

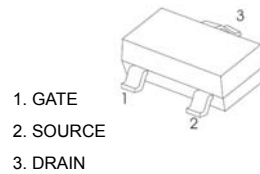
## DESCRIPTION

The AO3404 use advanced trench technology to provide excellent  $R_{DS(ON)}$  and low gate charge. This device is suitable for use as a load switch or in PWM applications. The source leads are separated to allow a Kelvin connection to the source, which may be used to bypass the source inductance.

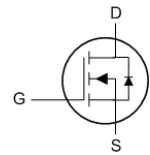
$V_{DSS}$  30 V  
 $I_D$  5.8 A  
 $R_{DS(ON)}$  19 m $\Omega$

A49T

### SOT-23



### Equivalent Circuit



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

### 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	$V_{GS}$	$\pm 20$	V
Continuous drain current ( $t \leq 10\text{s}$ )	$I_D$	5.8	A
Pulsed drain current *	$I_{DM}$	30	A
Thermal resistance from junction to ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~ 150	$^\circ\text{C}$

\* Repetitive rating : Pulse width limited by maximum junction temperature.

**T<sub>a</sub>=25 °C unless otherwise specified**

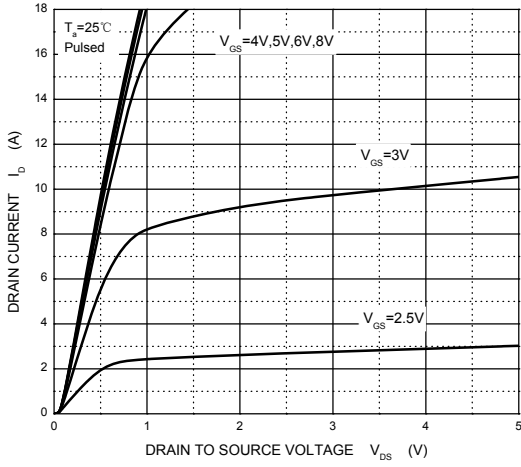
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>STATIC PARAMETERS</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1	1.4	3	V
Drain-source on-resistance (note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.8A		19	30	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4.8A		31	42	mΩ
Forward tranconductance (note 1)	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 5.8A	5			S
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> = 1A			1	V
<b>DYNAMIC PARAMETERS (note 2)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz			820	pF
Output capacitance	C <sub>oss</sub>			118		pF
Reverse transfer capacitance	C <sub>rss</sub>			85		pF
Gate resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz			1.5	Ω
<b>SWITCHING PARAMETERS (note 2)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, R <sub>L</sub> = 2.6Ω, R <sub>GEN</sub> = 3Ω			6.5	ns
Turn-on rise time	t <sub>r</sub>			3.1		ns
Turn-off delay time	t <sub>d(off)</sub>			15.1		ns
Turn-off fall time	t <sub>f</sub>			2.7		ns

**Note :**

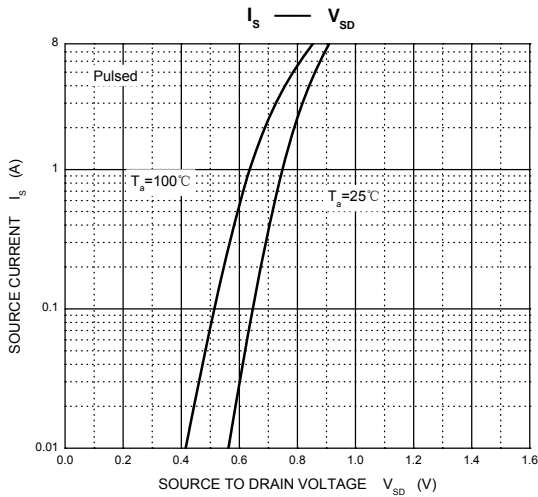
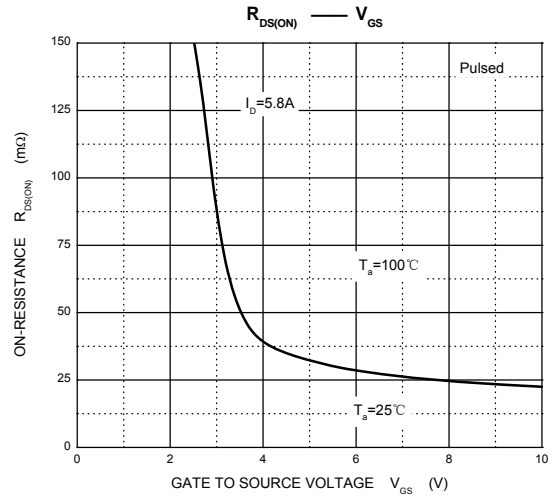
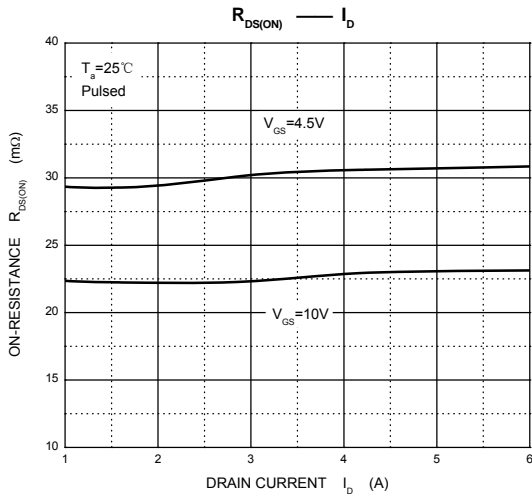
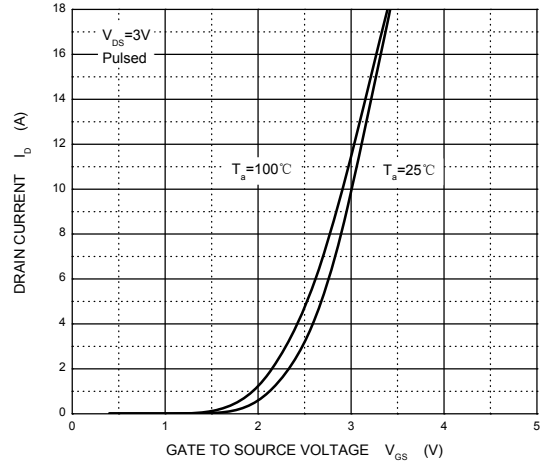
1. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 0.5%.
2. These parameters have no way to verify.

RATING AND CHARACTERISTIC CURVES

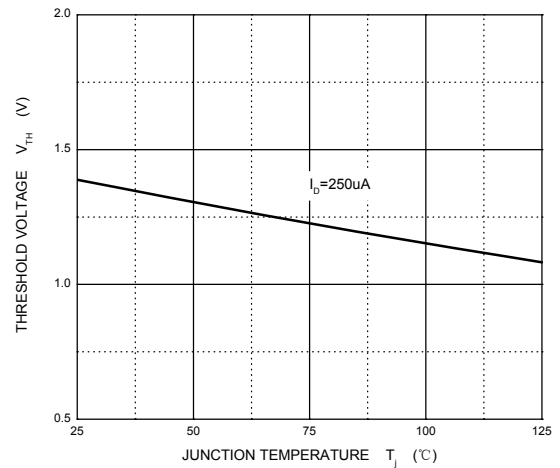
Output Characteristics



Transfer Characteristics



Threshold Voltage



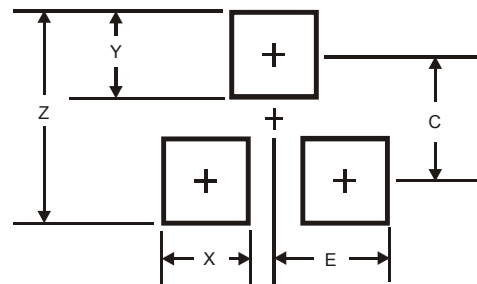
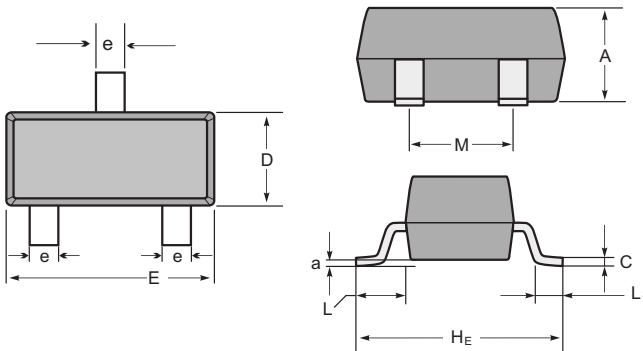
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

UNIT	A	C	D	E	HE	e	M	L	L1	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

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.10
		P1	4.00±0.10
		P2	2.00±0.10
		D0	1.55±0.10
		D1	1.05±0.10
		E	1.55±0.10
		F	3.60±0.10
		W	8.00±0.10
		A0	3.80±0.20
		B0	3.25±0.20
		K0	1.45±0.10
		T	0.25±0.05
		D2	178.0±3.0
		D3	55Min.
		D4	R24.0±3.0
G	R82.0±3.0		
I	13.0±2.0		
W1	11.0±3.0		
		Quantity: 3000PCS	

7" Reel

