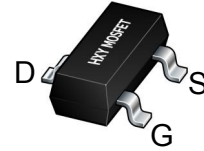




### Description

The AO3418 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , 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.



SOT-23-3L

### General Features

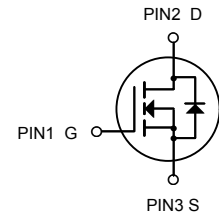
$V_{DS} = 30V, I_D = 5.8A$

$R_{DS(ON)} < 28m\Omega @ V_{GS}=10V$

$R_{DS(ON)} < 38m\Omega @ V_{GS}=4.5V$

### 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 ID	Pack	Brand	Qty(PCS)
AO3418	SOT-23-3L	HXY MOSFET	3000

### Absolute Maximum Ratings ( $T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Drain Current-Continuous	5.8	A
$I_{DM}$	Drain Current-Pulsed (Note 1)	20.4	A
$P_D$	Maximum Power Dissipation	1.4	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)	89	$^\circ C/W$



### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V,	-	-	1.0	μA
I <sub>GSS</sub>	Gate to Body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> = ±12V	-	-	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.5	-	1.3	V
R <sub>DS(on)</sub>	Static Drain-Source on-Resistance <small>note2</small>	V <sub>GS</sub> =10V, I <sub>D</sub> =4A	-	24	28	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A	-	27	38	
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3A	-	36	54	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1.0MHz	-	507	-	pF
C <sub>oss</sub>	Output Capacitance		-	52	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	43	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, I <sub>D</sub> =5A, V <sub>GS</sub> =4.5V	-	9.1	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	2.1	-	nC
Q <sub>gd</sub>	Gate-Drain("Miller") Charge		-	2.8	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =15V, R <sub>GEN</sub> =3Ω, R <sub>L</sub> =2.8Ω, V <sub>GS</sub> =10V	-	3	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	2.8	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time		-	25	-	ns
t <sub>f</sub>	Turn-off Fall Time		-	4	-	ns
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	20	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =5A	-	-	1.2	V

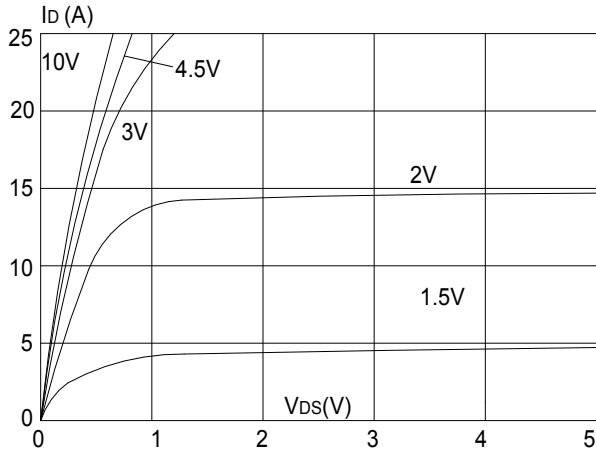
Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

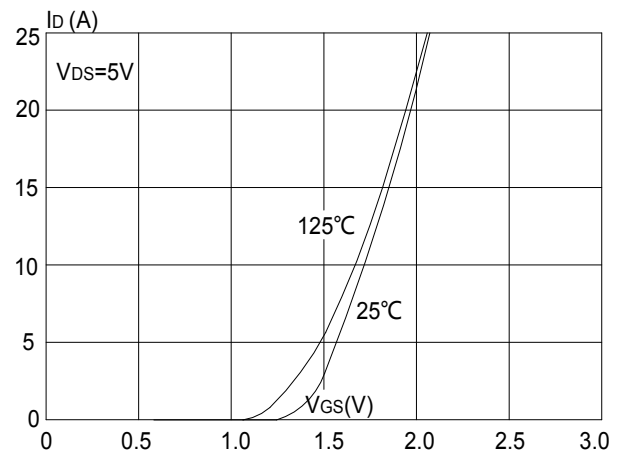


## Typical Performance Characteristics

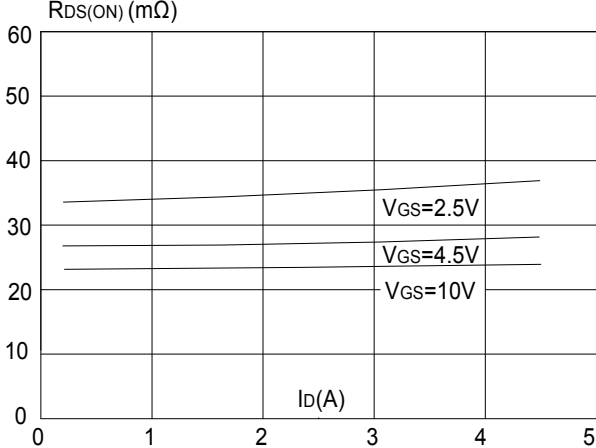
**Figure 1: Output Characteristics**



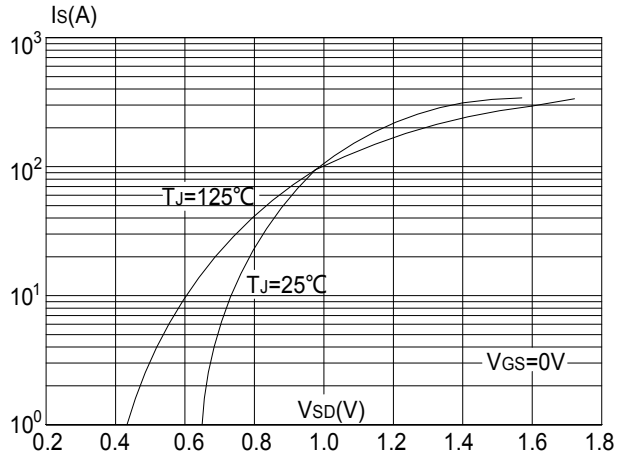
**Figure 2: Typical Transfer Characteristics**



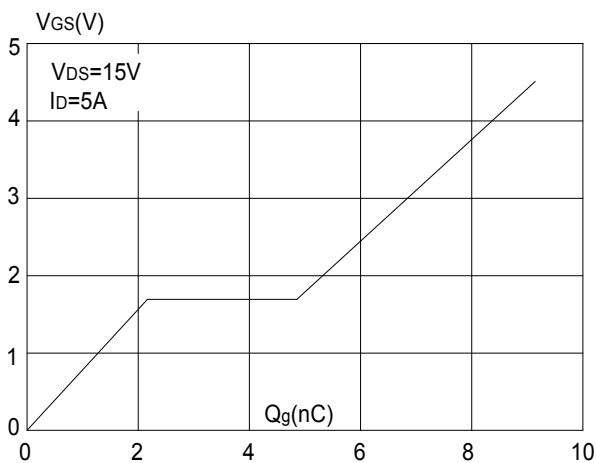
**Figure 3: On-resistance vs. Drain Current**



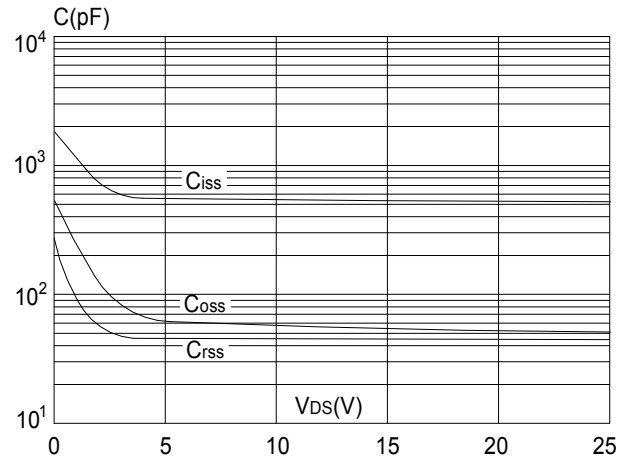
**Figure 4: Body Diode Characteristics**



**Figure 5: Gate Charge Characteristics**

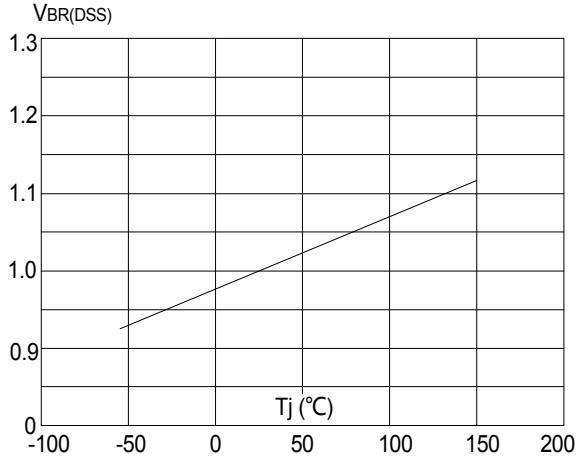


**Figure 6: Capacitance Characteristics**

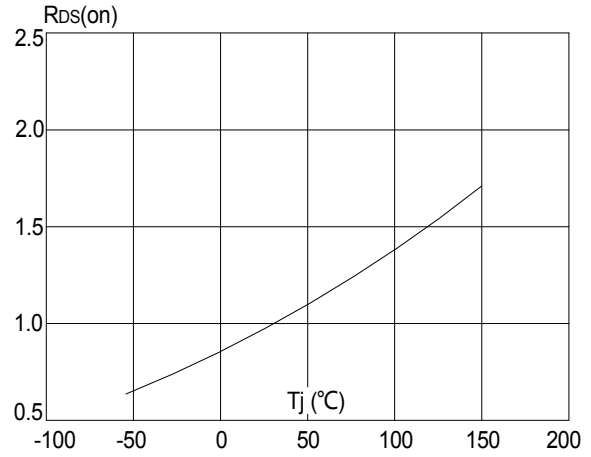




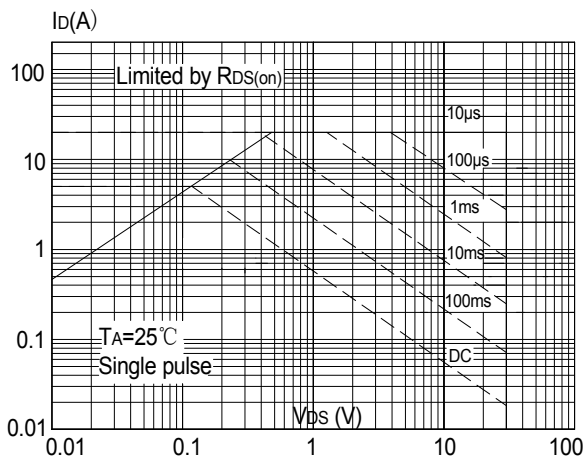
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



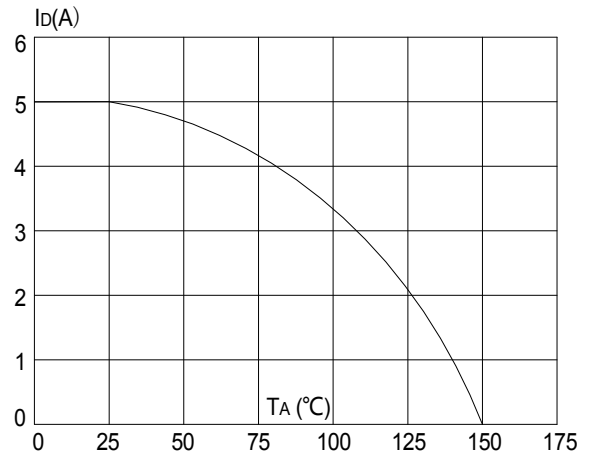
**Figure 8:** Normalized on Resistance vs. Junction Temperature



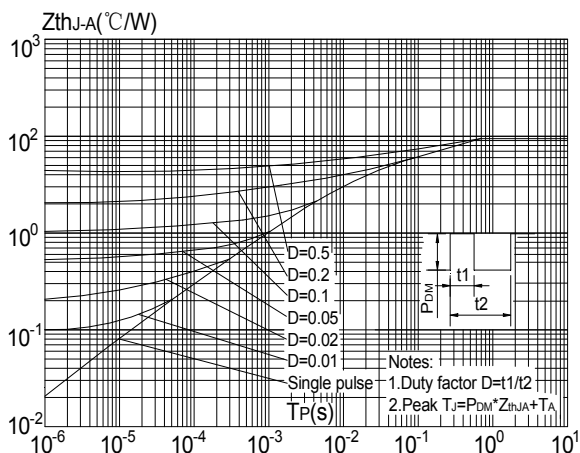
**Figure 9:** Maximum Safe Operating Area



**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature

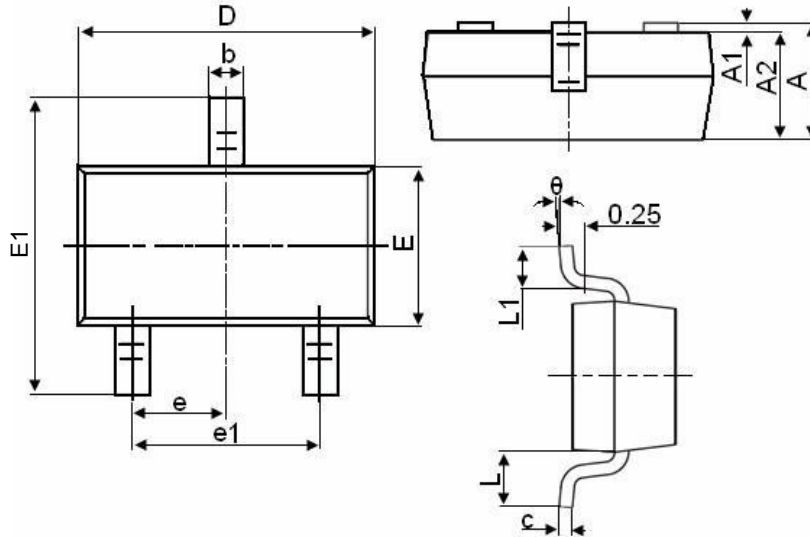


**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





### SOT-23-3L Package Information



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
theta	0°	8°



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