

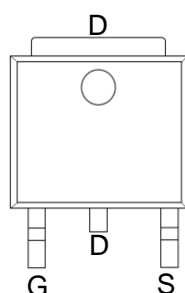
-30V/-60A P-Channel MOSFET

Features

- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Application

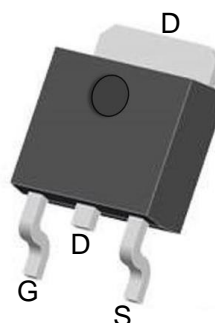
- Battery and loading switching
- Excellent package for good heat dissipation



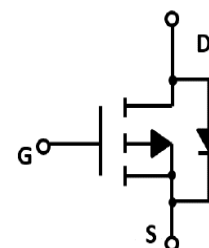
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	10m Ω @10V	-60A
	13m Ω @4.5V	



TO-252 top view

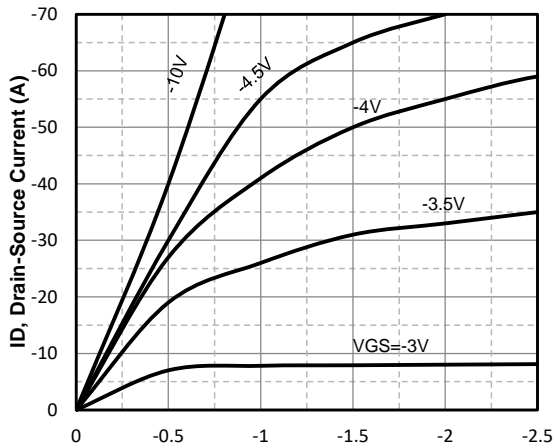


Schematic diagram

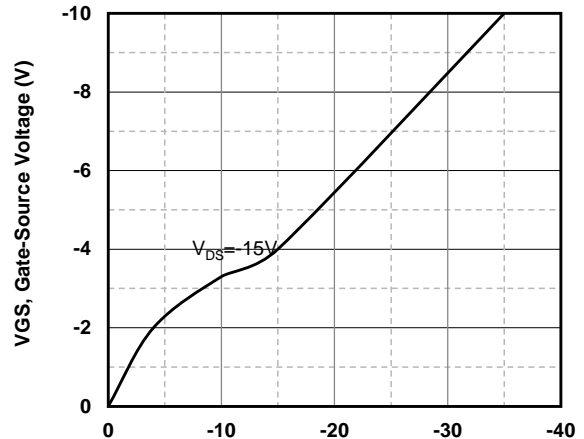
Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		-30	V
V_{GS}	Gate-Source Voltage		± 20	V
E_{AS}	Single pulse avalanche energy		77	mJ
T_J, T_{STG}	Storage Temperature Range		-55 to 175	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$	-60	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	-210	A
I_D	Continuous Drain Current@GS=10V	$T_C=25^\circ\text{C}$	-60	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	110	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)		62.5	°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	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	VDS=-30V, VGS=0V	--	--	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1.0	-1.5	-2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=-10V, ID=-15A	--	8.5	10	mΩ
		VGS=-4.5V, ID=-8A	--	9.5	13	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=-15V, VGS=0V, f=1MHz	--	1988	--	pF
C _{OSS}	Output Capacitance		--	305	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	266	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDD=-15V, ID=-12A, VGS=-10V	--	35	--	nC
Q _{gs}	Gate Source Charge		--	5.8	--	nC
Q _{gd}	Gate Drain Charge		--	8.8	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=-15V, ID=-1A, VGS=-10V, RG=2.5Ω	--	11	--	nS
t _r	Turn-on Rise Time		--	7.7	--	nS
t _{d(off)}	Turn-Off Delay Time		--	43.3	--	nS
t _f	Turn-Off Fall Time		--	18	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =-12A,	--	--	-1.2	V

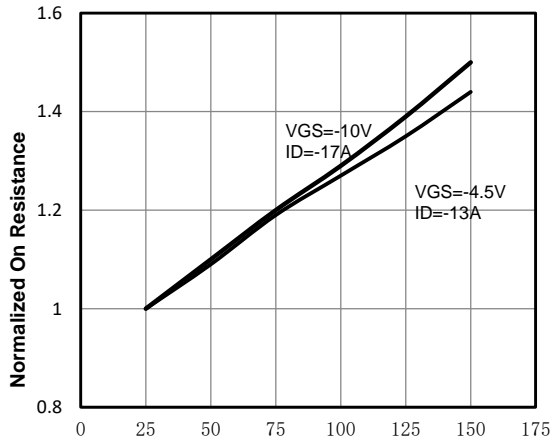
Typical Operating Characteristics



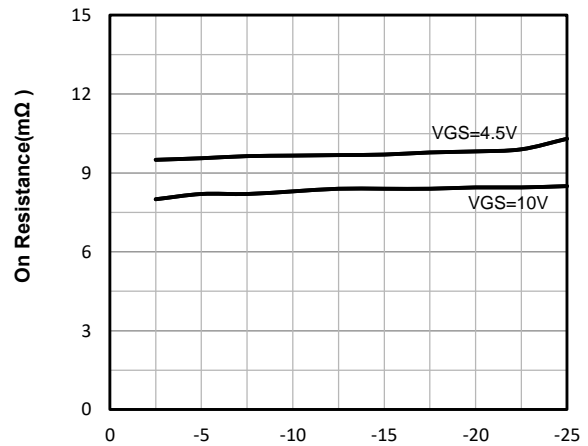
V_{DS}, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



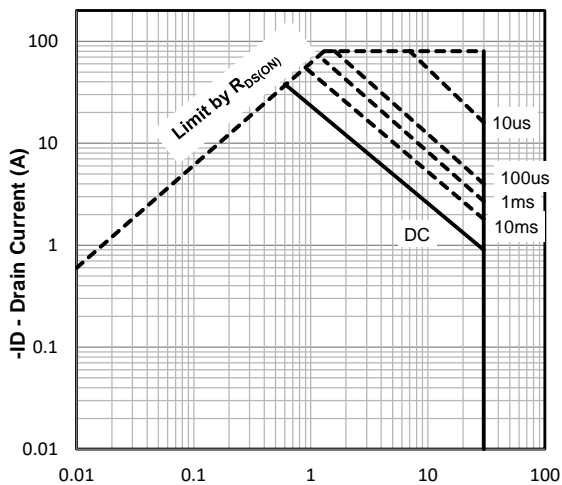
Q_g -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



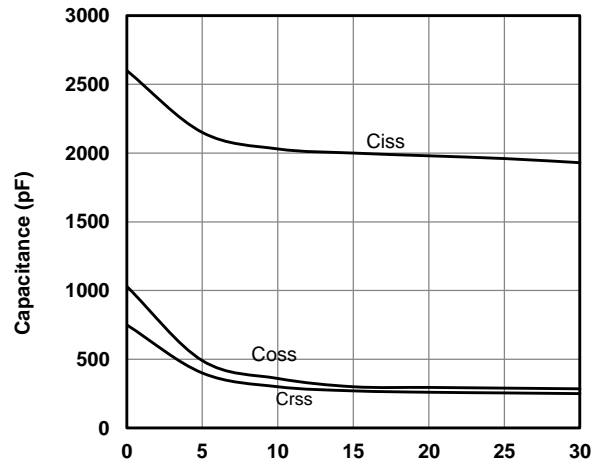
T_j - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



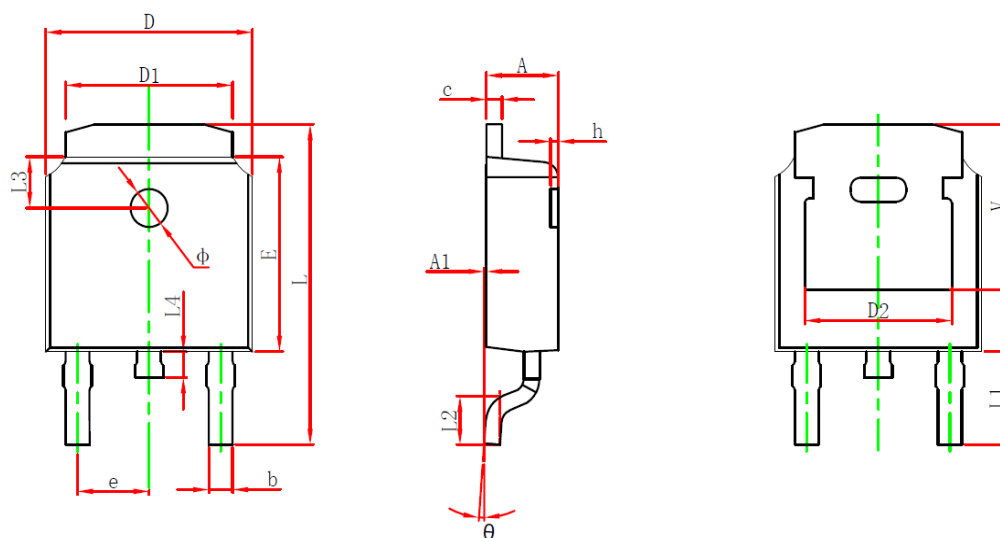
I_D, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current



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



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

TO-252 Package information


Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.450	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.386	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	