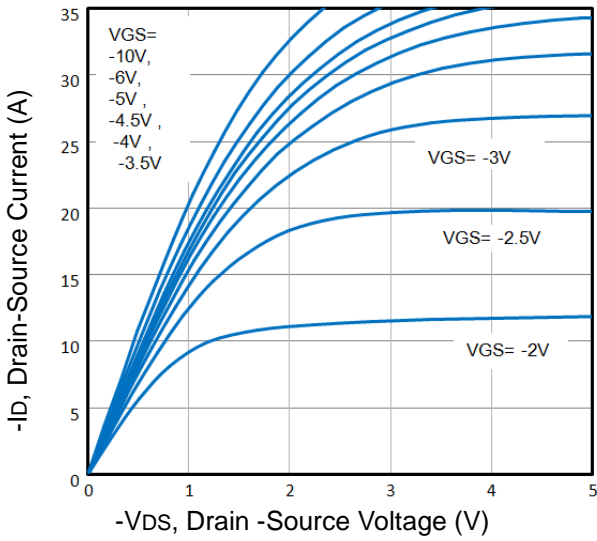## Typical Characteristics

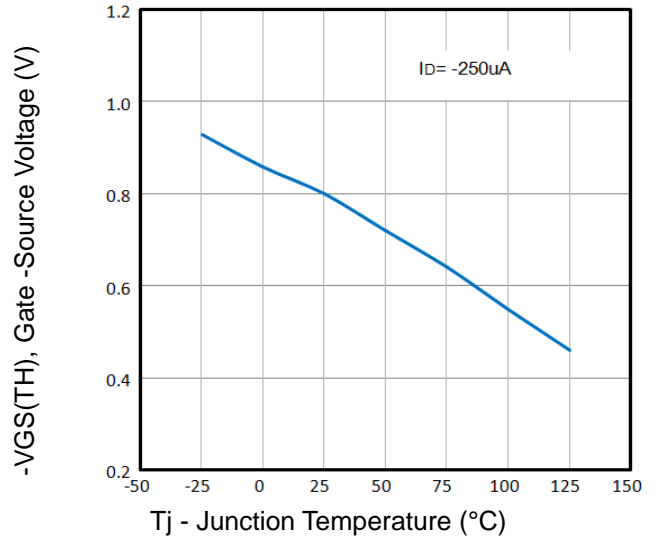**Fig1.** Typical Output Characteristics

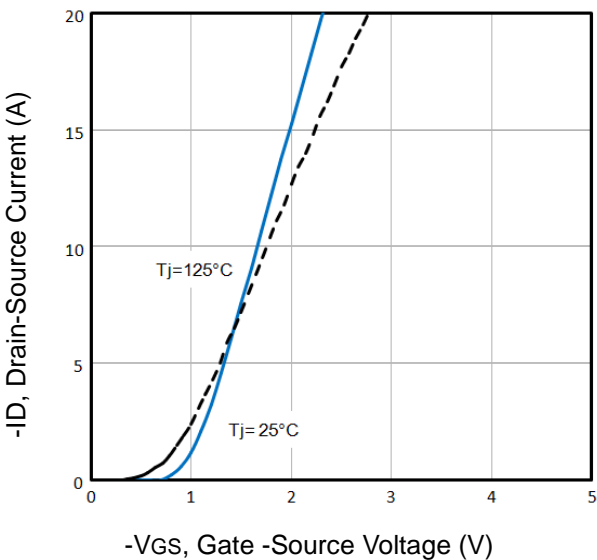**Fig2.** Normalized Threshold Voltage Vs. Temperature

Fig3. Typical Transfer Characteristics
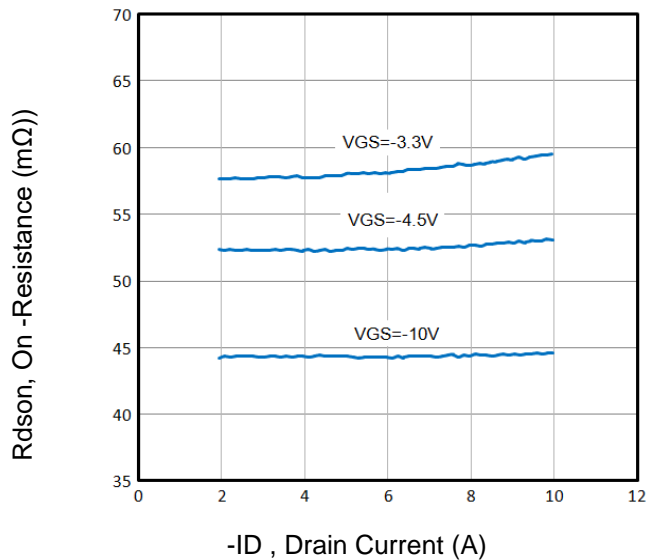

Fig4. On-Resistance vs. Drain Current and Gate
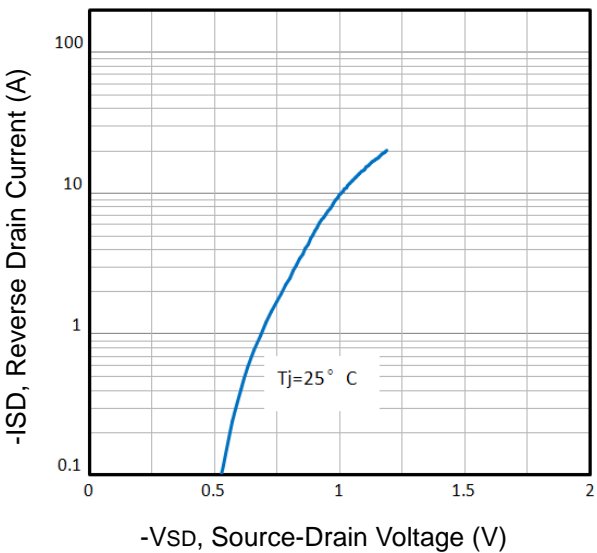

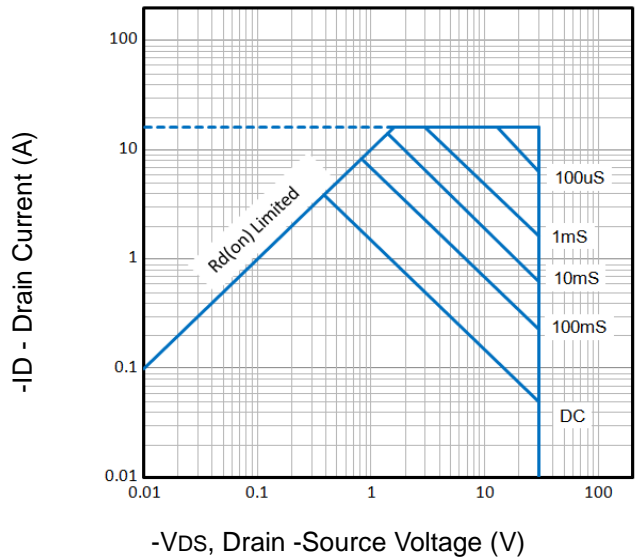**Fig5.** Typical Source-Drain Diode Forward Voltage

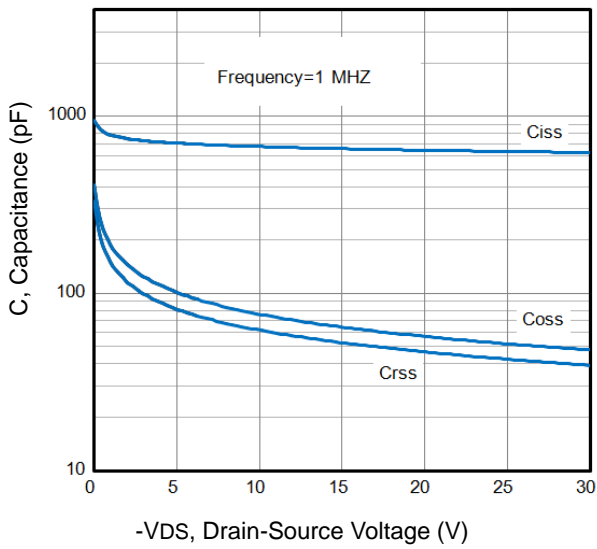**Fig6.** Maximum Safe Operating Area

Typical Characteristics
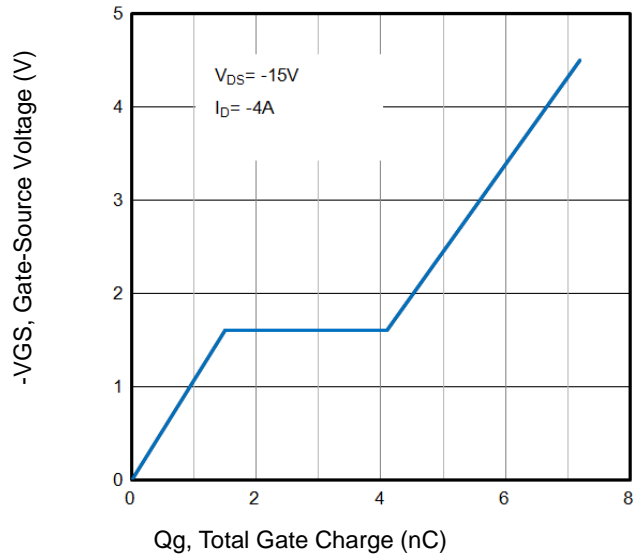

Fig7. Typical Capacitance Vs. Drain-Source Voltage

Fig8. Typical Gate Charge Vs. Gate-Source Voltage
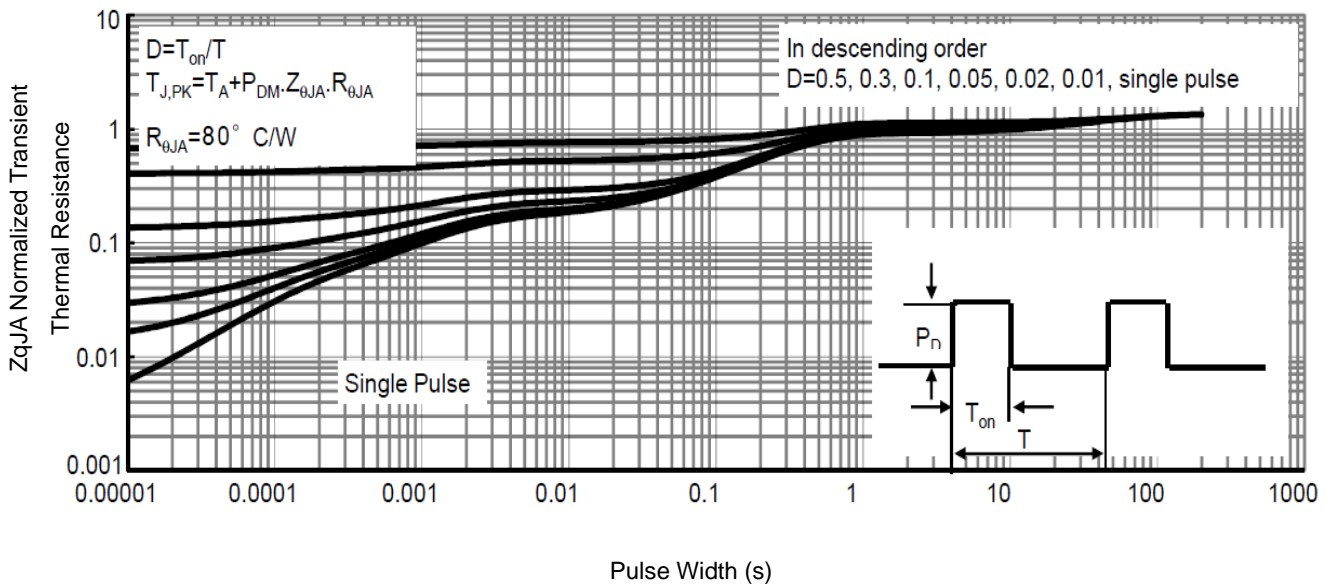

Pulse Width (s)

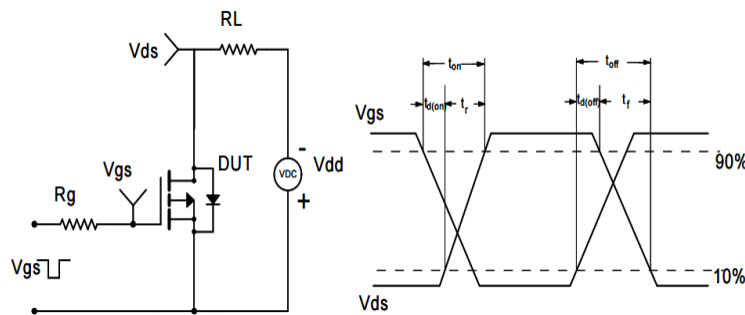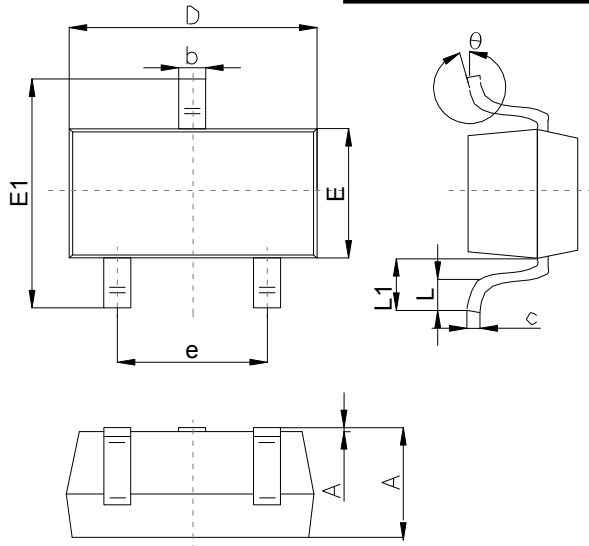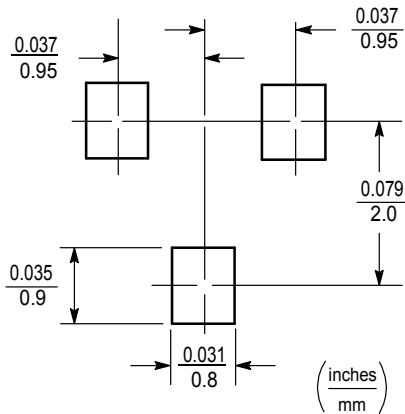Fig9. Normalized Maximum Transient Thermal Impedance

Fig10. Switching Time Test Circuit and waveforms

Outlitne Drawing

SOT-23 Package Outline Dimensions

Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.90		1.40
A1	0.00		0.10
b	0.30		0.50
c	0.08		0.20
D	2.80	2.90	3.10
E	1.20		1.60
E1	2.25		2.80
e	1.80	1.90	2.00
L	0.10		0.50
L1	0.4		0.55
θ	0°		10°

Suggested Pad Layout

Note:
1.   Controlling dimension:in/millimeters. 2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.