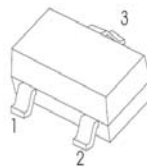


### FEATURE

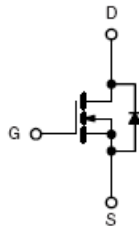
- High density cell design for low  $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

### SOT-23

1. GATE
2. SOURCE
3. DRAIN

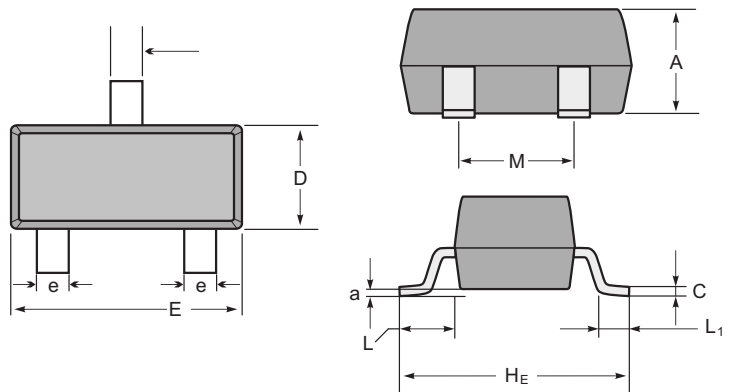


### Equivalent Circuit



### Marking

Type number	Marking code
AO3400	AO9T



SOT-23 mechanical data

UNIT		A	C	D	E	H <sub>E</sub>	e	M	L	L <sub>1</sub>	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

### Maximum ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	5.8	A
Drain Current-Pulsed (note 1)	$I_{DM}$	30	A
Power Dissipation	$P_D$	1.5	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}\text{C}$

# AO3400

## Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)

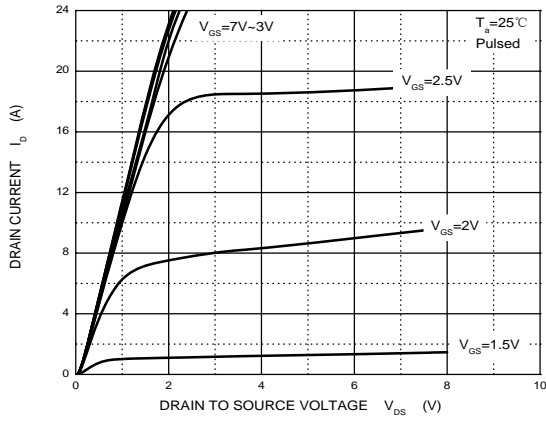
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Off Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
Gate-source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±100	nA
<b>On characteristics</b>						
Drain-source on-resistance (note 3)	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.8A		28	35	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5A			40	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 4A			52	mΩ
Forward tranconductance	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 5A	8			S
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.7		1.4	V
<b>Dynamic Characteristics (note 4,5)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz			1050	pF
Output capacitance	C <sub>oss</sub>			99		pF
Reverse transfer capacitance	C <sub>rss</sub>			77		pF
Gate resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz			3.6	Ω
<b>Switching Characteristics (note 4,5)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, R <sub>L</sub> = 2.7Ω, R <sub>GEN</sub> = 3Ω			5	ns
Turn-on rise time	t <sub>r</sub>				7	ns
Turn-off delay time	t <sub>d(off)</sub>				40	ns
Turn-off fall time	t <sub>f</sub>				6	ns
<b>Drain-source diode characteristics and maximum ratings</b>						
Diode forward voltage (note 3)	V <sub>SD</sub>	I <sub>S</sub> = 1A, V <sub>GS</sub> = 0V			1	V

### Note :

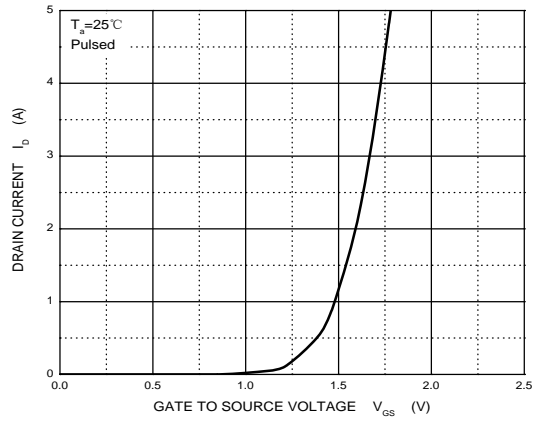
1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

# RATING AND CHARACTERISTIC CURVES (AO3400)

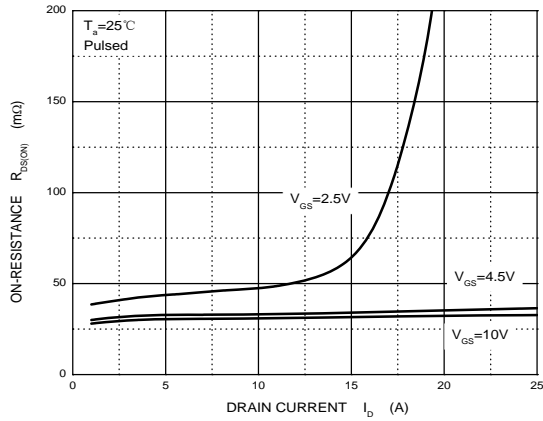
**Output Characteristics**



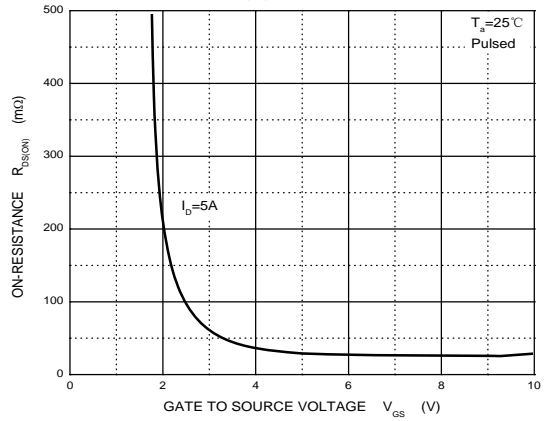
**Transfer Characteristics**



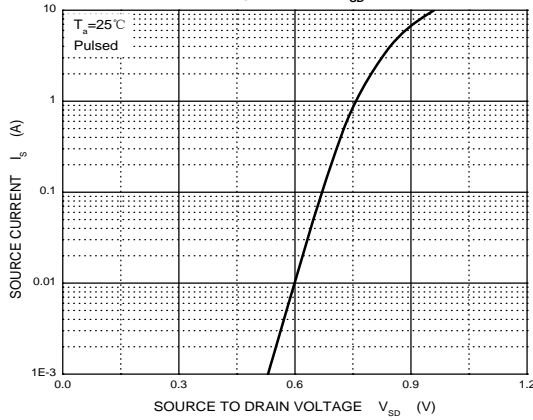
**$R_{DS(ON)}$  —  $I_D$**



**$R_{DS(ON)}$  —  $V_{GS}$**



**$I_S$  —  $V_{SD}$**



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