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Product Specification

XBLW AO3422

N-Channel Enhancement Mode MOSFET

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Description

The AO3422 uses advanced trench technology to provide excellent RDS(ON) , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

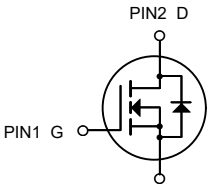
General Features

- VDS = 60V,ID = 4.5A
- RDS(ON) < 75mΩ @ VGS=10V
- RDS(ON) < 90mΩ @ VGS=4.5V

SOT-23-3L

Application

- High power and current handing capability
- Lead free product is acquired
- Surface mount package
- PWM applications
- Load switch
- Power management



N-Channel MOSFET

Package Marking and Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW AO3422	SOT-23-3L	ARDP	Tape	3000Pcs/Reel

Absolute Maximum Ratings (TA=25°Cunless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-Continuous	4.5	A
I_{DM}	Drain Current-Pulsed (Note 1)	15	A
P_D	Maximum Power Dissipation	8	W
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient (Note 2)	89	℃/W

Electrical Characteristics (TJ=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V , I_D=5A	---	70	75	mΩ
		V_{GS}=4.5V , I_D=5A	---	80	90	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.2	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V , V_{GS}=0V , T_J=25°C	---	---	1	uA
		V_{DS}=48V , V_{GS}=0V , T_J=55°C	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=5A	---	7	---	S
Q_g	Total Gate Charge (10V)	V_{DS}=12V , V_{GS}=10V , I_D=5A	---	5.5	---	nC
Q_{gs}	Gate-Source Charge		---	1.8	---	
Q_{gd}	Gate-Drain Charge		---	2.4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=12V , V_{GS}=10V , R_G=3.3Ω I_D=5A	---	6	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	15	---	
T_f	Fall Time		---	7	---	
C_{iss}	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	695	---	pF
C_{oss}	Output Capacitance		---	148	---	
C_{rss}	Reverse Transfer Capacitance		---	7	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	---	---	17	A
I_{SM}	Pulsed Source Current[2,5]		---	---	50	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25°C	---	---	1.2	V

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=15A
4.The power dissipation is limited by 150°C junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

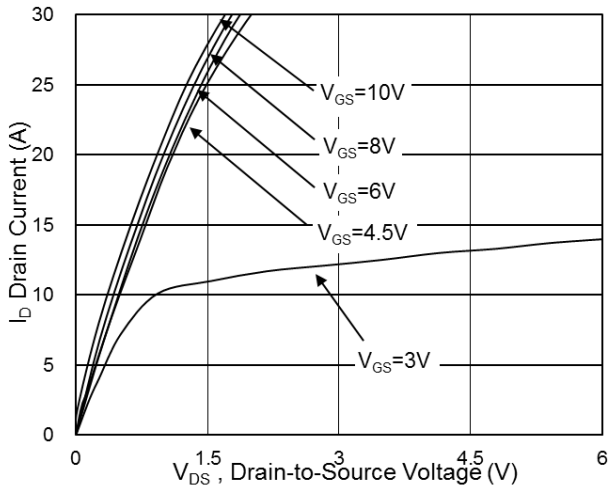


Fig.1 Typical Output Characteristics

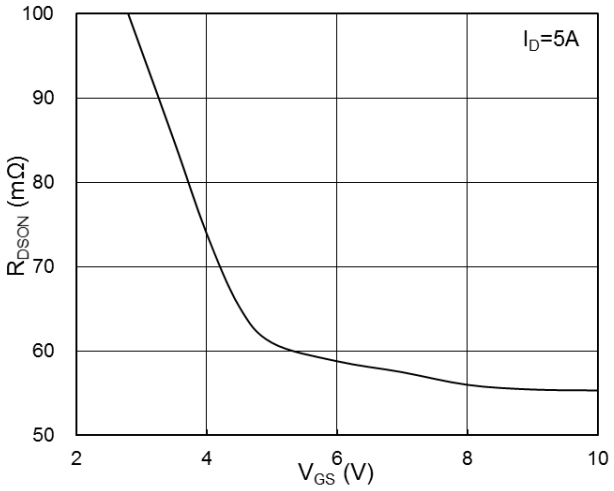


Fig.2 On-Resistance vs. Gate-Source Voltage

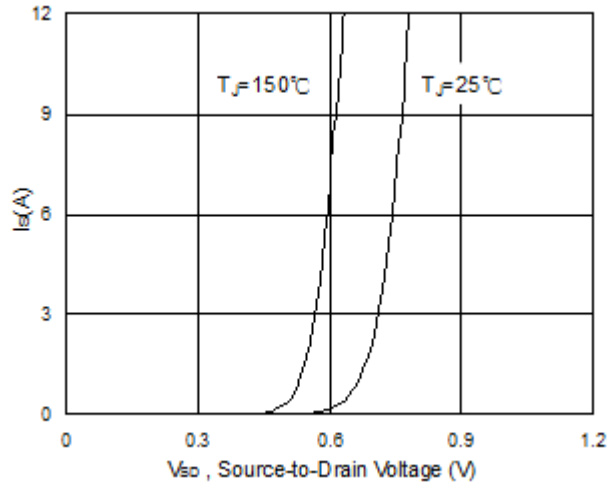


Fig.3 Forward Characteristics of Reverse

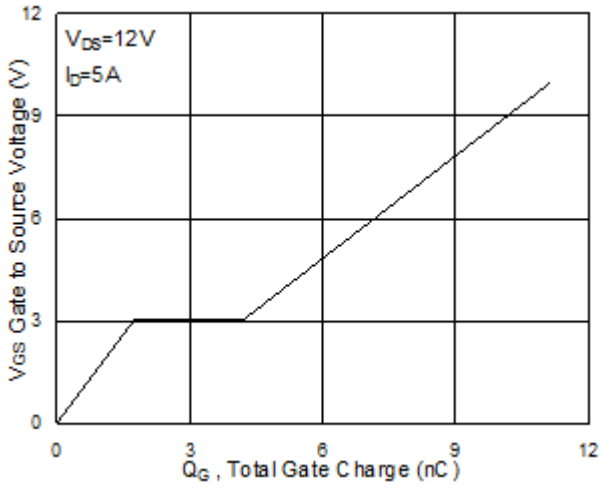


Fig.4 Gate-Charge Characteristics

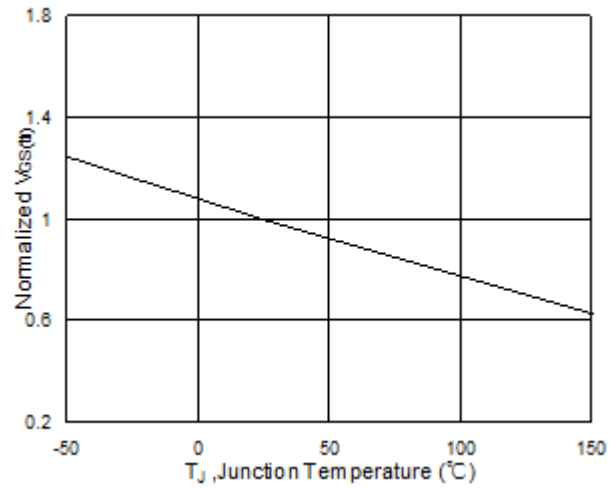


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

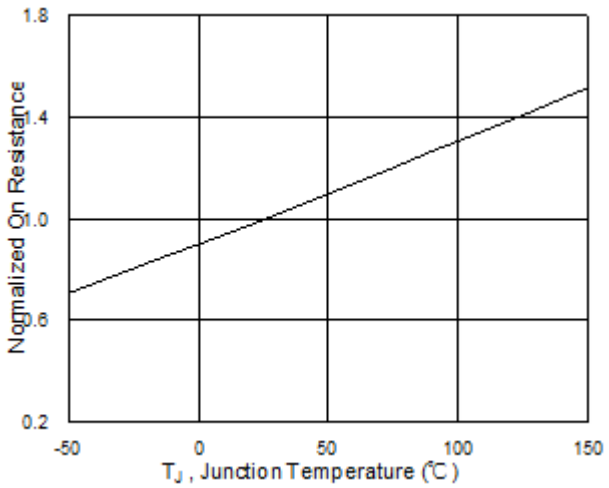


Fig.6 Normalized R_{DSON} vs. T_J

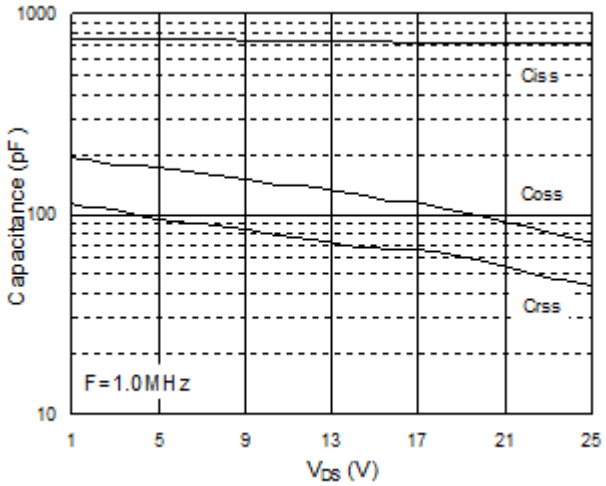


Fig.7 Capacitance

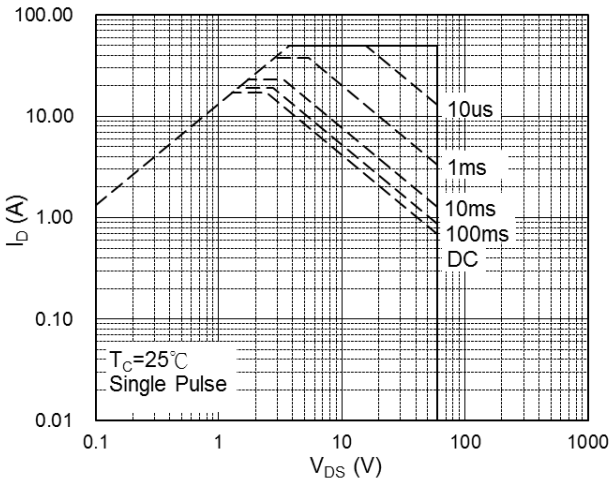


Fig.8 Safe Operating Area

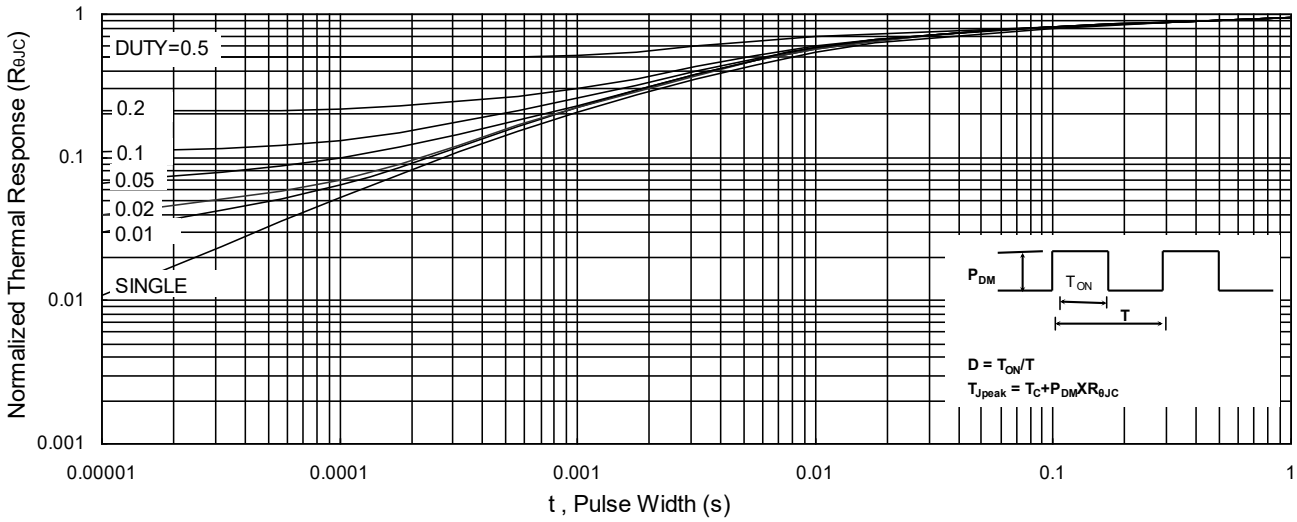


Fig.9 Normalized Maximum Transient Thermal Impedance

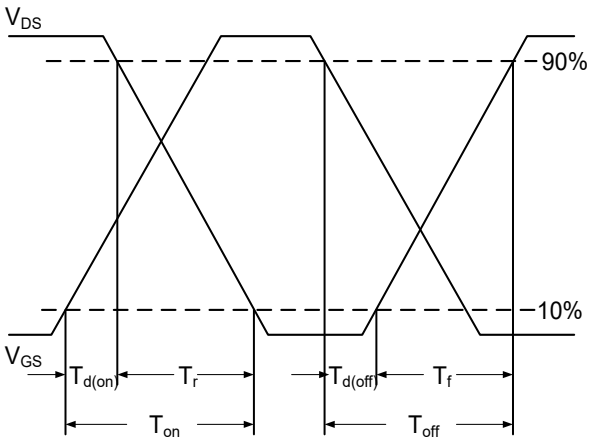


Fig.10 Switching Time Waveform

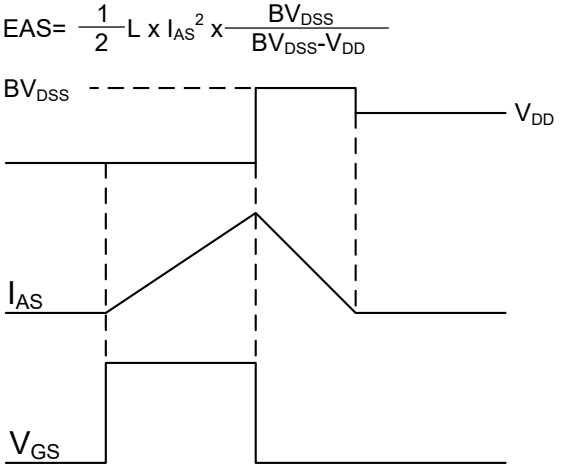
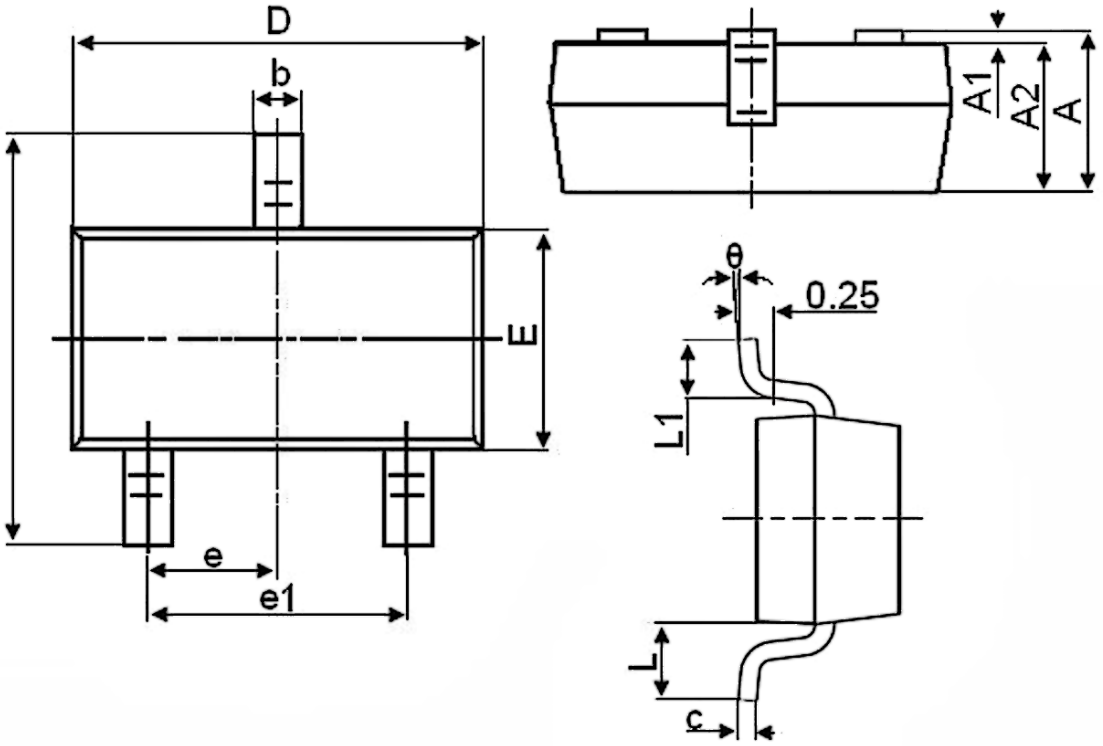


Fig.11 Unclamped Inductive Switching Waveform

Package Information

SOT23-3L



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.800	3.000
E	1.500	1.700
E1	2.650	2.950
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.600
θ	0°	8°

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