

N-Channel MOSFET

Features

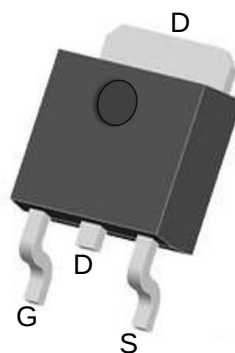
- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Application

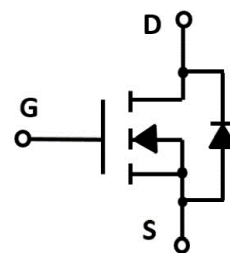
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
30V	6.5m Ω @10V	80A
	10m Ω @5V	



TO-252 top view



Schematic diagram

Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25℃ Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		30	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	℃
T _{STG}	Storage Temperature Range		-50 to 155	℃
I _S	Diode Continuous Forward Current	Tc=25℃	80	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25℃	170	A
I _D	Continuous Drain Current@GS=10V	Tc=25℃	80	A
P _D	Maximum Power Dissipation	Tc=25℃	83	W
E _{AS}	Single pulse avalanche energy		306	mJ

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
I _{DSS}	Zero Gate Voltage Drain Current	VDS=30V, 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	1.6	3	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=10V, ID=30A	--	4.7	6.5	mΩ
		VGS=5V, ID=24A	--	7.3	10	
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=15V, VGS=0V, f=1MHz	--	2015	--	pF
C _{OSS}	Output Capacitance		--	250	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	235	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDS=10V, ID=30A, VGS=10V	--	61	--	nC
Q _{gs}	Gate Source Charge		--	8.3	--	nC
Q _{gd}	Gate Drain Charge		--	7.5	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=10V, ID=30A, VGS=10V, RG=2.7Ω	--	21	--	nS
t _r	Turn-on Rise Time		--	16	--	nS
t _{d(off)}	Turn-Off Delay Time		--	59	--	nS
t _f	Turn-Off Fall Time		--	10.3	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25℃, Is=24A,	--	--	1.2	V

Typical Operating Characteristics

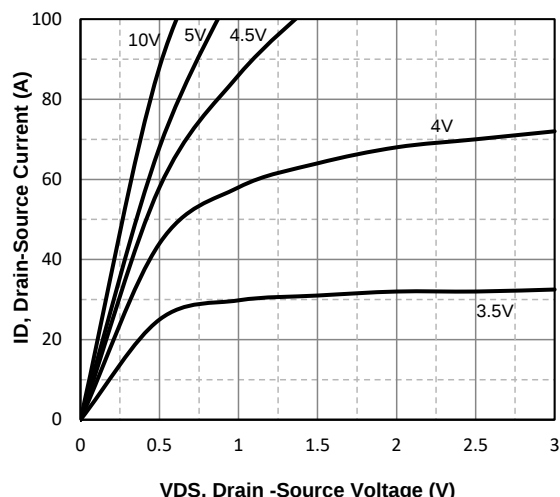


Fig1. Typical Output Characteristics

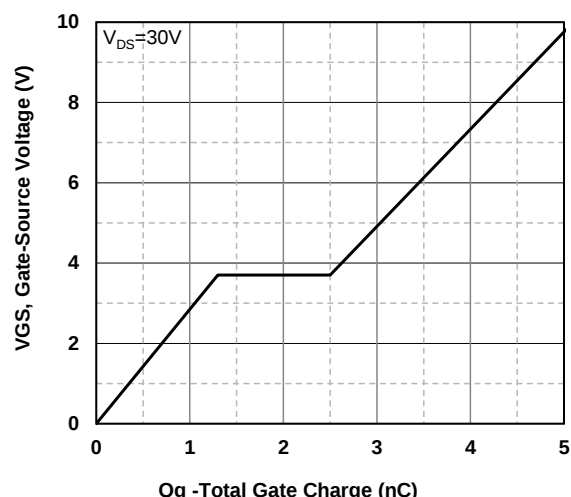


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

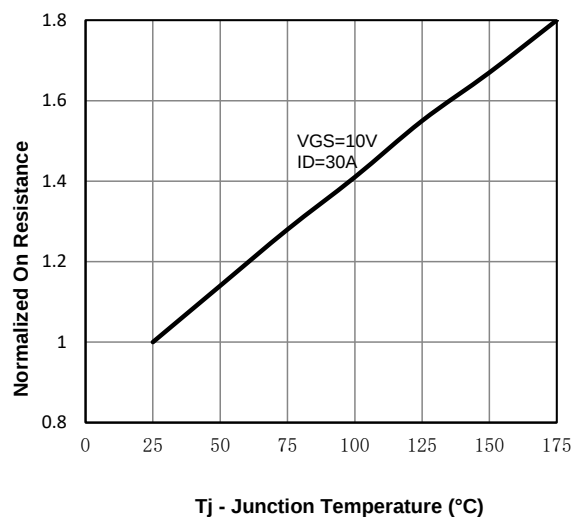


Fig3. Normalized On-Resistance Vs. Temperature

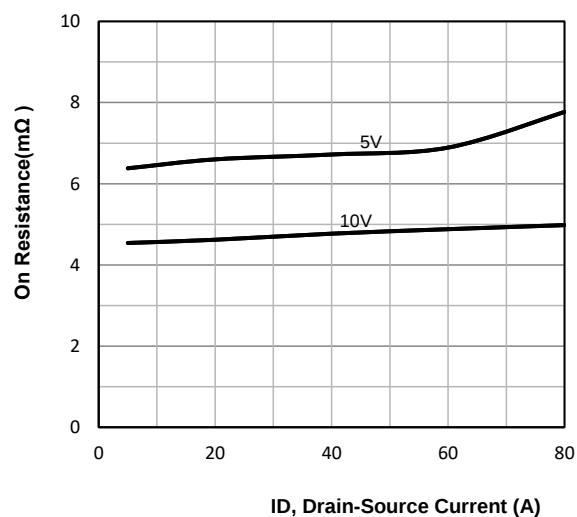


Fig4. On-Resistance Vs. Drain-Source Current

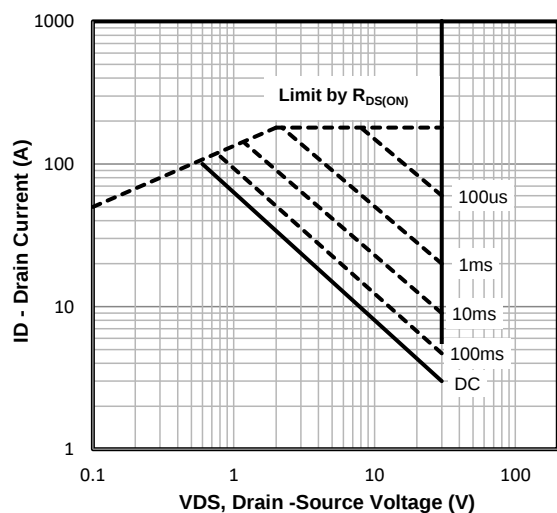


Fig5. Maximum Safe Operating Area

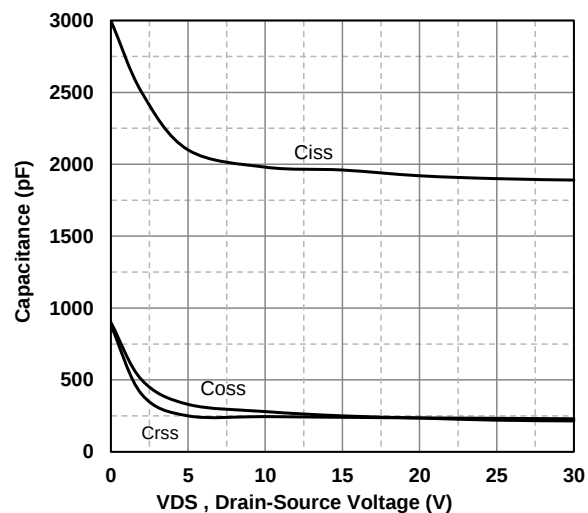
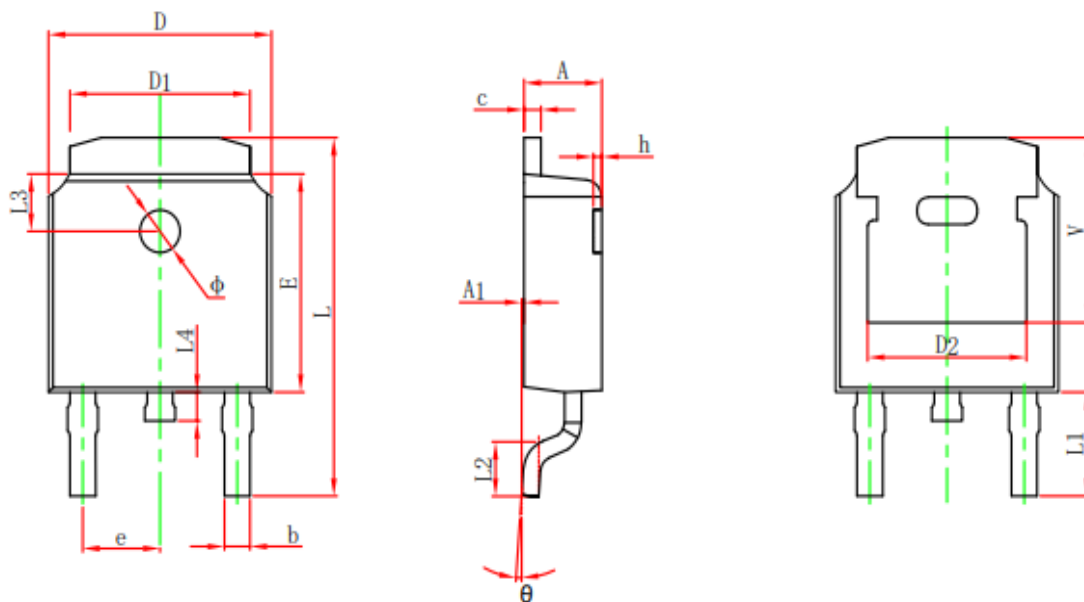


Fig6 Typical Capacitance Vs. Drain-Source Voltage

TO-252 Package information



Symbol	Dimensions In Millimeters		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	0.460	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	0.382	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.	