

-30V/-10A P-Channel MOSFET

Features

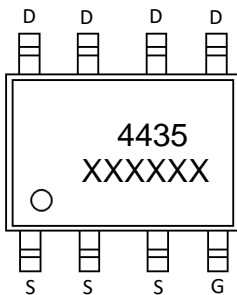
- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	18m Ω @10V	-10.5A
	30m Ω @4.5V	

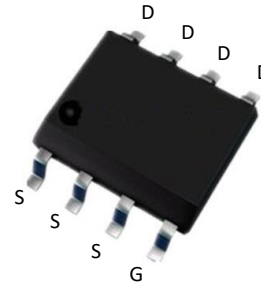
Application

- Battery protection
- Power management
- Load switch

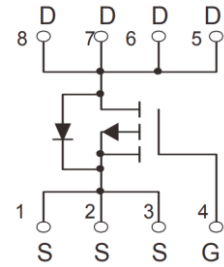


4435: Device code
XXXXXX : Code

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)

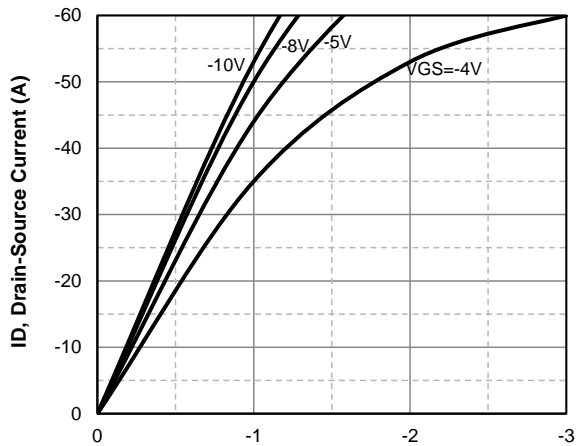
V_{DS}	Drain-Source Breakdown Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	Tc=25°C -10	A

Mounted on Large Heat Sink

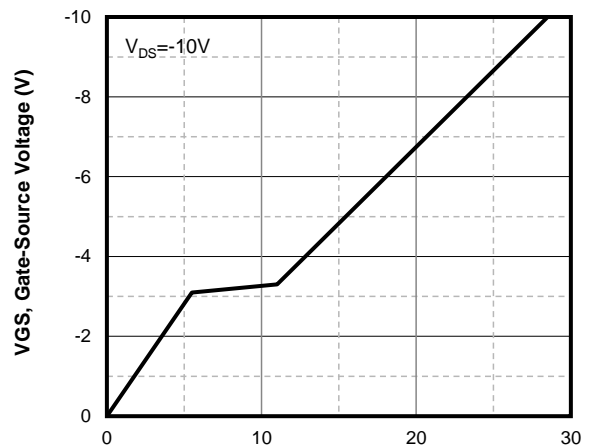
I_{DM}	Pulse Drain Current Tested	Tc=25°C -50	A
I_D	Continuous Drain Current@GS=10V	Tc=25°C -10.5	A
P_D	Maximum Power Dissipation	Tc=25°C 3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)	42	°C/W

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)						
B _{V(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	--	--	-1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.5	-3	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-10A	--	15	18	mΩ
		V _{GS} =-4.5V, I _D =-8A	--	22	30	
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	1500	--	pF
C _{OSS}	Output Capacitance		--	180	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	150	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-6A, V _{GS} =-15V	--	29	--	nC
Q _{gs}	Gate Source Charge		--	5.4	--	nC
Q _{gd}	Gate Drain Charge		--	5.4	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-15V, I _D =-6A, V _{GS} =-10V, R _G =2.5Ω	--	10	--	nS
t _r	Turn-on Rise Time		--	45	--	nS
t _{d(off)}	Turn-Off Delay Time		--	55	--	nS
t _f	Turn-Off Fall Time		--	60	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =-10A,	--	-0.8	-1.2	V

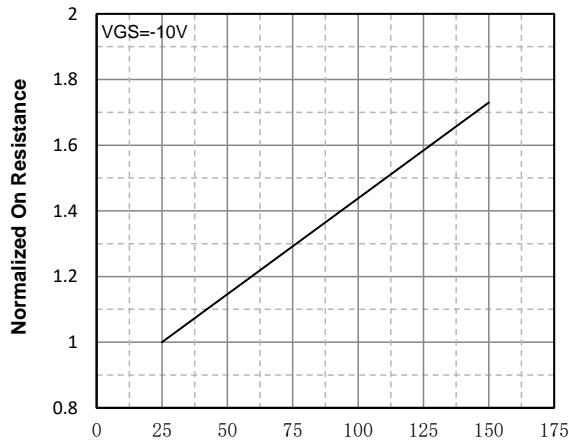
Typical Operating Characteristics



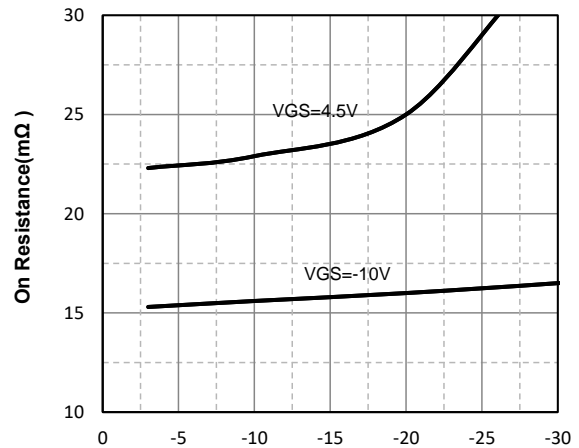
VDS, Drain-Source Voltage (V)
Fig1. Typical Output Characteristics



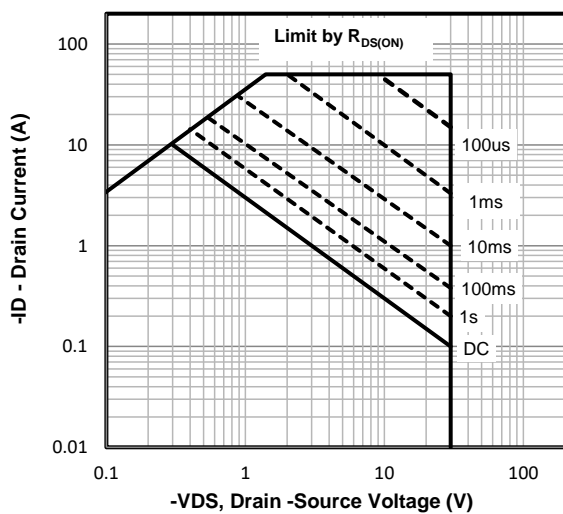
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



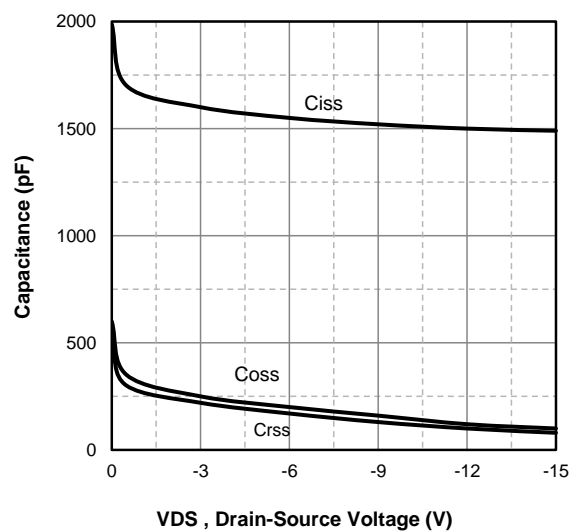
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



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

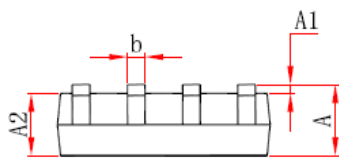
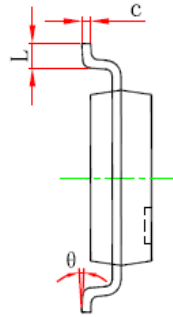
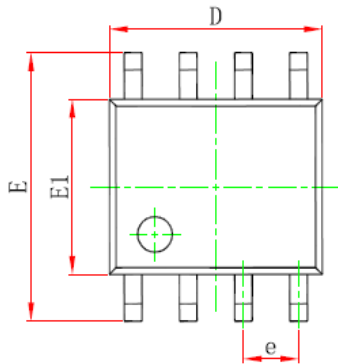


-VDS, Drain-Source Voltage (V)
Fig5. Maximum Safe Operating Area



VDS, 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°