ZhenYangGroup CO,LTD

AO3400/A

30V N-Channel MOSFET

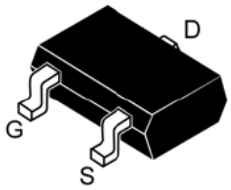
General Description

The AO3400/A combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is suitable for use as a load switch or in PWM applications.

Product Summary

V_{DS}	30V
I_D (at V_{GS}=12V)	5.2A
$R_{DS(ON)}$ (at V_{GS}=10V)	< 28mΩ
$R_{DS(ON)}$ (at V_{GS} = 4.5V)	< 33mΩ

● Pin Configuration



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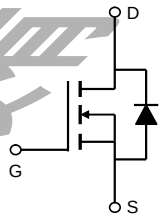

Absolute Maximum Ratings T_A=25℃ unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25℃	I_D	5.7	A
	T_A=70℃		4.7	
Pulsed Drain Current [C]		I_{DM}	30	
Power Dissipation [B]	T_A=25℃	P_D	1.4	W
	T_A=70℃		0.9	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	70	90	℃/W
Maximum Junction-to-Ambient [A D]	Steady-State		100	125	℃/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	63	80	℃/W

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Electrical Characteristics (T_J=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0V	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V			1	μA
		T_J=55℃			30	
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}= ±12V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA	0.5	0.7	1	V
$I_{D(ON)}$	On state drain current	V_{GS}=4.5V, V_{DS}=5V	30			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=6A		23	29	mΩ
		T_J=125℃		28	38	
		V_{GS}=4.5V, I_D=4.8A		24	30	mΩ
		V_{GS}=2.5V, I_D=3.5A		28	35	mΩ
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=5.7A		33		S
V_{SD}	Diode Forward Voltage	I_S=1.25A,V_{GS} =0V		0.7	1.3	V
I_S	Maximum Body-Diode Continuous Current				2	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		680		pF
C_{oss}	Output Capacitance			250		pF
C_{rss}	Reverse Transfer Capacitance			200		pF
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz		6		Ω
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=10V, I_D=6A		5	10	nC
Q_{gs}	Gate Source Charge			1		nC
Q_{gd}	Gate Drain Charge			1.1		nC
$t_{D(on)}$	Turn-On DelayTime	V_{DD}=10V,R_L =10Ω ,I_{DS}=1A, V_{GEN}=4.5V, R_G=6Ω		8	15	ns
t_r	Turn-On Rise Time			6	12	ns
$t_{D(off)}$	Turn-Off DelayTime			19	35	ns
t_f	Turn-Off Fall Time			7	23	ns
t_{rr}	Body Diode Reverse Recovery Time	I_F=5.7A, dI/dt=100A/μs	7	8.5	10	ns
Q_{rr}	Body Diode Reverse Recovery Charge	I_F=5.7A, dI/dt=100A/μs	2	2.6	3.1	nC

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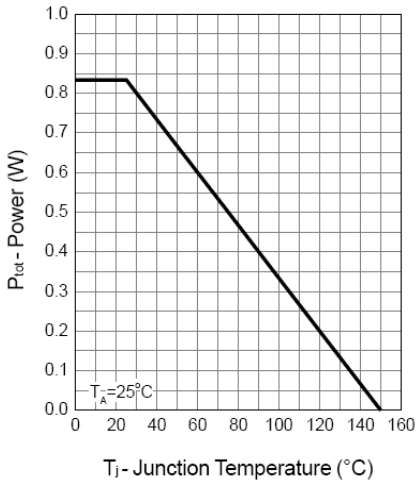
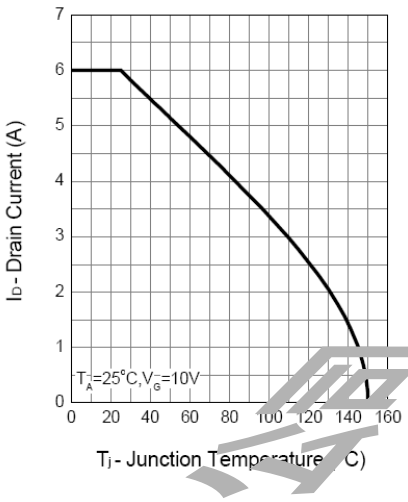
Typical Performance Characteristics

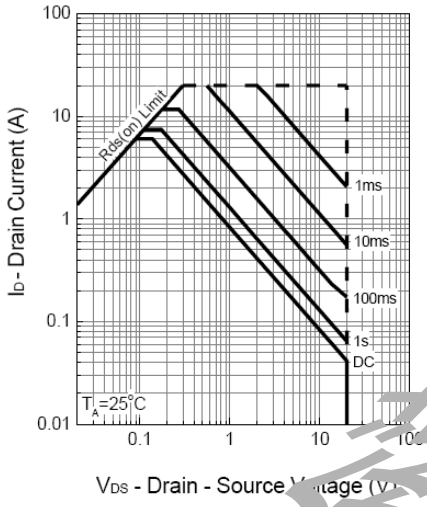
Power Dissipation



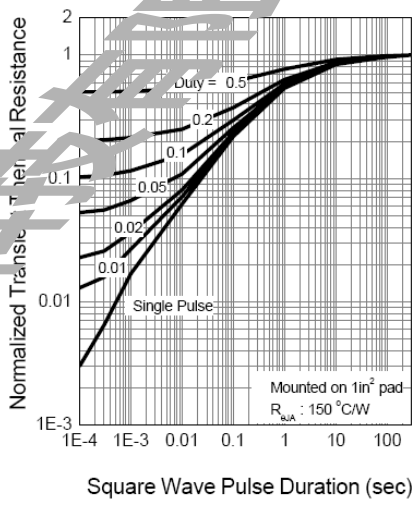
Drain Current



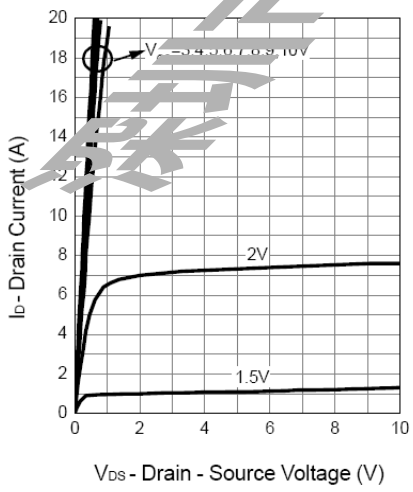
Safe Operation Area



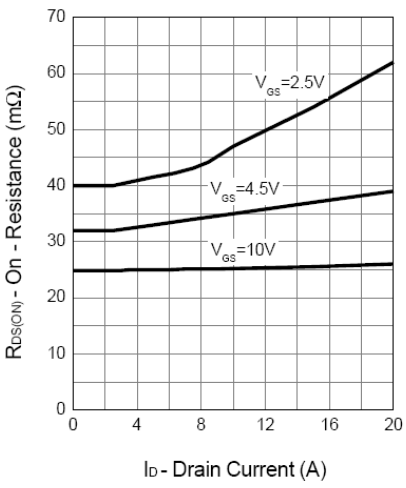
Thermal Transient Impedance



Output Characteristics



Drain-Source On Resistance



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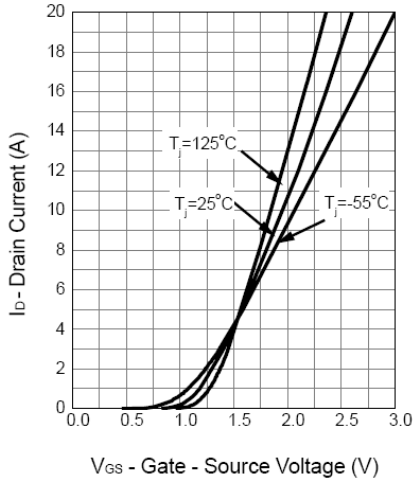
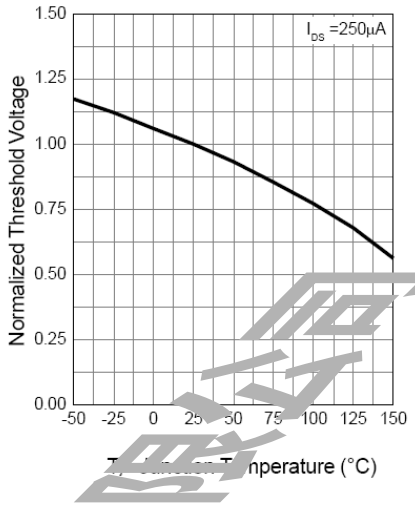
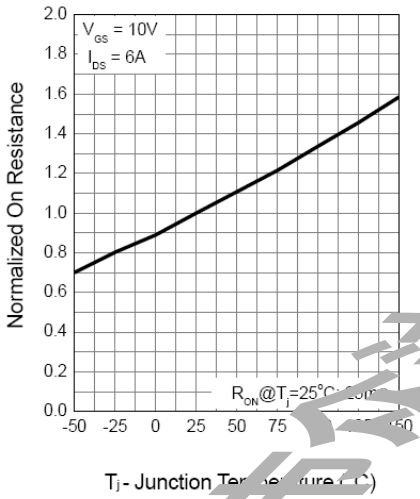
Transfer Characteristics



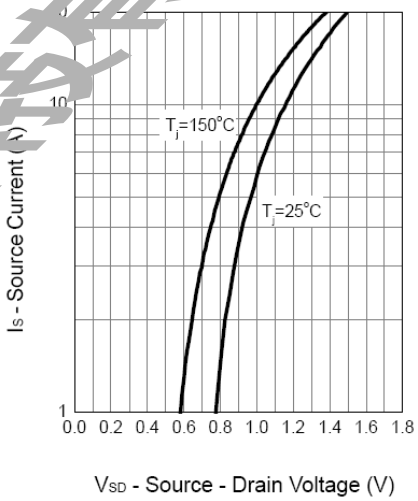
Gate Threshold Voltage



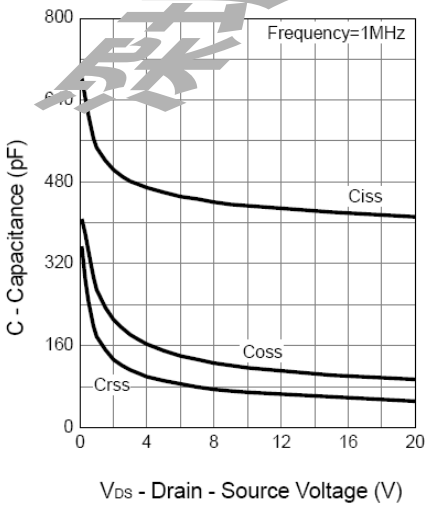
Drain-Source On Resistance



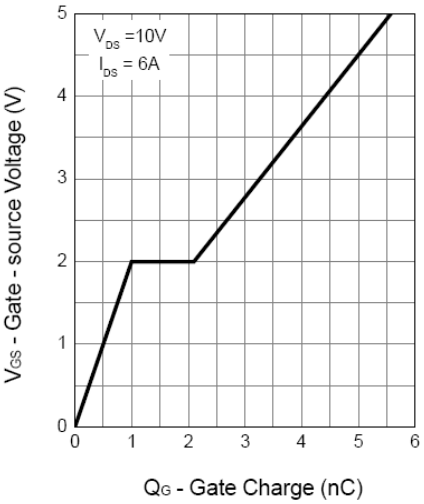
Source-Drain Diode Forward



Capacitance



Gate Charge



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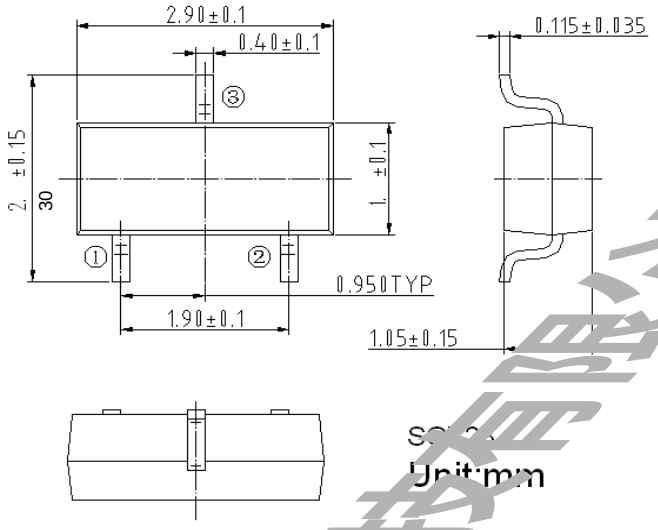
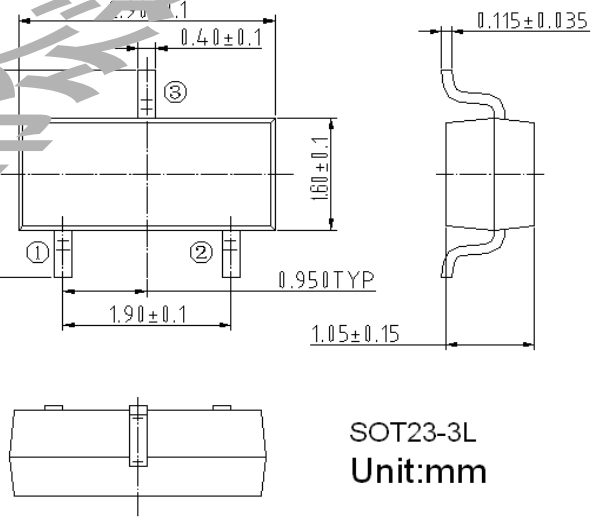
- **Package Information**



SOT23-3L
Unit:mm

AO3400



SOT23-3L
Unit:mm

AO3400A

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