AO3494

20V N-Channel MOSFET

Features

- High Speed switching
- Trench Power LV MOSFET technology
- High Density Cell Design for Low $R_{DS(ON)}$

Application

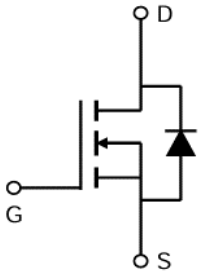
- Battery protection
- Load switch
- Power management

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
20V	51mΩ@4.5V	3A
	58mΩ@2.5V	



SOT-23-3L top view



Schematic diagram

Pb-Free RoHS Halogen-Free

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		20	V
V_{GS}	Gate-Source Voltage		±8	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	16	A
I_D	Continuous Drain Current	Tc=25°C	3	A
P_D	Maximum Power Dissipation	Tc=25°C	1.4	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		70	°C/W

Ordering Information (Example)

Type	Package	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
AO3494	SOT-23-3L	3,000	45,000	180,000	7"reel

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Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V，I_D=250μA	20		--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V，V_{GS}=0V	--	--	1.0	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±8V，V_{DS}=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA	0.4	0.7	1.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=4.5V，I_D=3A	--	51	62	mΩ
		V_{GS}=2.5V，I_D=2.8A	--	58	70	mΩ
		V_{GS}=1.8V，I_D=2.5A	--	68	85	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=10V，V_{GS}=0V， f=1MHz	--	260	--	pF
C_{OSS}	Output Capacitance		--	48	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	27	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=10V，I_D=3A，V_{GS}=4.5V	--	3	--	nC
Q_{gs}	Gate Source Charge		--	0.4	--	nC
Q_{gd}	Gate Drain Charge		--	0.6	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=10V，R_L=3.3Ω，V_{GS}=5V，R_G=6Ω	--	2.5	--	nS
t_r	Turn-on Rise Time		--	3.2	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	21	--	nS
t_f	Turn-Off Fall Time		--	3	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=1A	--	0.7	1	V

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Typical Operating Characteristics

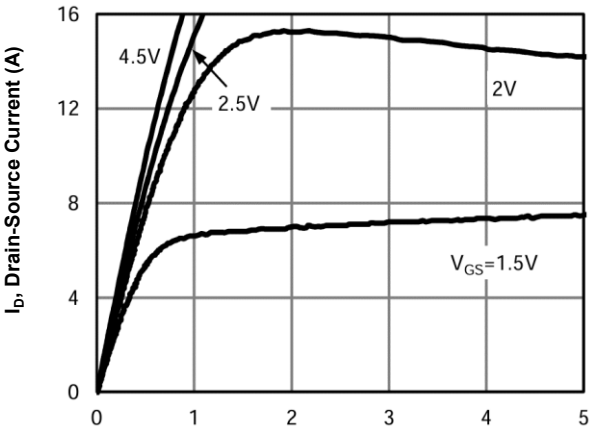


Fig1. Typical Output Characteristics

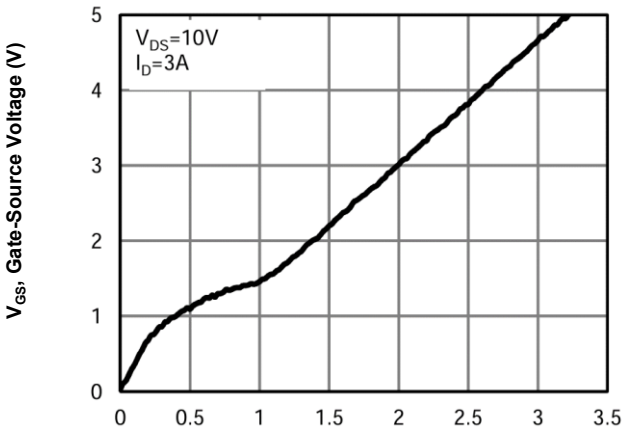


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

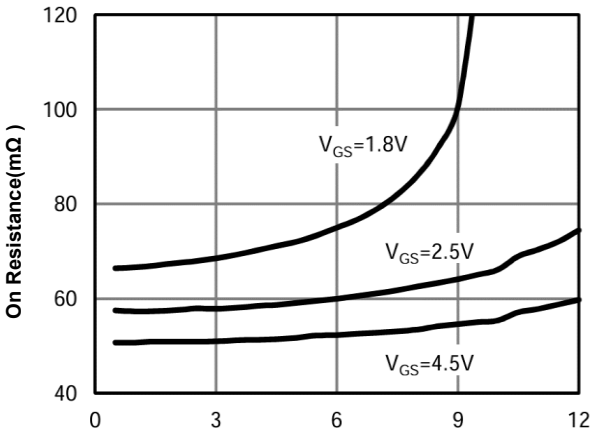


Fig3. Drain-Source on Resistance

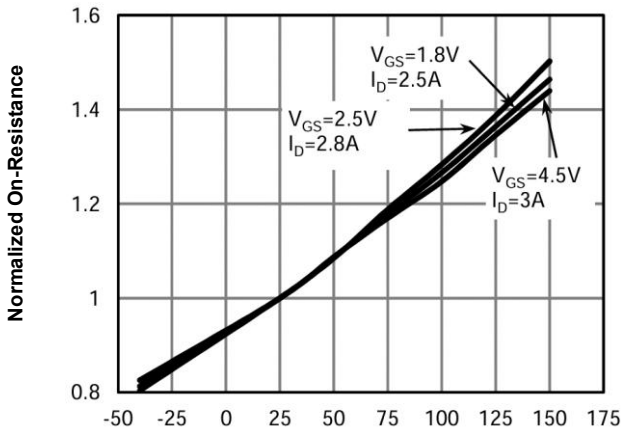


Fig4. Normalized On-Resistance Vs. Temperature

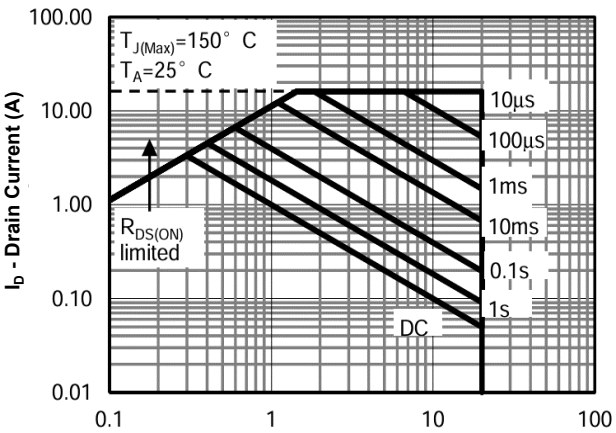


Fig5. Maximum Safe Operating Area

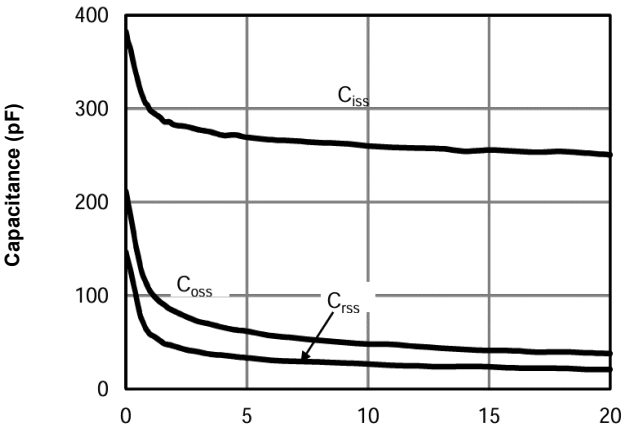
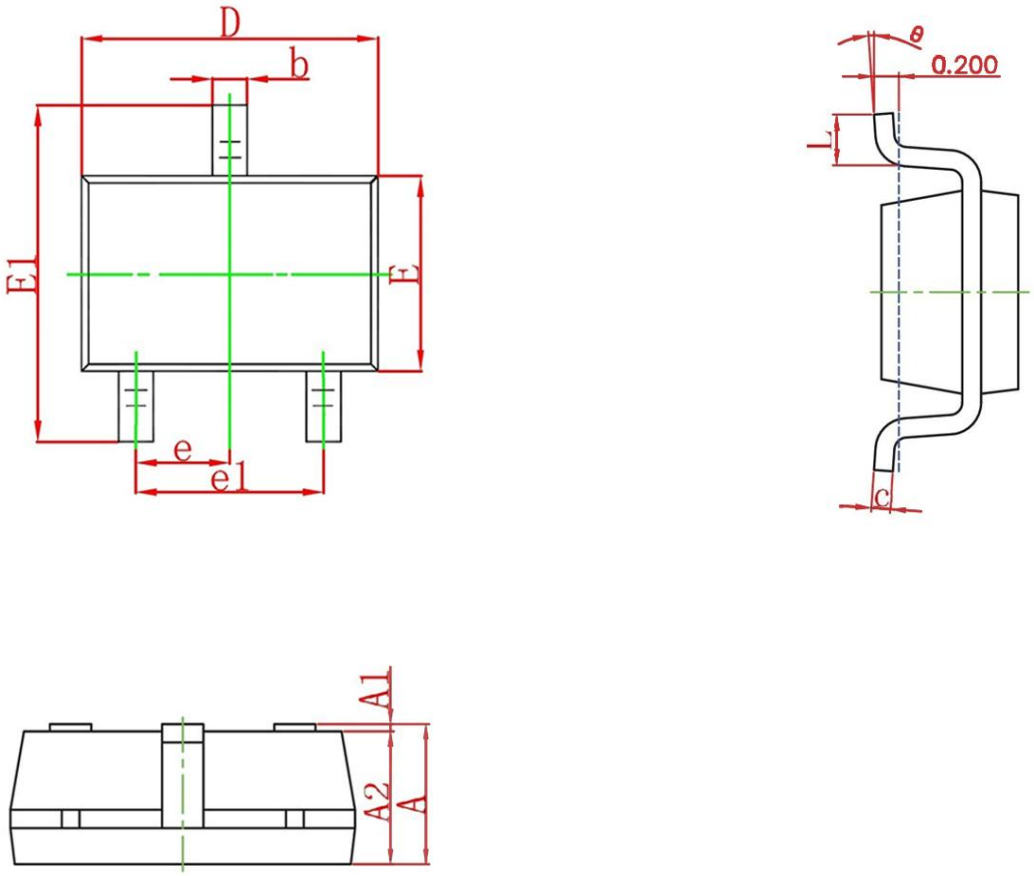


Fig6 Typical Capacitance Vs.Drain-Source Voltage

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SOT-23-3L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.042	0.050
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.042	0.046
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.112	0.120
E	1.500	1.700	0.060	0.068
E1	2.650	2.950	0.106	0.118
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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