-60V/-3.0A P-Channel MOSFET

Features

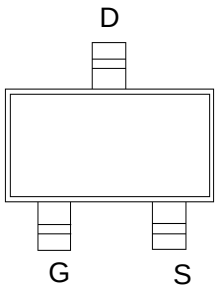
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

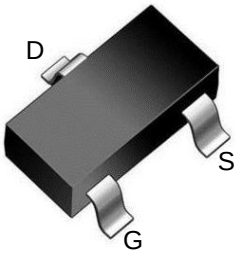
Application

- PWM applications
- Power management
- Load switch

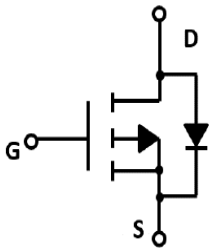
Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-60V	150mΩ@-10V	-3.0A
	180mΩ@-4.5V	





SOT-23 top view

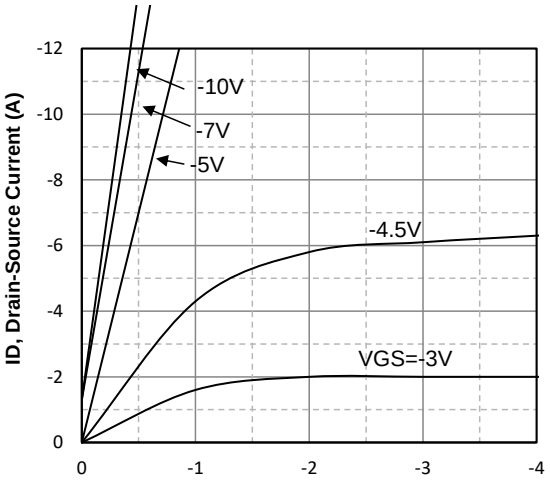


Schematic diagram

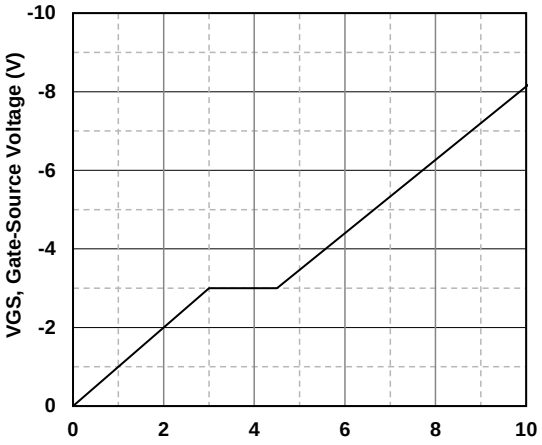
Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		-60	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	Tc=25°C	-3.0	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	-11	A
I_D	Continuous Drain Current@GS=10V	Tc=25°C	-3.0	A
P_D	Maximum Power Dissipation	Tc=25°C	1.0	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		113	°C/W

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	VGS=0V，ID=-250μA	-60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-60V，VGS=0V	--	--	-1	uA
I_{GSS}	Gate-Body Leakage Current	VGS=±20V，VDS=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	VDS=VGS，ID=-250μA	-1.0	-1.8	-2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	VGS=-10V，ID=-2A	--	110	150	mΩ
		VGS=-4.5V，ID=-1A	--	147	180	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	VDS=-15V，VGS=0V， f=1MHz	--	715	--	pF
C_{OSS}	Output Capacitance		--	51	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	34	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	VDS=-20V，ID=-2A，VGS=-4.5V	--	6	--	nC
Q_{gs}	Gate Source Charge		--	3	--	nC
Q_{gd}	Gate Drain Charge		--	2	--	nC
$t_{d(on)}$	Turn-on Delay Time	VDD=-12V，ID=-1A，VGS=-10V，RG=3.3Ω	--	10	--	nS
t_r	Turn-on Rise Time		--	17	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	22	--	nS
t_f	Turn-Off Fall Time		--	21	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=-3A，	--	--	-1.2	V

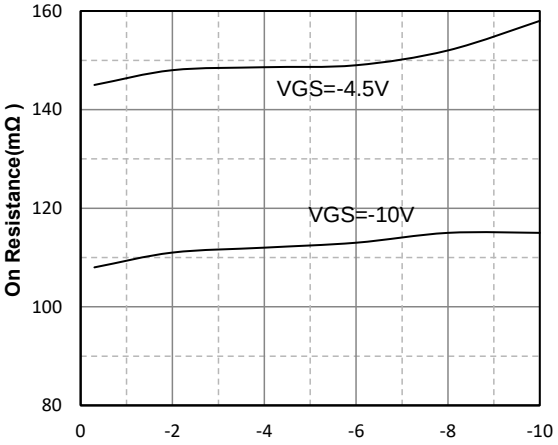
Typical Operating Characteristics



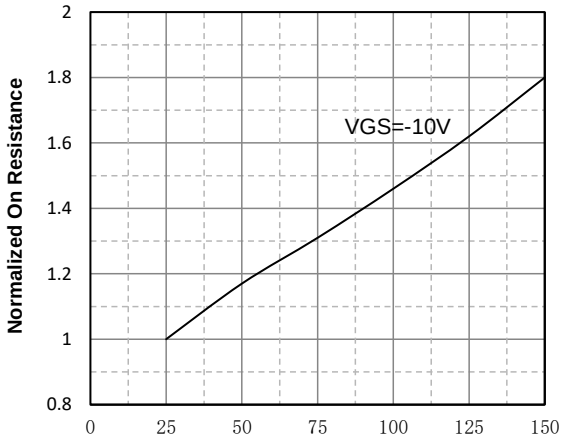
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



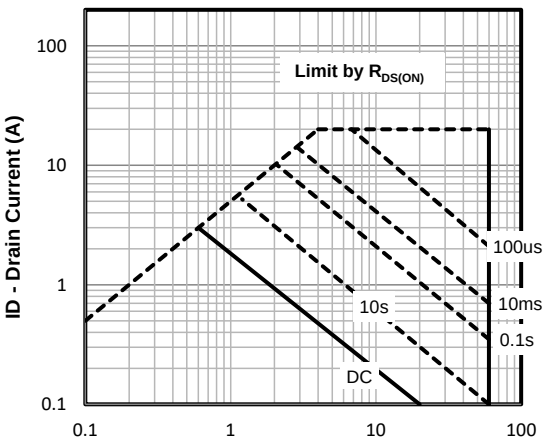
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs.Gate-Source Voltage



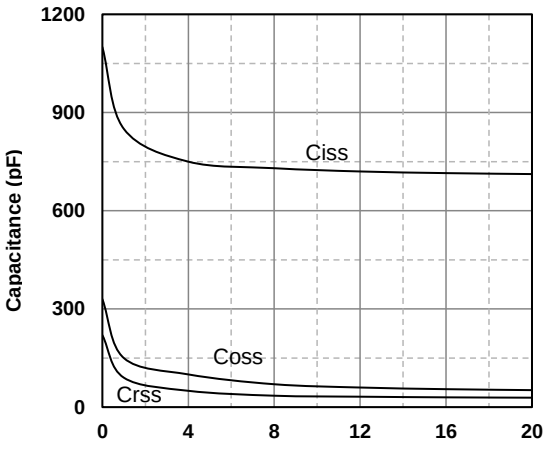
ID, Drain-Source Current (mA)
Fig3. Drain-Source on Resistance



Tj - Junction Temperature (°C)
Fig4. Normalized On-Resistance Vs. Temperature

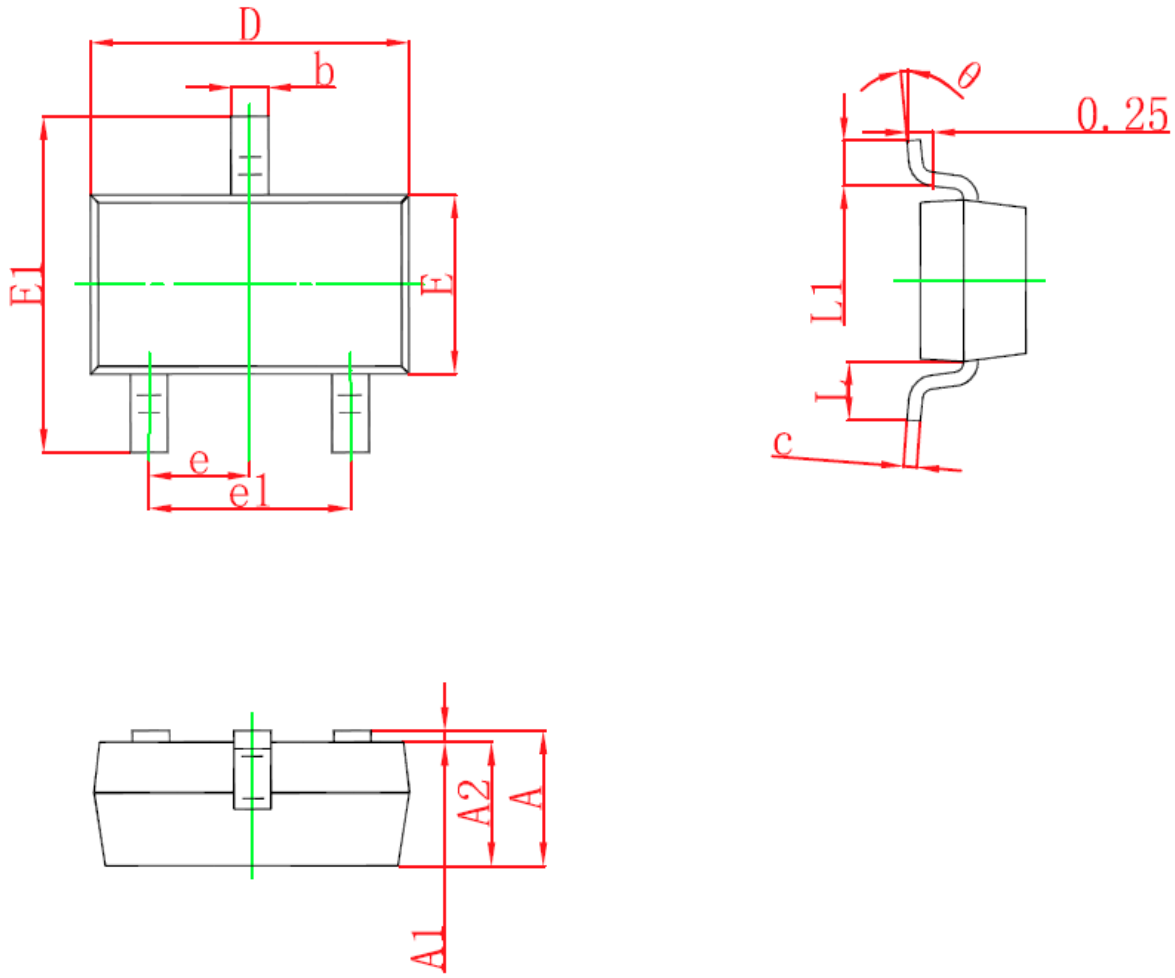


-VDS, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



-VDS , Drain-Source Voltage (V)
Fig6 Typical Capacitance Vs.Drain-Source Voltage

SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E1	2.250	2.550	0.088	0.100
E	1.200	1.400	0.047	0.055
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°