

-30V/-15A P-Channel MOSFET

Features

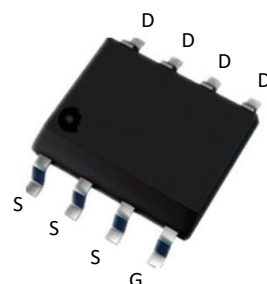
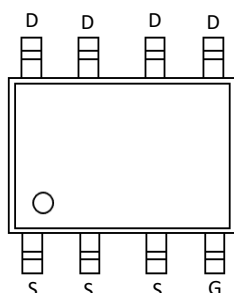
- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Product Summary

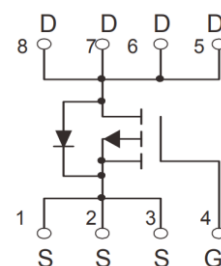
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	9.5mΩ@20V	-15A
	11mΩ@10V	

Application

- Battery protection
- Power management
- Load switch



SOP-8 top view



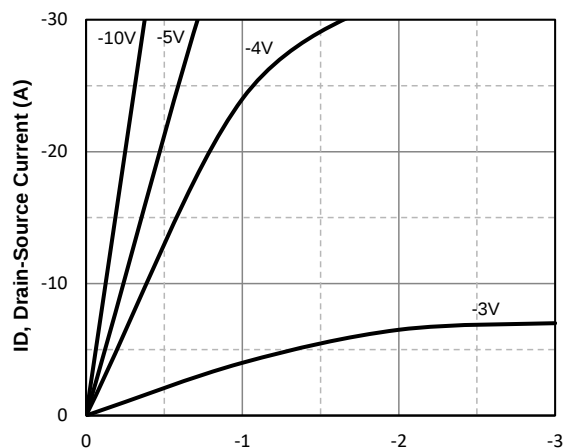
Schematic diagram



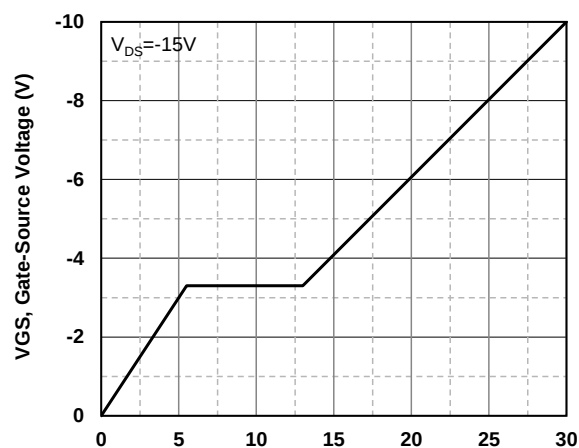
Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		-30	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	Tc=25°C	-15	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	-60	A
I _D	Continuous Drain Current@GS=10V	Tc=25°C	-15	A
P _D	Maximum Power Dissipation	Tc=25°C	3	W
R _{θJA}	Thermal Resistance Junction-Ambient(*1 in2 Pad of 2-oz Copper), Max.)		30	°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	VGS=0V, ID=-250μA	-30	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-30V, VGS=0V	--	--	-1	uA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1	-1.5	-2.2	V
RDS(on)	Drain-Source On-State Resistance	VGS=-20V, ID=-15A	--	7.9	9.5	mΩ
		VGS=-10V, ID=-15A	--	8.8	11	
		VGS=-4.5V, ID=-10A	--	12	18	
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=-15V, VGS=0V, f=1MHz	--	2800	--	pF
COSS	Output Capacitance		--	350	--	pF
CRSS	Reverse Transfer Capacitance		--	300	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDD=-15V, ID=-15A, VGS=-10V	--	30	--	nC
Qgs	Gate Source Charge		--	5.5	--	nC
Qgd	Gate Drain Charge		--	7.5	--	nC
td(on)	Turn-on Delay Time	VDD=-15V, ID=-15A, VGS=-10V, RG=2.5Ω	--	13	--	nS
tr	Turn-on Rise Time		--	20	--	nS
td(off)	Turn-Off Delay Time		--	90	--	nS
tf	Turn-Off Fall Time		--	65	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25°C, Is=-12A,	--	--	-1.2	V

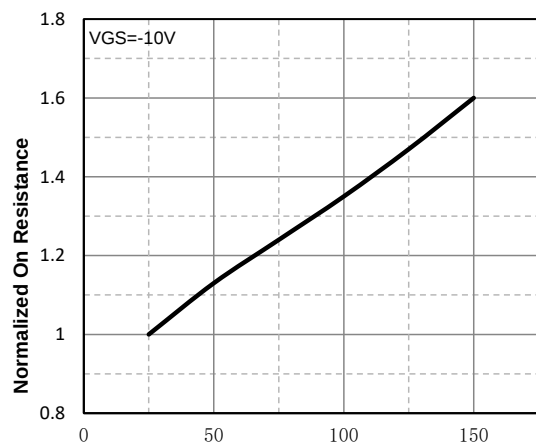
Typical Operating Characteristics



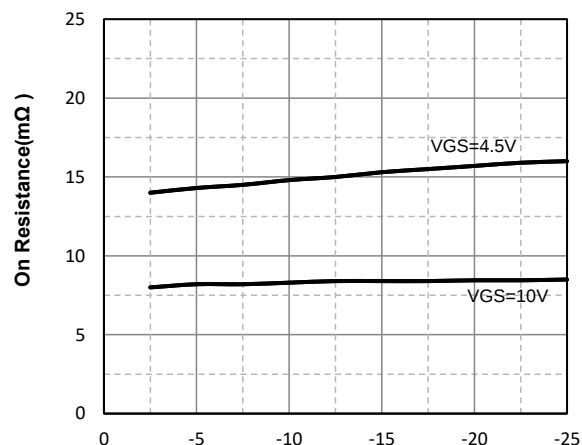
V_{DS}, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



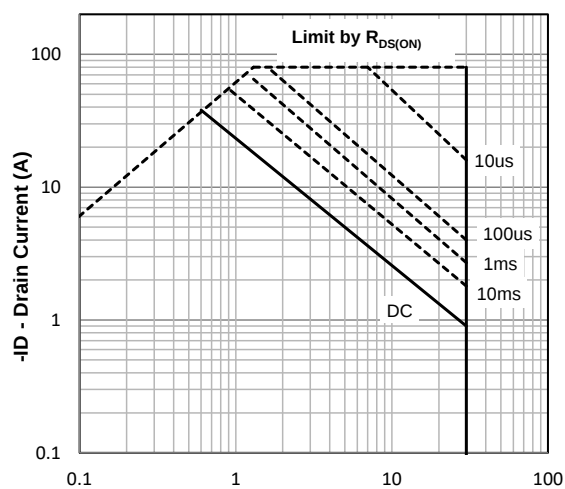
Q_g -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



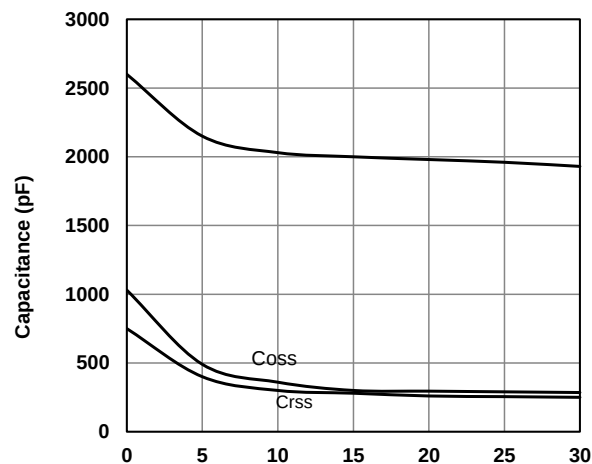
T_j - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



I_D, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current

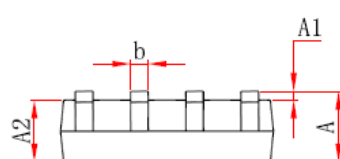
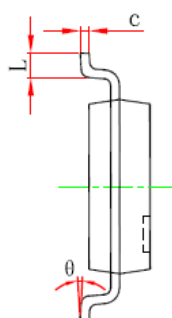
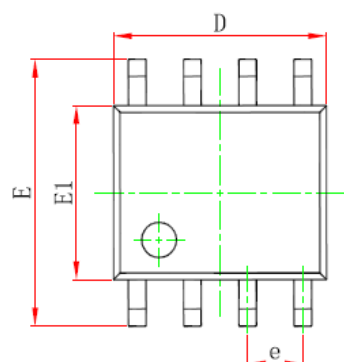


-V_{DS}, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



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

SOP-8 Package information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°