

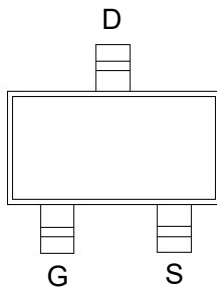
-20V/-7A P-Channel MOSFET

Features

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

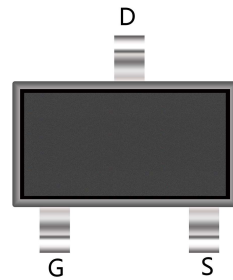
Application

- Battery protection
- Load switch
- Power management

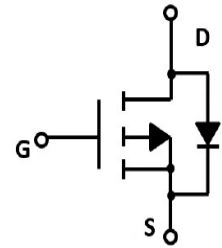


Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-20V	30mΩ@-4.5V	-7A
	40mΩ@-2.5V	



SOT-23-3L top view



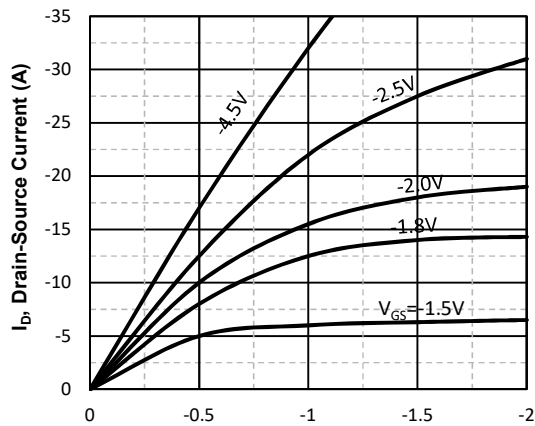
Schematic diagram



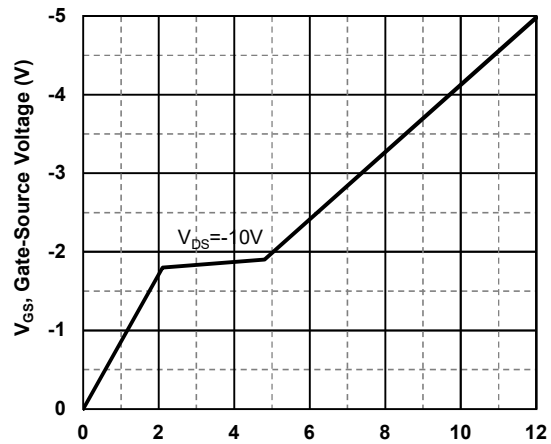
Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		-20	V
V _{GS}	Gate-Source Voltage		±10	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	Tc=25°C	-7	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	-25	A
I _D	Continuous Drain Current	Tc=25°C	-7	A
P _D	Maximum Power Dissipation	Tc=25°C	1.2	W
R _{θJA}	Thermal Resistance Junction-to-Ambient		105	°C/W

Electrical Characteristics (TJ=25°C 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} =-18V, V _{GS} =0V	–	–	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, 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 =-4A	–	21	30	mΩ
		V _{GS} =-2.5V, I _D =-2A	–	29	40	mΩ
		V _{GS} =-1.8V, I _D =-1A	–	40	75	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-9V, V _{GS} =0V, f=1MHz	–	1015	–	pF
C _{OSS}	Output Capacitance		–	138	–	pF
C _{RSS}	Reverse Transfer Capacitance		–	105	–	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-9V, I _D =-5.6A, V _{GS} =-4.5V	–	11.3	–	nC
Q _{gs}	Gate Source Charge		–	2.3	–	nC
Q _{gd}	Gate Drain Charge		–	2.4	–	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-9V, I _D =-1A, V _{GS} =-4.5V, R _G =2.5Ω	–	8.5	–	nS
t _r	Turn-on Rise Time		–	35.5	–	nS
t _{d(off)}	Turn-Off Delay Time		–	78	–	nS
t _f	Turn-Off Fall Time		–	58	–	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =-7A	–	–	-1.2	V

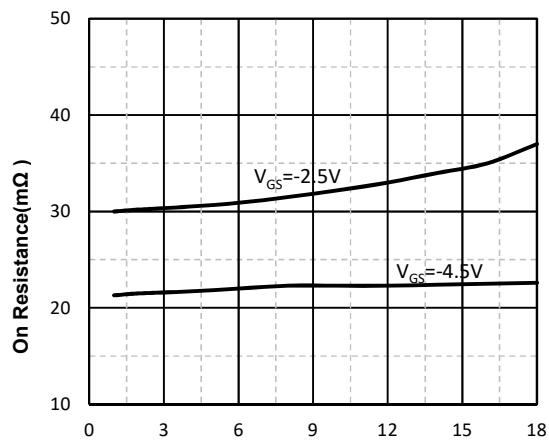
Typical Operating Characteristics



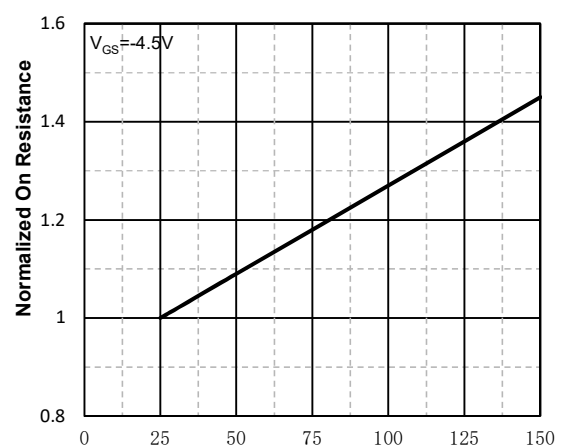
V_{DS} , Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



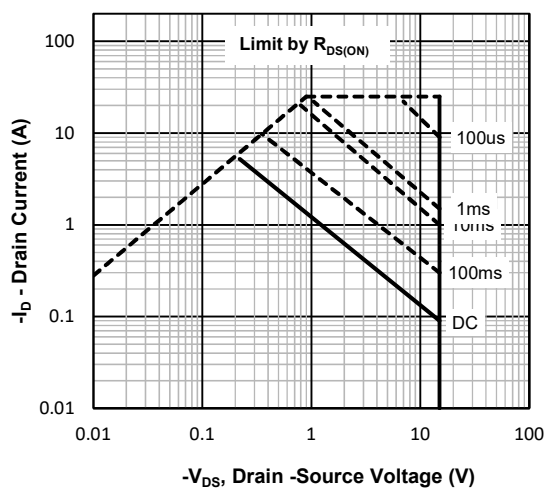
Q_g -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



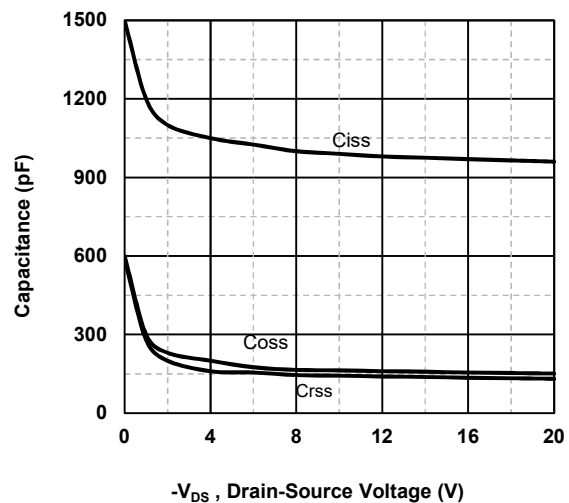
I_D , Drain-Source Current (A)
Fig3. Drain-Source on Resistance



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

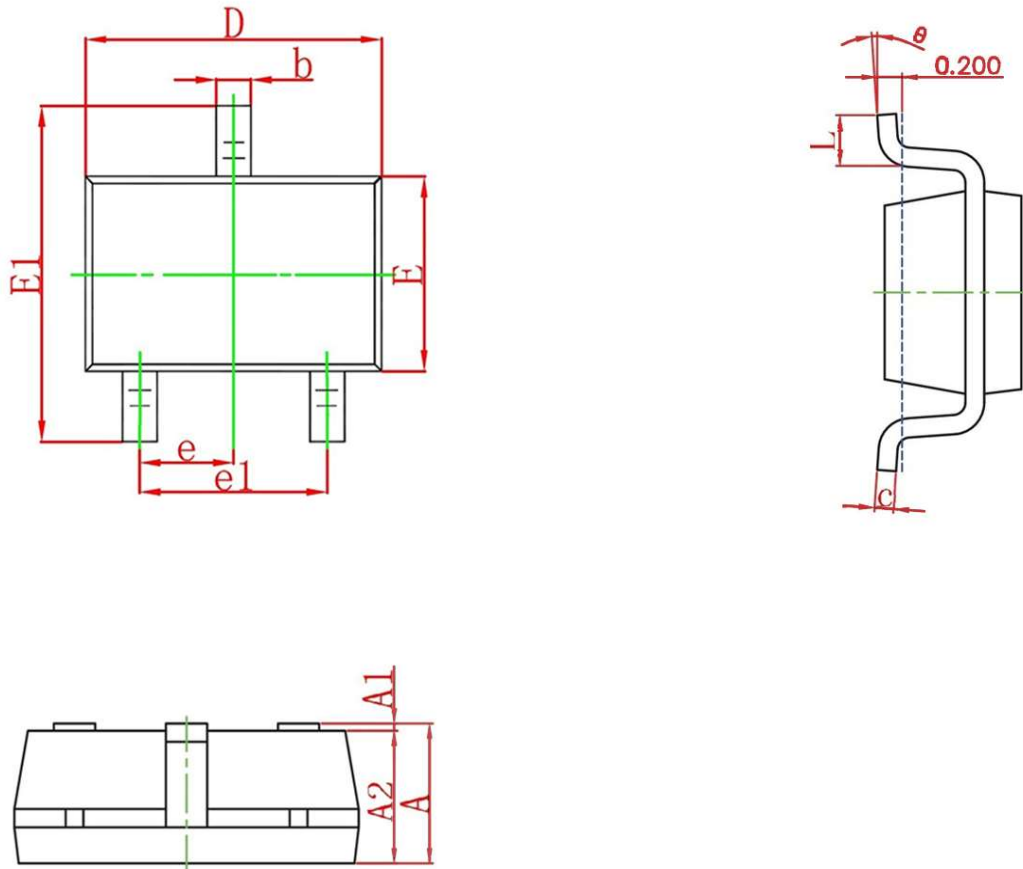


V_{DS} , Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



V_{DS} , Drain-Source Voltage (V)
Fig6. Typical Capacitance Vs. Drain-Source Voltage

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°