

-60V/-3.0A P-Channel MOSFET

Features

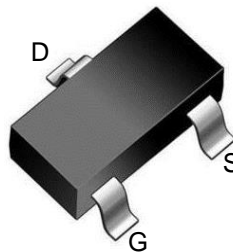
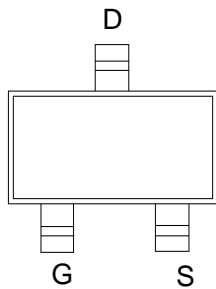
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Application

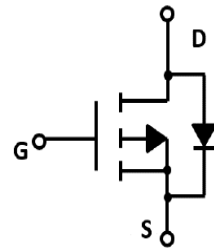
- PWM applications
- Power management
- Load switch

Product Summary

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



SOT-23 top view



Schematic diagram

Absolute Maximum Ratings (TA=25°C 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	$T_c=25^\circ\text{C}$	-3.0	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	-11	A
I_D	Continuous Drain Current@GS=10V	$T_c=25^\circ\text{C}$	-3.0	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	1.0	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		113	°C/W

Electrical Characteristics (T_J=25 °C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 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 @ T_J = 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	T _J =25 °C, I _S =-3A,	--	--	-1.2	V

Typical Operating Characteristics

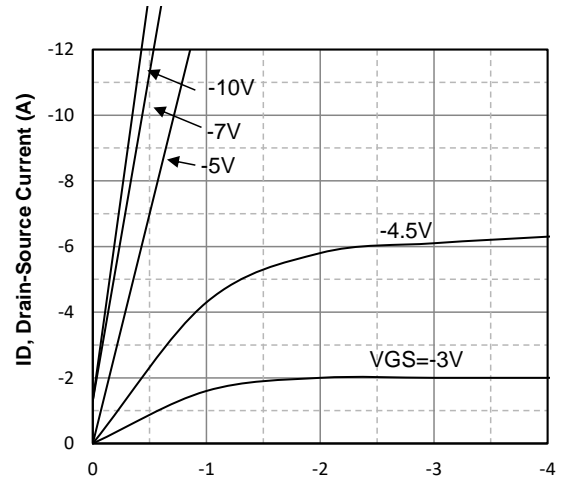


Fig1. Typical Output Characteristics

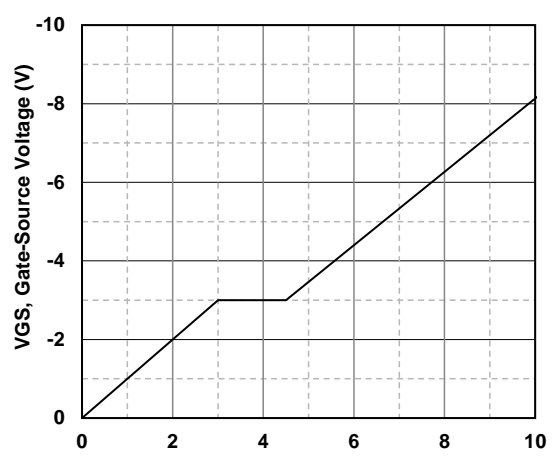


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

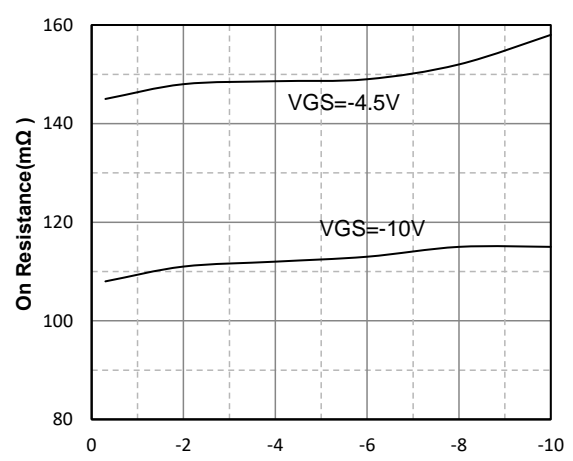


Fig3. Drain-Source on Resistance

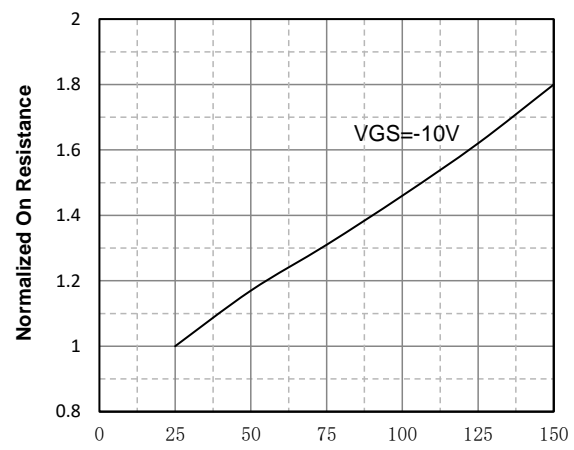


Fig4. Normalized On-Resistance Vs. Temperature

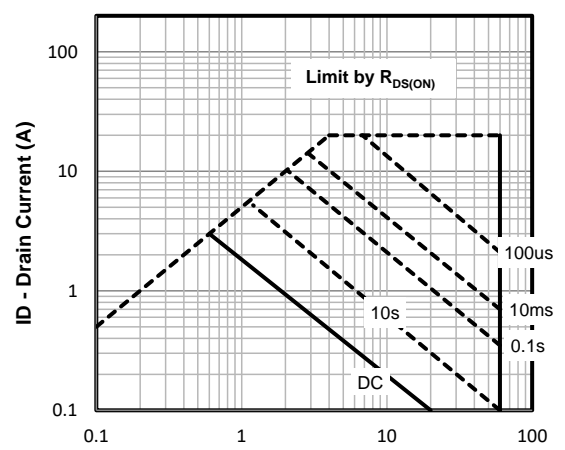


Fig5. Maximum Safe Operating Area

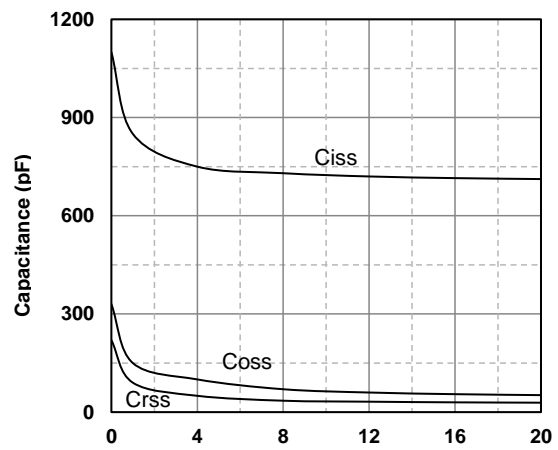
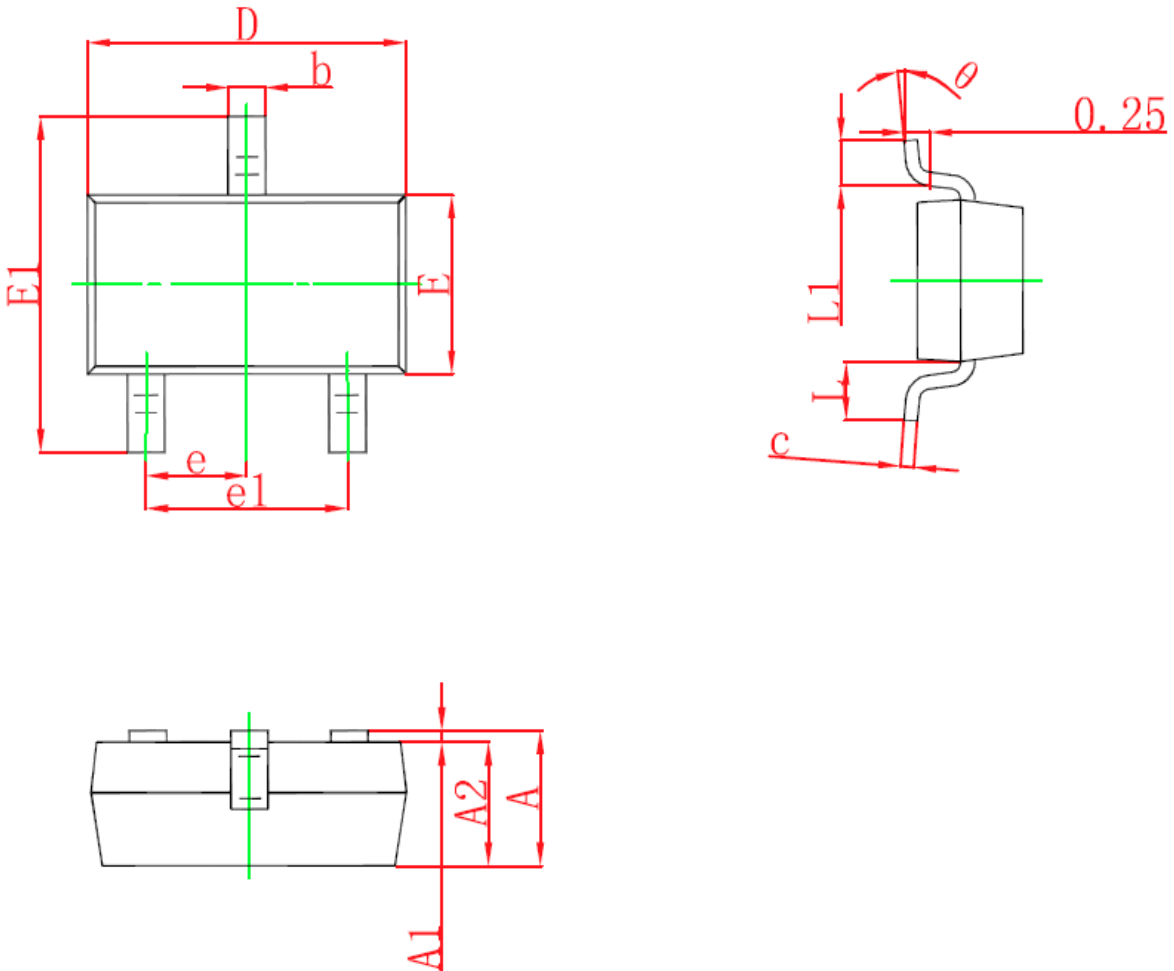


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°

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