DESCRIPTION

The AO3422 uses advanced trench technology to provide excellent $R_{DS(ON)}$ low gate charge and operation with gate voltage as low as 2.5V.

This device is suitable for use as a battery protection or in other switching application.



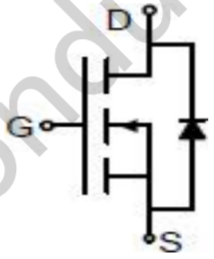
SOT-23-3

FEATURE

- ◆High power and current handing capability
- ◆Lead free product is acquired
- ◆Surface mount package

APPLICATION

- ◆Battery Switch
- ◆DC/DC Converter



Equivalent Circuit

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
60 V	105mΩ@10V	3A
	125mΩ@4.5V	

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Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current (note 1)	I_{DM}	10	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS T_a=25℃ unless otherwise specified

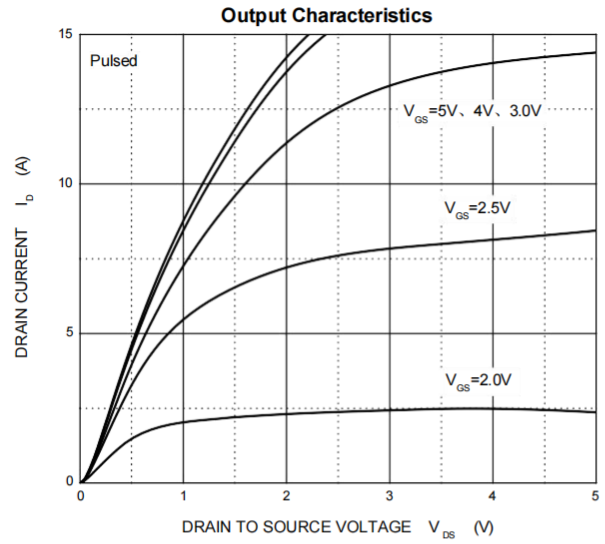
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.5		2	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	V_{GS} =10V, I_D =3A			105	mΩ
		V_{GS} =4.5V, I_D =3A			125	mΩ
Forward tranconductance (note 3)	g_{FS}	V_{DS} =15V, I_D =2A	1.4			S
Diode forward voltage (note 3)	V_{SD}	I_S=3A, V_{GS} = 0V			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =30V,V_{GS} =0V,f =1MHz		247		pF
Output Capacitance	C_{oss}			34		pF
Reverse Transfer Capacitance	C_{rss}			19.5		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=30V, I_D=1.5A,R_{GEN}=1Ω		6		ns
Turn-on rise time	t_r			15		ns
Turn-off delay time	$t_{d(off)}$			15		ns
Turn-off fall time	t_f			10		ns
Total Gate Charge	Q_g	V_{DS} =30V,V_{GS} =4.5V,I_D =3A		6		nC
Gate-Source Charge	Q_{gs}			1		nC
Gate-Drain Charge	Q_{gd}			1.3		nC

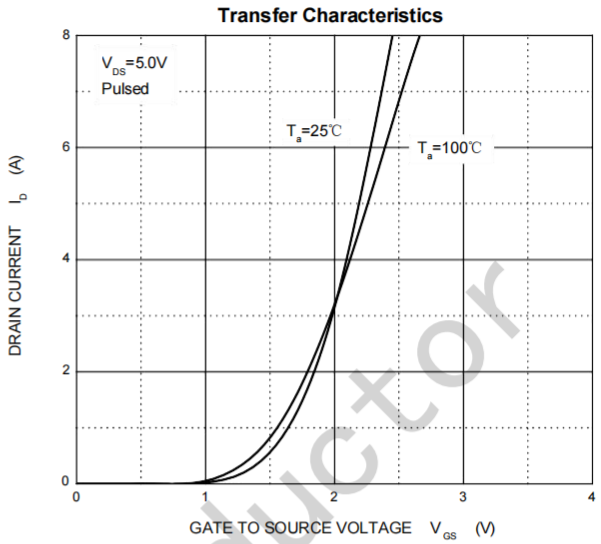
Notes :

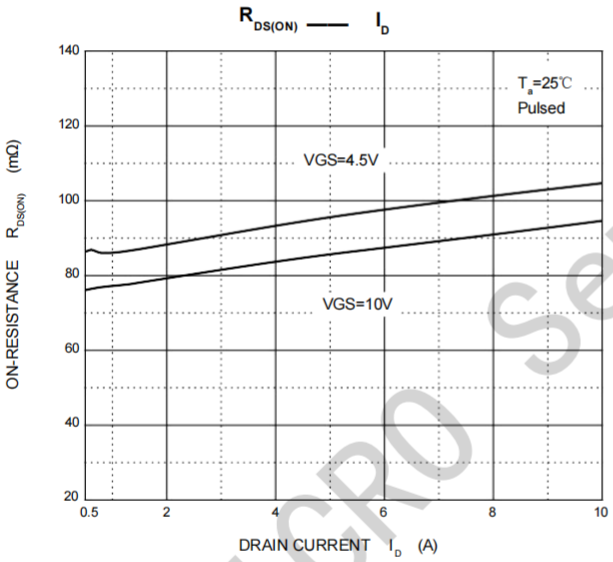
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.
4. Guaranteed by design, not subject to producting.

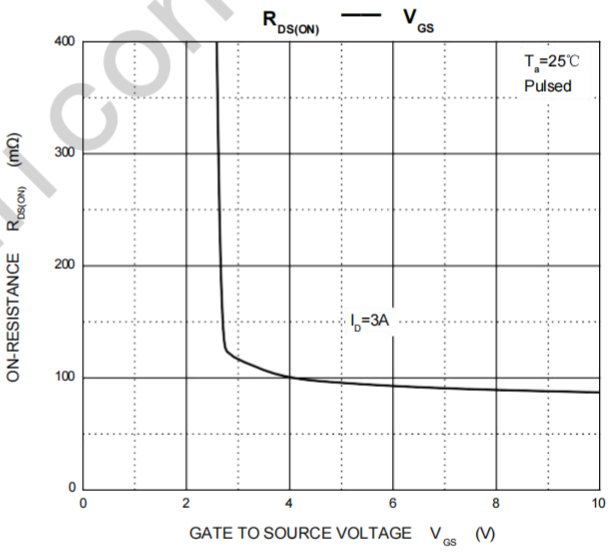
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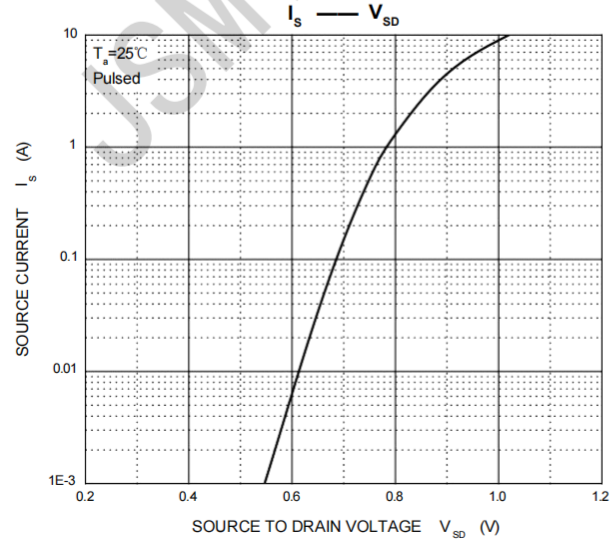
Typical Characteristics

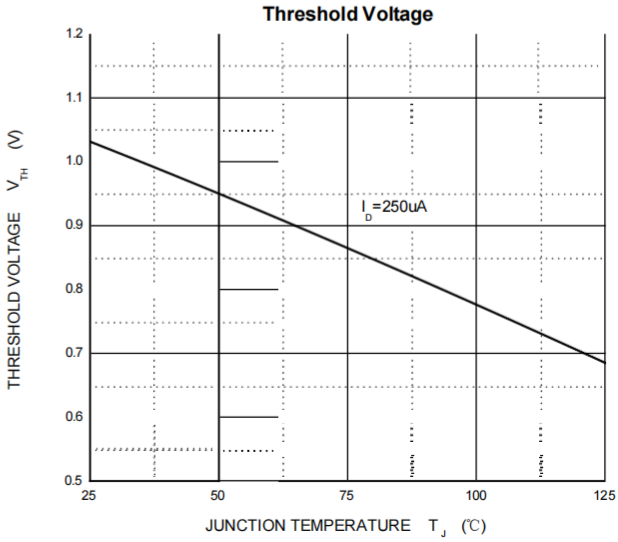






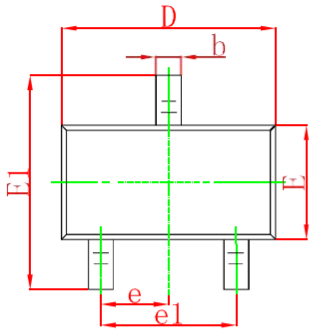


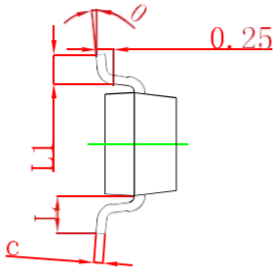


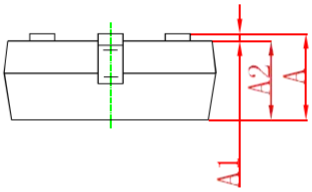


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SOT-23 - 3 Package Outline Dimensions

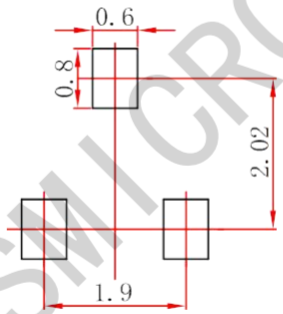






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 - 3 Suggested Pad Layout



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

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