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X I N B O L E

Product Specification

XBLW AO3404

N-Channel Enhancement Mode MOSFET

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RoHS

XINBOLE ®

Description

The AO3404 uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.
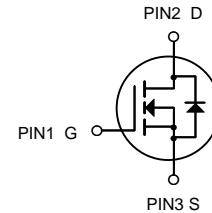
General Features

➢ VDS = 30V ID =5A
➢ RDS(ON) < 28mΩ@ VGS=10V

Application

➢ Battery protection
➢ Load switch
➢ Uninterruptible power supply

SOT-23-3L

PIN2 D

PIN1 G

PIN3 S
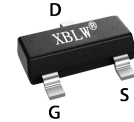
N-Channel MOSFET

Package Marking and Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW AO3404	SOT-23-3L	X4HV	Tape	3000Pcs/Reel

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

symbol	parameter	limit	unit
V_{DS}	Drain-source voltage	30	V
V_{GS}	Gate-source voltage	±20	V
I_D	Drain current-continuous[a]@Tj=125℃	5	A
IDM	-pulse *d*[b]	20	A
Is	Drain-source Diode forward current	5	A
P_D	Maximum power dissipation	1.4	W
Tj	Operating junction Temperature range	-55—150	℃
Rth JA	Thermal Resistance junction-to ambient	100	℃/W

Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V$, $I_D=250\mu A$	30	-	-	V
Zero gate voltage drain current	IDSS	$V_{DS}=30V$, $V_{GS}=0V$	-	-	1	μA
Gate-body leakage	IGSS	$V_{DS}=0V$, $V_{GS}=\pm20V$	-	-	±100	nA
Gate threshold voltage	VGS(th)	$V_{DS}=V_{GS}$, $I_D=250\mu A$	0.8	1.4	2.2	V
Drain-source on-state resistance	RDS(ON)	$V_{GS}=10V$, $I_D=5A$	-	24	28	mΩ
		$V_{GS}=4.5V$, $I_D=4A$		26	32	
Forward transconductance	gfs	$V_{GS}=5V$, $I_D=5A$	-	33	-	S
Input capacitance	C_{ISS}	$V_{DS}=15V$,$V_{GS}=0V$ f=1.0MHz		255		pF
Output capacitance	COSS			45		
Reverse transfer capacitance	CRSS			35		
Turn-on delay time	tD(ON)	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=2.6$ ohm $R_{GEN}=3$ohm	-	4.5	-	ns
Rise time	tr		-	2.5	-	
Turn-off delay time	tD(OFF)		-	14.5	-	
Fall time	tf		-	3.5	-	
Total gate charge	Qg	$V_{DS}=15V$,$I_D=5.8A$ $V_{GS}=10V$	-	5.2	-	nC
Gate-source charge	Qgs		-	0.85	-	
Gate-drain charge	Qgd		-	1.3	-	
Diode forward voltage	V_{SD}	$V_{GS}=0V$,Is=1A	-	0.76	1.16	V

Notes:

1、surface mounted on FR4 board,t≤10sec

2、pulse test: pulse width≤300μs,duty≤2%

3、guaranteed by design, not subject to production testing

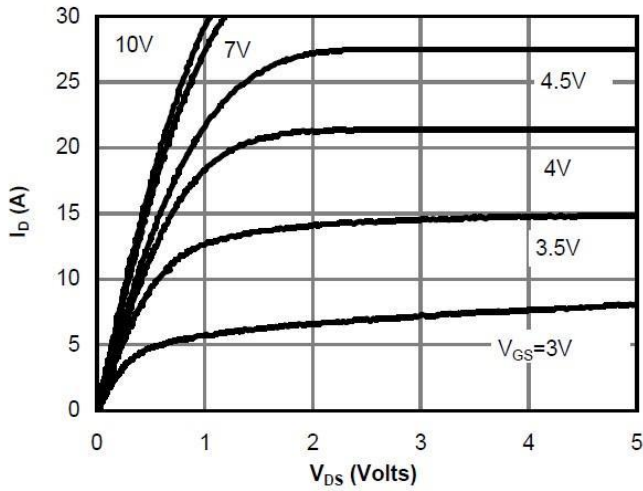## Typical Performance Characteristics
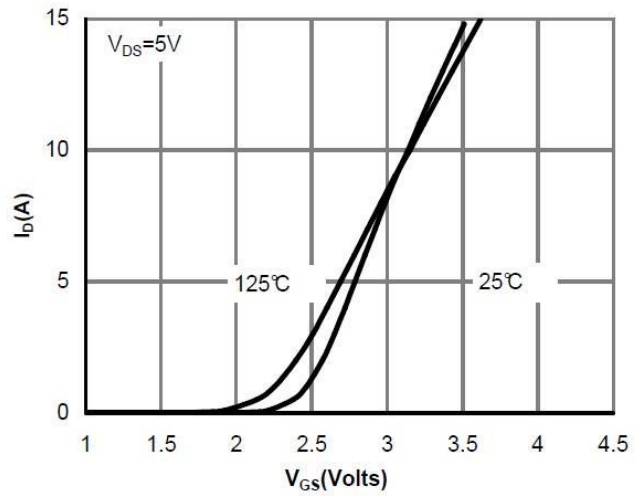
Fig 1: On-Region Characteristics
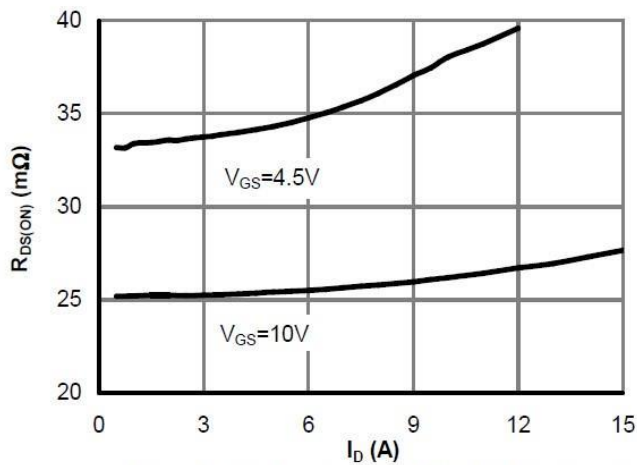
Figure 2: Transfer Characteristics

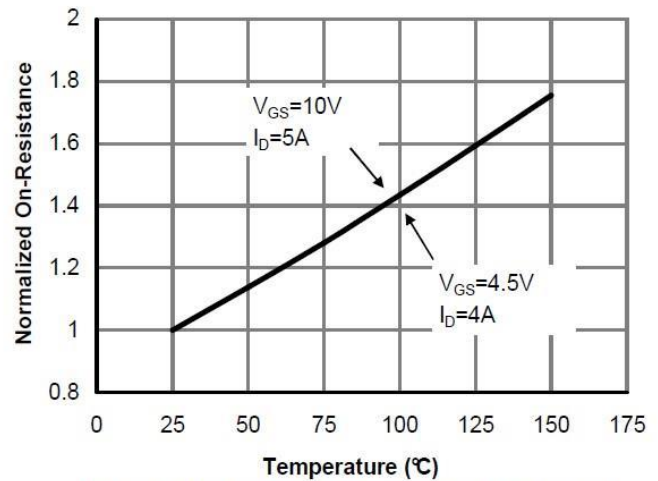Figure 3: On-Resistance vs. Drain Current and Gate Voltage

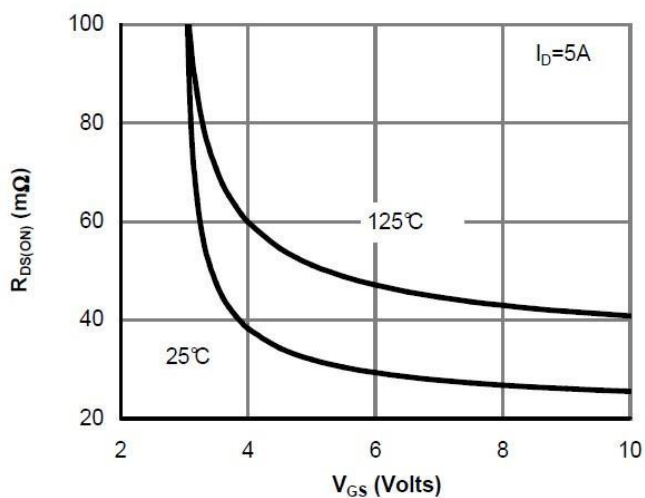Figure 4: On-Resistance vs. Junction Temperature

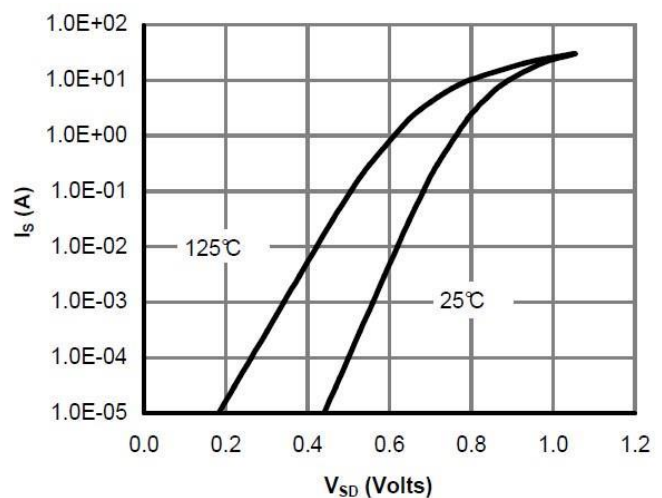Figure 5: On-Resistance vs. Gate-Source Voltage

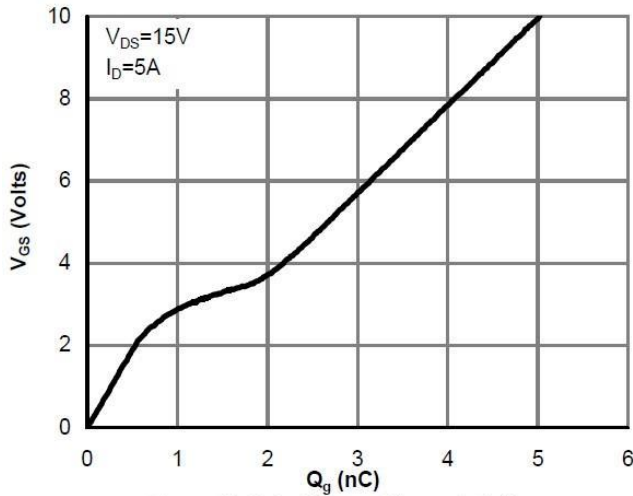Figure 6: Body-Diode Characteristics

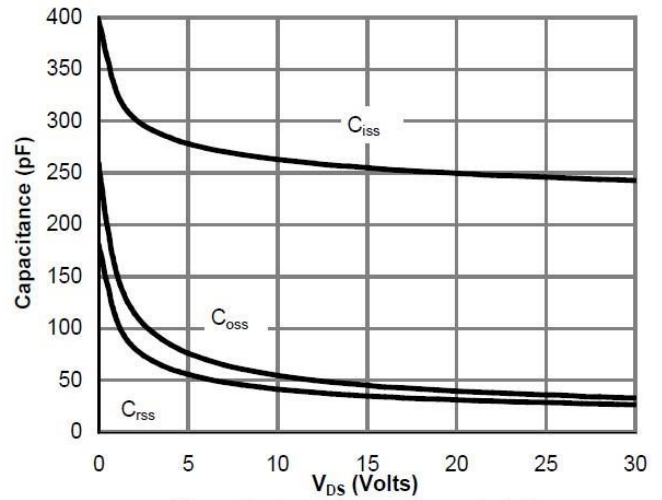Figure 7: Gate-Charge Characteristics

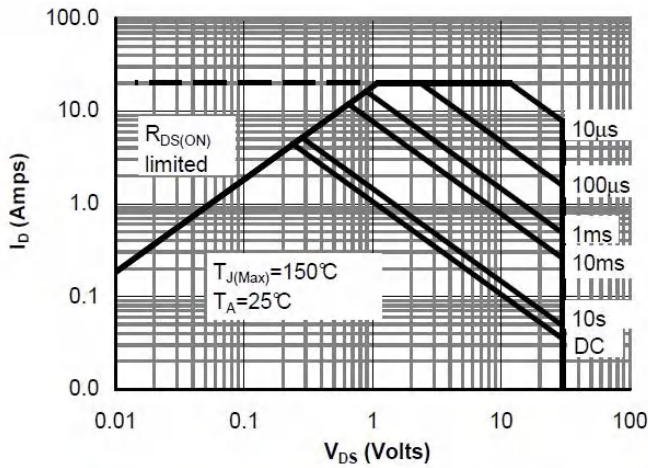Figure 8: Capacitance Characteristics
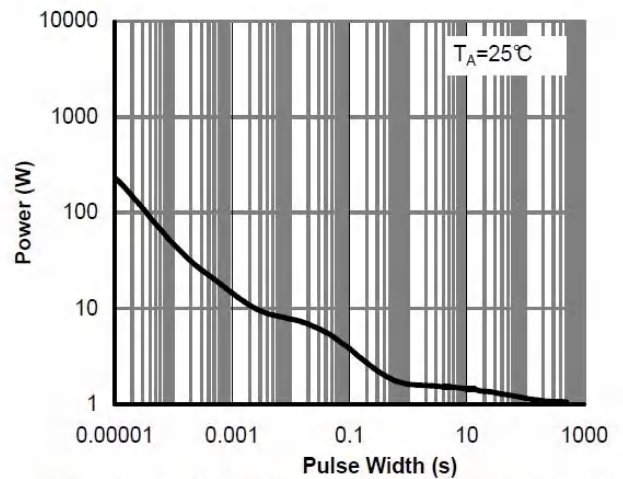

Figure 10: Maximum Forward Biased Safe Operating Area
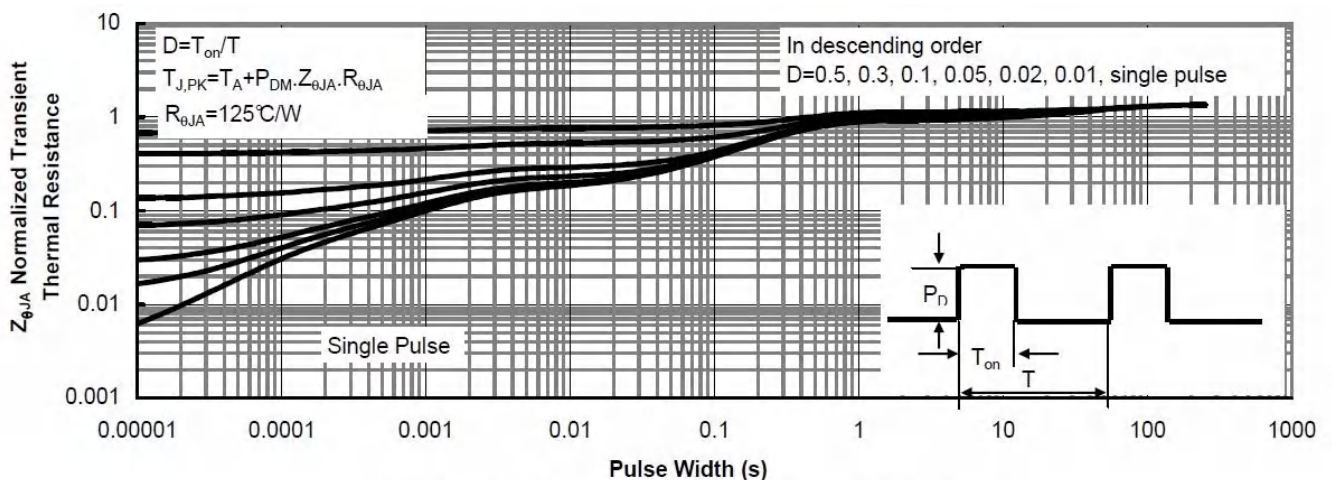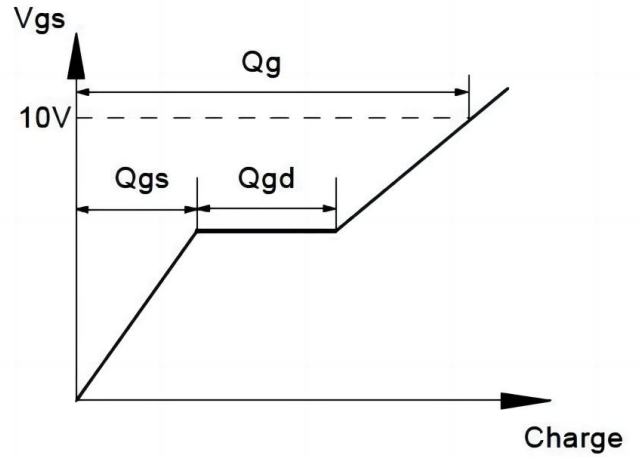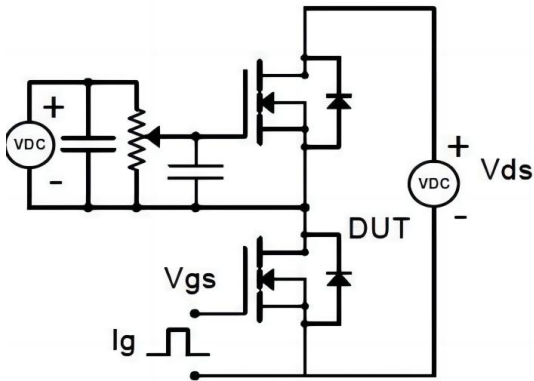

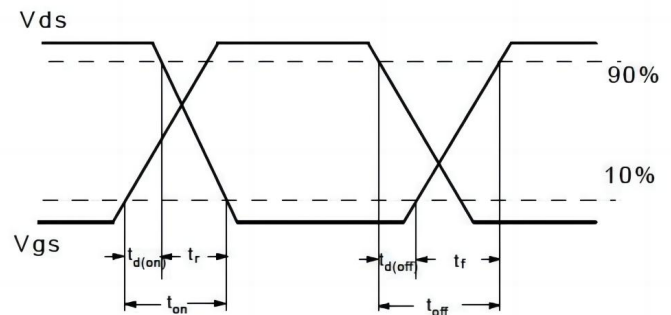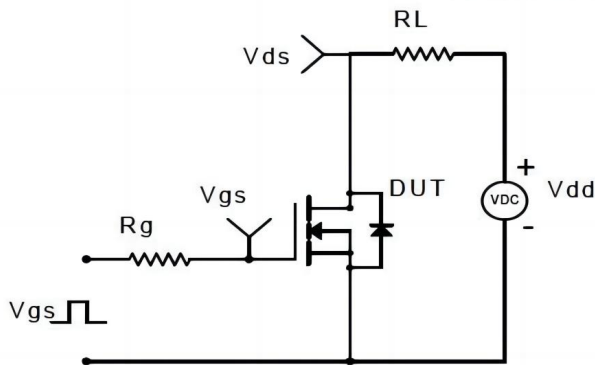Figure 11: Single Pulse Power Rating Junction-to-Ambient

Figure 12: Normalized Maximum Transient Thermal Impedance

Gate Charge Test Circuit & Waveform

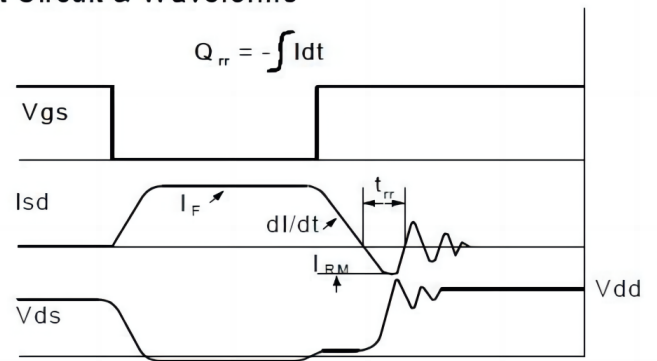## Resistive Switching Test Circuit & Waveforms

Resistive Switching Test Circuit & Waveforms

Diode Recovery Test Circuit & Waveforms

$$Q_{rr} = -\int I dt$$
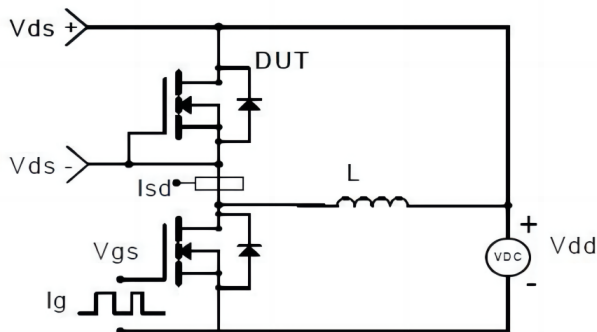
Package Information

SOT23-3L
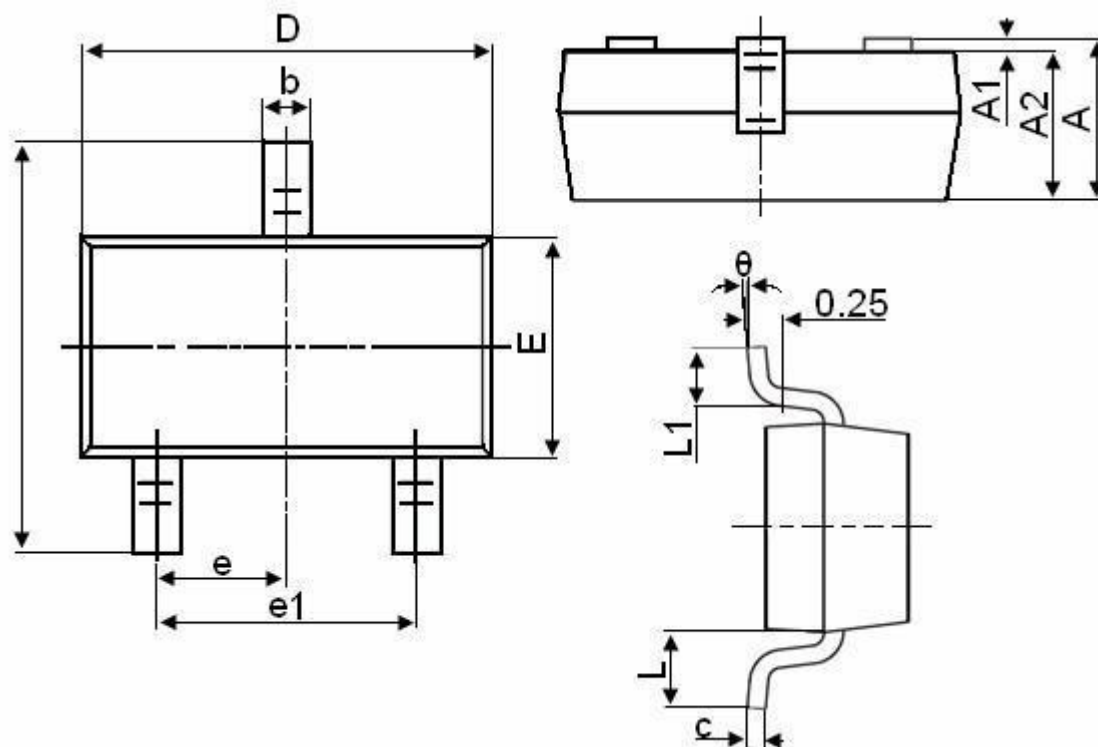
Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.800	3.000
E	1.500	1.700
E1	2.650	2.950
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.600
θ	0°	8°

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