

-30V/-7A P-Channel MOSFET

Features

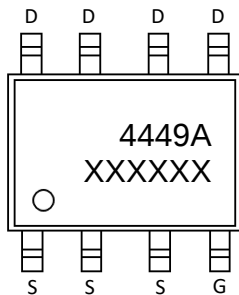
- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	34mΩ@10V	-7A
	54mΩ@4.5V	

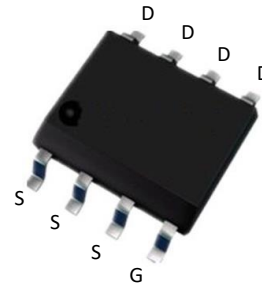
Application

- Battery protection
- Power management
- Load switch

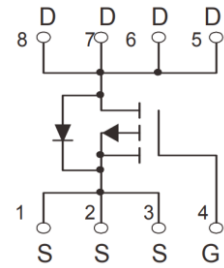


4449A : Device code
XXXXXX : Code

Marking and pin assignment



SOP-8 top view



Schematic diagram

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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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	$T_C=25^{\circ}C$ -7	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$ -30	A
I_D	Continuous Drain Current@GS=10V	$T_C=25^{\circ}C$ -7	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$ 3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)	30	°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=-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	-1.8	-3	V
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-7A	--	28	34	mΩ
		VGS=-4.5V, ID=-5A	--	47	54	
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
CISS	Input Capacitance	VDS=-15V, VGS=0V, f=1MHz	--	660	--	pF
COSS	Output Capacitance		--	100	--	pF
CRSS	Reverse Transfer Capacitance		--	64	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=-15V, ID=-7A, VGS=-10V	--	9.3	--	nC
Qgs	Gate Source Charge		--	1.5	--	nC
Qgd	Gate Drain Charge		--	2.2	--	nC
td(on)	Turn-on Delay Time	VDD=-15V, ID=-7A, VGS=-10V, RG=3Ω	--	7.5	--	nS
tr	Turn-on Rise Time		--	5.5	--	nS
td(off)	Turn-Off Delay Time		--	20	--	nS
tf	Turn-Off Fall Time		--	8	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25℃, IS=-7A,	--	-0.8	-1.2	V

Typical Operating Characteristics

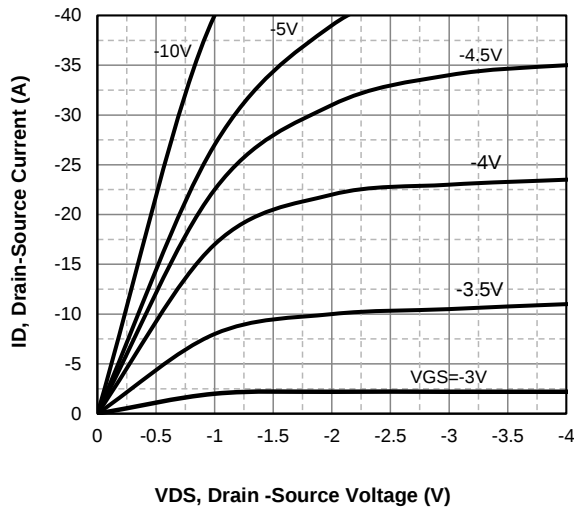


Fig1. Typical Output Characteristics

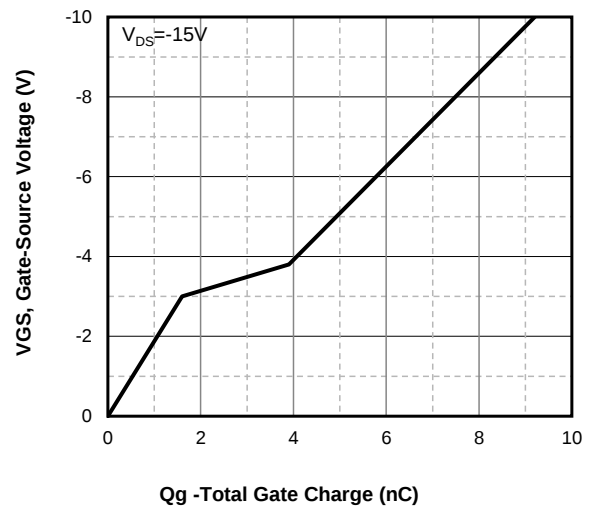


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

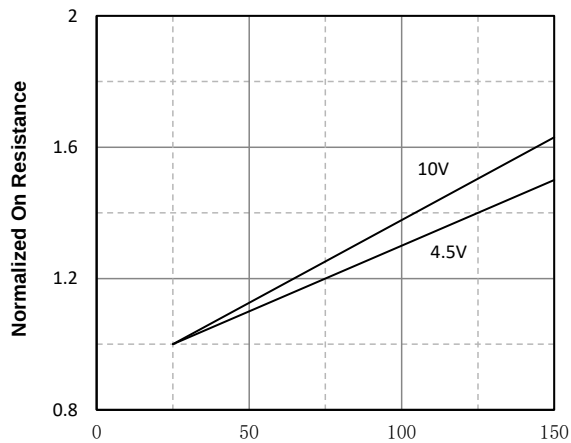


Fig3. Normalized On-Resistance Vs. Temperature

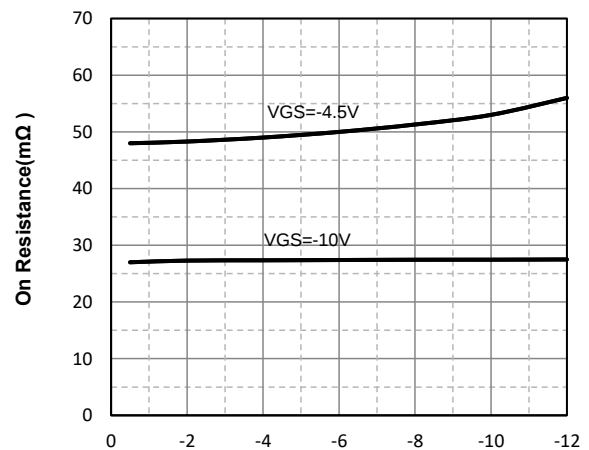


Fig4. On-Resistance Vs. Drain-Source Current

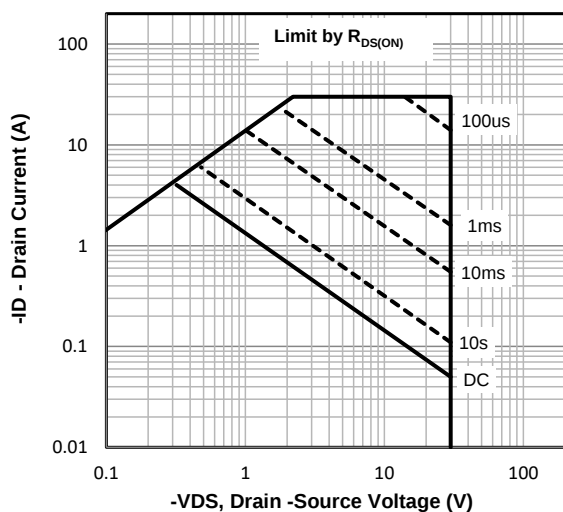


Fig5. Maximum Safe Operating Area

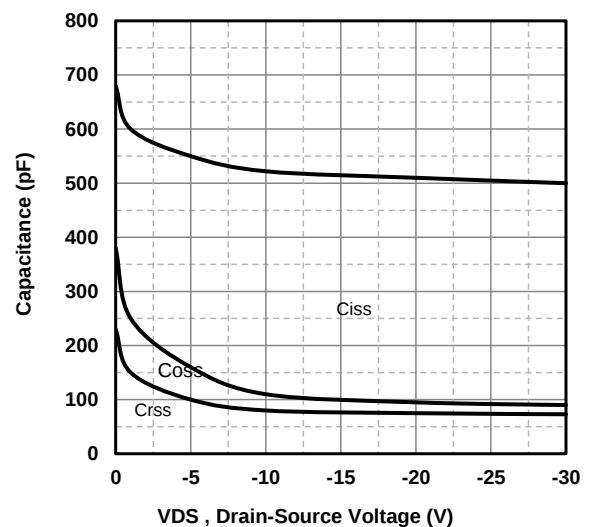
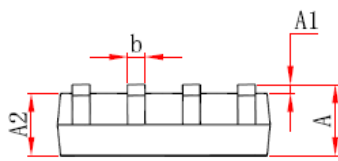
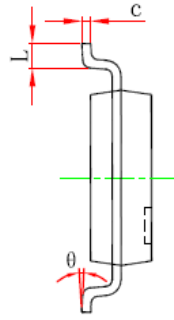
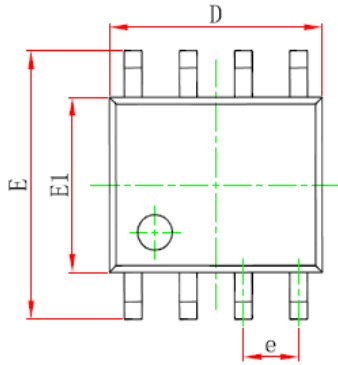


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°