

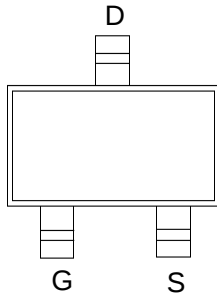
30V/2.2A N-Channel MOSFET

Features

- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

Application

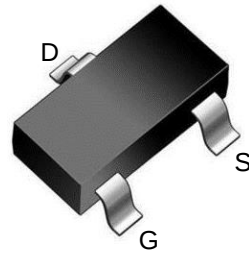
- Battery protection
- Load switch
- Power management



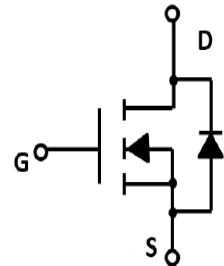
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
30V	65mΩ@4.5V	2.2A
	82mΩ@2.5V	



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		30	V
V _{GS}	Gate-Source Voltage		±8	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	Tc=25°C	2.2	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	10	A
I _D	Continuous Drain Current	Tc=25°C	2.2	A
P _D	Maximum Power Dissipation	Tc=25°C	0.5	W
R _{θJA}	Thermal Resistance Junction-Ambient		250	°C/W

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	30	--	--	V
Idss	Zero Gate Voltage Drain Current	VDS=24V, VGS=0V	--	--	1	uA
IGSS	Gate-Body Leakage Current	VGS=±8V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	0.6	0.9	1.2	V
RDS(on)	Drain-Source On-State Resistance	VGS=4.5V, ID=2.2A	--	40	65	mΩ
		VGS=2.5V, ID=2.0A	--	55	82	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz	--	285	--	pF
Coss	Output Capacitance		--	33	--	pF
CRSS	Reverse Transfer Capacitance		--	27	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=15V, ID=4A, VGS=4.5V	--	2.6	--	nC
Qgs	Gate Source Charge		--	0.6	--	nC
Qgd	Gate Drain Charge		--	0.9	--	nC
td(on)	Turn-on Delay Time	VDD=15V, ID=2A, VGS=4.5V, RG=3Ω	--	15	--	nS
tr	Turn-on Rise Time		--	42	--	nS
td(off)	Turn-Off Delay Time		--	16	--	nS
tf	Turn-Off Fall Time		--	10	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25℃, Is=2.2A,	--	--	1.2	V

Typical Operating Characteristics

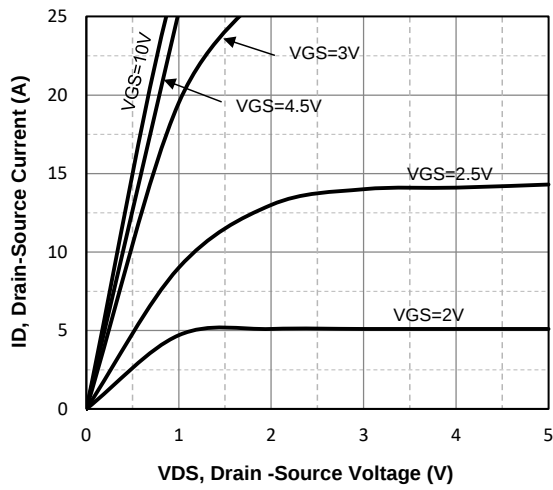


Fig1. Typical Output Characteristics

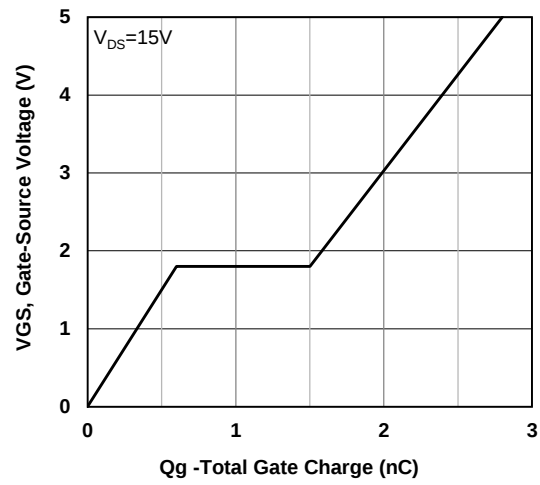


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

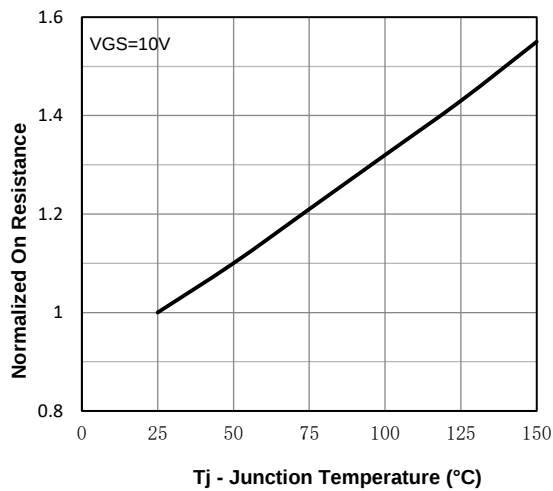


Fig3. Normalized On-Resistance Vs. Temperature

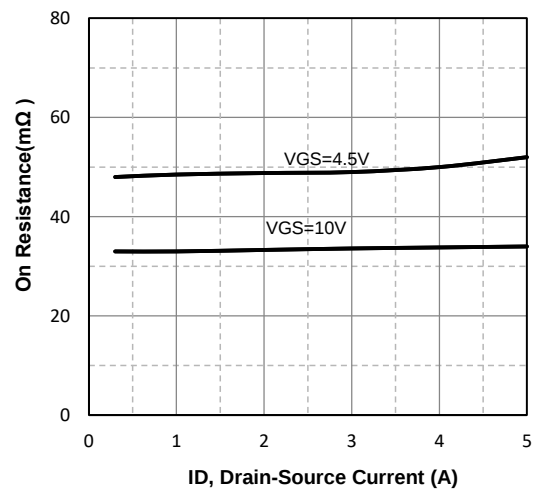


Fig4. On-Resistance Vs. Drain-Source

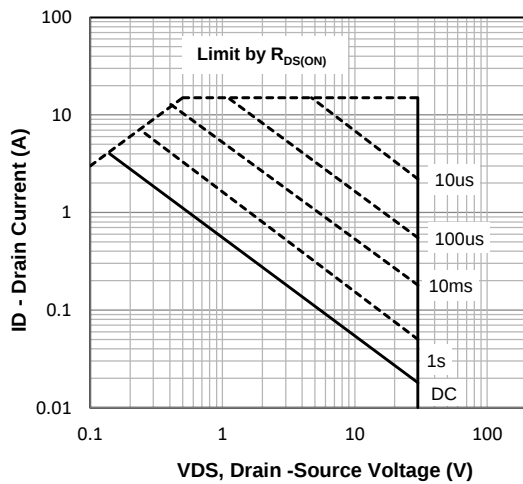


Fig5. Maximum Safe Operating Area

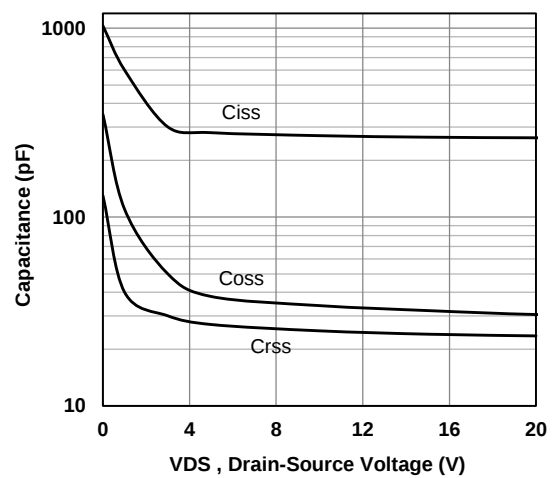
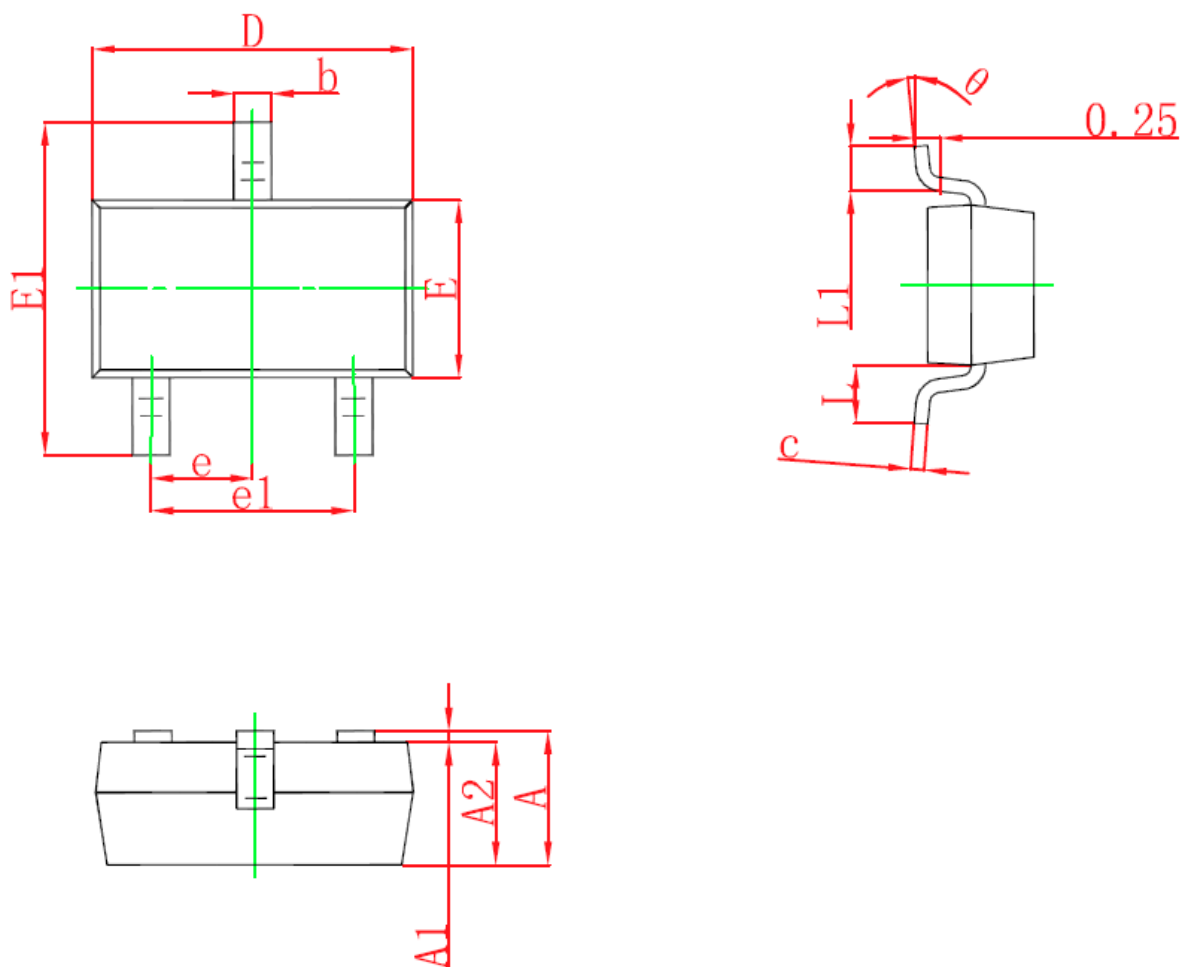


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°