

Datasheet

FS4435

Single P-Channel Enhancement Mode Power MOSFET

FORTUNE,
Properties
For Reference Only

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1. Features

1.1 Low on-resistance

1.1.1 $R_{DS(ON)} = 25\text{ m}\Omega$ MAX. ($V_{GS} = -10\text{V}$, $I_D = -10\text{A}$)

1.1.2 $R_{DS(ON)} = 36\text{ m}\Omega$ MAX. ($V_{GS} = -5\text{V}$, $I_D = -5\text{A}$)

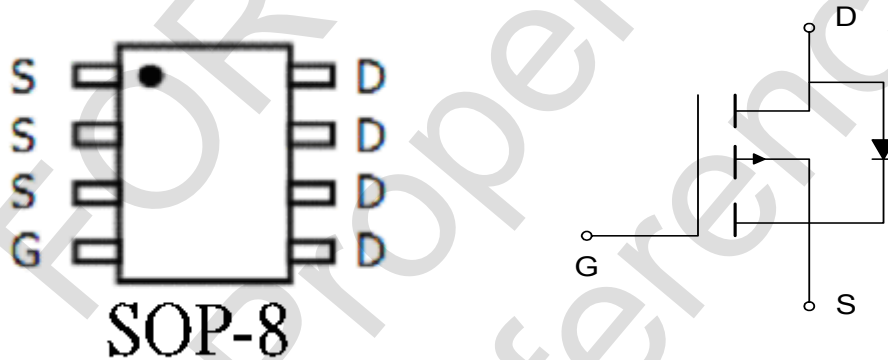
2. Applications

- Power management
- Load switch
- Battery protection

3. Ordering Information

Product Number	Description	Package Type	Quantity/Reel
FS4435	SOP-8 package version	SOP-8	3,000

4. Pin Assignment



5. Limiting Values

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-30	V
VGS	Gate-Source Voltage	±25	V
ID @TA = 25°C	Continuous Drain Current ³	-10.5	A
ID @TA = 70°C	Continuous Drain Current ³	-8	A
IDM	Pulsed Drain Current ¹	-80	A
PD @TA = 25°C	Total Power Dissipation	3.1	W
TSTG	Storage Temperature Range	-55 to 150	°C
TJ	Operating Junction Temperature Range	-55 to 150	°C
Is	Diode Forward Current	-3.5	A

6. Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Thermal Resistance Junction-ambient	Max. 75	°C/W

7. Electrical Characteristics

Electrical Characteristics @T_j = 25°C (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250uA	-30	-	-	V
R _{DS(ON)} ¹	Static Drain-Source On-Resistance ²	V _{GS} = -10V, I _D = -10A	-	19	25	mΩ
		V _{GS} = -5V, I _D = -5A	-	27	36	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250uA	-1	-1.7	-3	V
I _{DSS}	Drain-Source Leakage Current (T _j = 25°C)	V _{DS} = -30V V _{GS} = 0V	-	-	-1	uA
	Drain-Source Leakage Current (T _j = 55°C)	V _{DS} = -30V V _{GS} = 0V	-	-	-5	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ±25V V _{DS} = 0V	-	-	±100	nA
Diode Characteristics						
V _{SD} ¹	Diode Forward Voltage	I _{SD} = -1A, V _{GS} = 0V		-0.75	-1.0	V
t _{rr}	Reverse Recovery Time	I _{SD} = -10A, dI _{SD} /dt = 100A/μs		25	30	ns
Q _{rr}	Reverse Recovery Charge			12		nC
Dynamic Characteristics²						
R _G	Gate Resistance	V _{GS} = V _{DS} = 0V, F = 1MHz	1	5.8	8	Ω
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = -15V Frequency = 1MHz		1130	1400	pF
C _{oss}	Output Capacitance			240		
C _{rss}	Reverse Transfer Capacitance			155		ns
t _{d(on)}	Turn-on Delay Time		V _{GS} = -10V, V _{DS} = -15V, R _G = 3Ω, R _L = 1.5Ω,		8.7	
t _r	Turn-on Rise Time			8.5		
t _{d(off)}	Turn-off Delay Time			18		
t _f	Turn-off Rise Time			7		
Gate Charge Characteristics²						
Q _{g(10V)}	Total Gate Charge	V _{GS} = -10V, V _{DS} = -15V, I _{DS} = -11A		18	24	nC
Q _{g(4.5V)}	Total Gate Charge			9.5		
Q _{gs}	Gate-Source Charge			5.5		
Q _{gd}	Gate-Drain Charge			3.3		

Notes :

1. Pulse width ≤ 300us, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing

8. Typical Characteristics

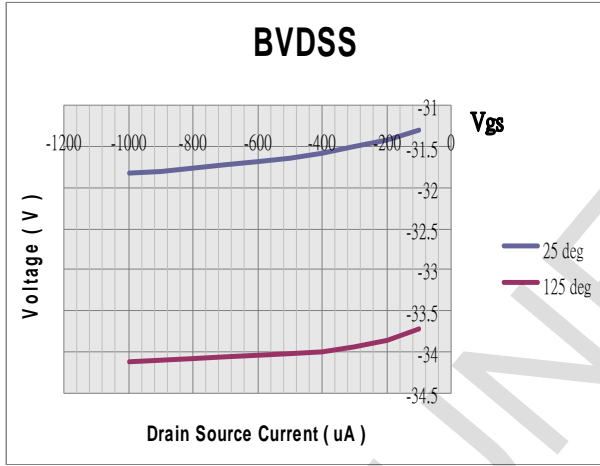


Fig 1. Drain-Source Breakdown Voltage

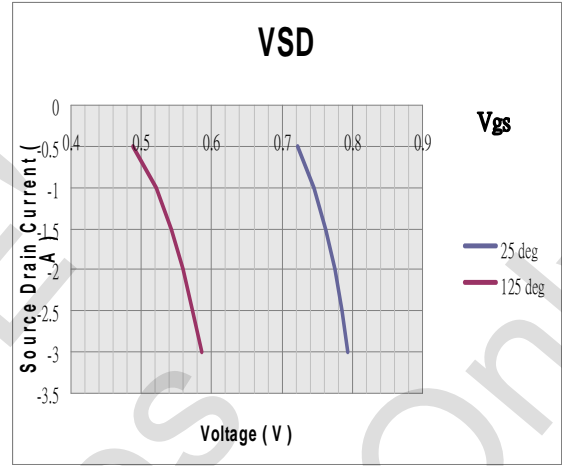


Fig 2. Doide Forward Voltage

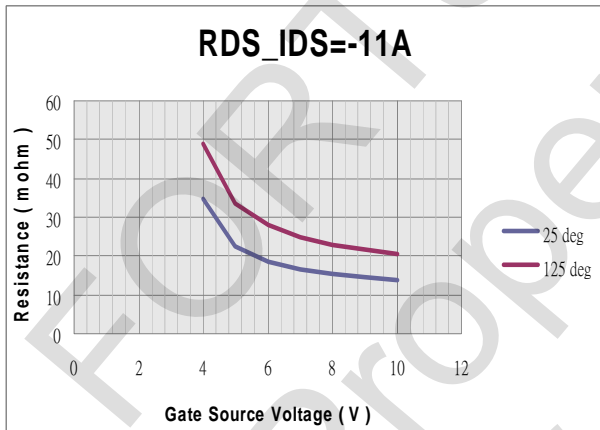


Fig 3. Static Drain-Source On-Resistance

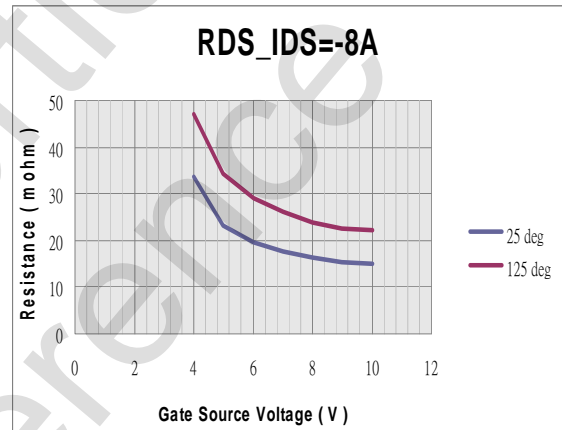
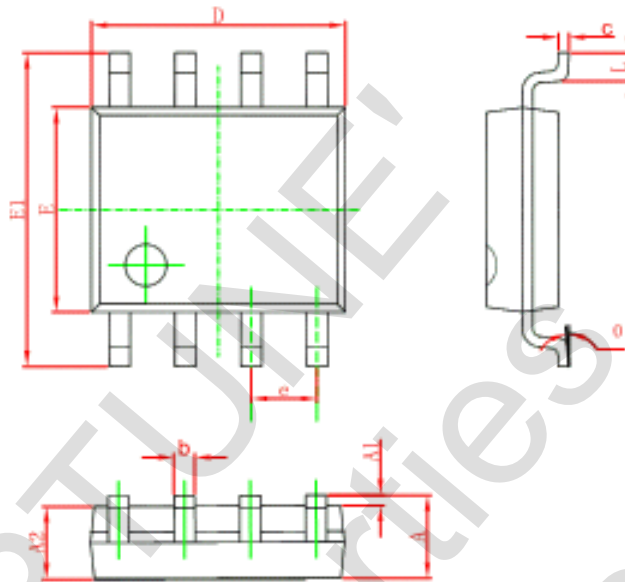


Fig 4. Static Drain-Source On-Resistance

9. Package Information

SOP8 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.350	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	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°		8°	

10. Revision History

Version	Date	Page	Description
1.0	2010/12/21	-	Version 1.0 released
1.1	2011/02/18	4	Revise $R_{DS(ON)}$ $V_{GS} = -10V, I_D = -8.8A$ TYP:15mΩ MAX:20mΩ $V_{GS} = -4.5V, I_D = -6.7A$ TYP:22mΩ MAX:35mΩ
1.2	2011/03/08	4	Revise $R_{DS(ON)}$ $V_{GS} = -20V, I_D = -11A$ TYP:16mΩ MAX:19mΩ $V_{GS} = -10V, I_D = -10A$ TYP:19mΩ MAX:25mΩ $V_{GS} = -5V, I_D = -5A$ TYP:27mΩ MAX:36mΩ $V_{GS(th)}$ MIN = -1V, TYP = -1.7V, MAX = -3V
1.3	2011/05/19	4	Delete Test Conditions $R_{DS(ON)}$: $V_{GS} = -20V$ $I_D = -11A$
1.4	2011/05/26	3	Revise Applications
1.5	2014/05/22	2	Revised company address