

P-Channel -20V (D-S) MOSFET

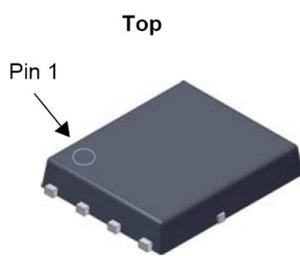
● FEATURES

$R_{DS(ON)} \leq 3.5m\Omega @ V_{GS} = -4.5V$
 $R_{DS(ON)} \leq 5.0m\Omega @ V_{GS} = -2.5V$
 high density cell design for extremely low $R_{DS(ON)}$
 Exceptional on-resistance and maximum DC current capability

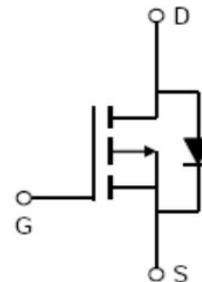
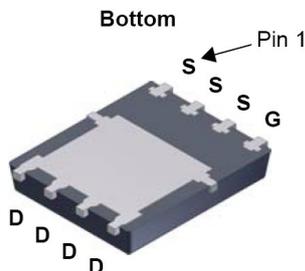
● GENERAL DESCRIPTION

The FS4485 combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

● PIN CONFIGURATION



DFN5X6-8L



P-MOS

Absolute Maximum Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-15	V
V_{GS}	Gate-Source Voltage	± 10	V
I_D	Drain Current—Continuous($T_C = 25^\circ C$)	-70	A
	Drain Current—Continuous($T_C = 100^\circ C$)	-54	A
I_{DM}	Drain Current—Pulsed ¹	-360	A
P_D	Power Dissipation($T_C = 25^\circ C$)	41.67	W
	Power Dissipation—Derate above $25^\circ C$	0.33	W/ $^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	62	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	3	$^\circ C/W$

NOTE:

- A: Surface mounted on FR4 board using the minimum recommended pad size, 1oz Cu.
 B: Repetitive rating, pulse width limited by junction temperature, $t_p = 10\mu s$, Duty Cycle=1%
 C: Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ C$.

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● Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR) DSS}	V _{GS} =0V I _D =-250μA	-15	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-8V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	-	-	±100	nA
On Characteristics(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.65	-1.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-20A	-	2.7	3.5	mΩ
		V _{GS} =-2.5V, I _D =-20A	-	3.8	5.0	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-3A	30	-	-	S

Dynamic Characteristics

Q _g	Total Gate Charge _{2, 3}	V _{DS} =-16V, V _{GS} =-4.5V, I _D =-5A	---	149	225	nC
Q _{gs}	Gate-Source Charge _{2, 3}		---	14.4	22	
Q _{gd}	Gate-Drain Charge _{2, 3}		---	42.8	65	
T _{d(on)}	Turn-On Delay Time _{2, 3}	V _{DD} =-15V, V _{GS} =-4.5V, R _G =25 I _D =-1A	---	21.2	42	nS
T _r	Rise Time _{2, 3}		---	20.6	40	
T _{d(off)}	Turn-Off Delay Time _{2, 3}		---	26	52	
T _f	Fall Time _{2, 3}		---	400	600	
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, F=1MHz	---	12000	16000	pF
C _{oss}	Output Capacitance		---	1670	2500	
C _{rss}	Reverse Transfer Capacitance		---	730	1100	
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	2.6	---	Ω

Drain-Source Diode Characteristics and Maximum Ratings

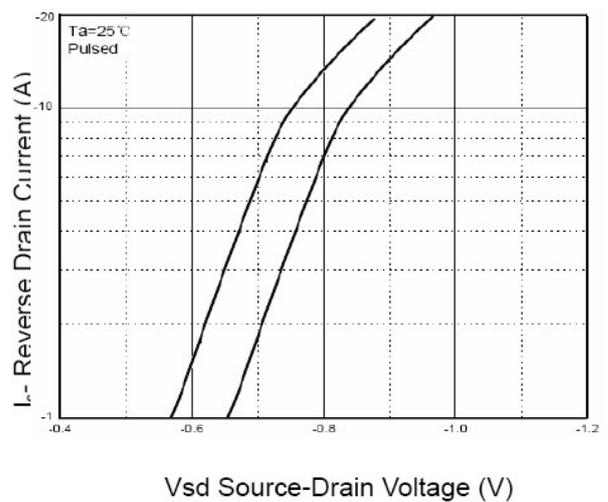
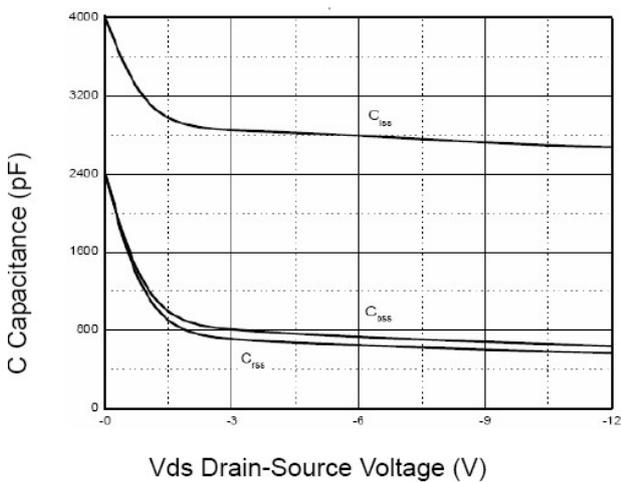
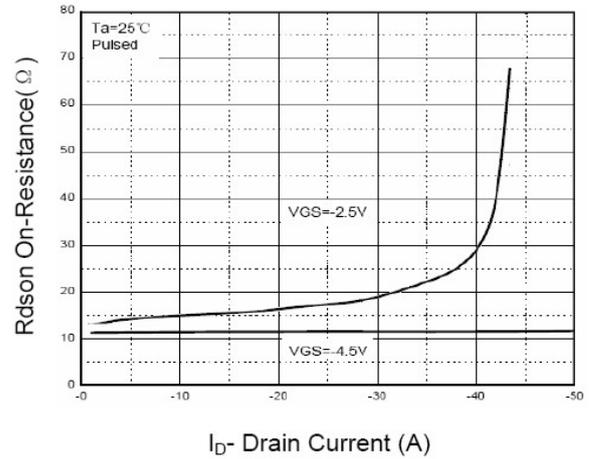
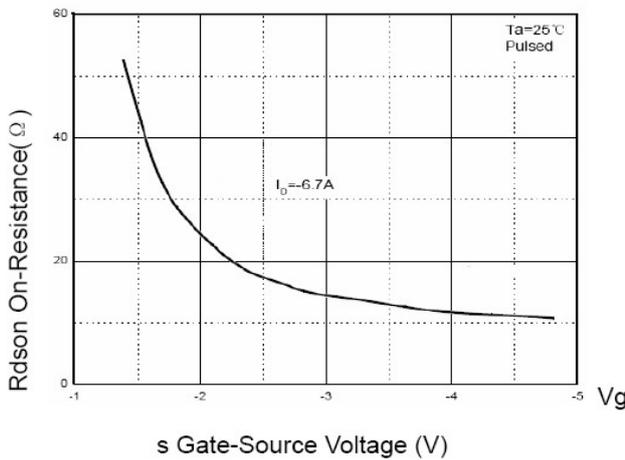
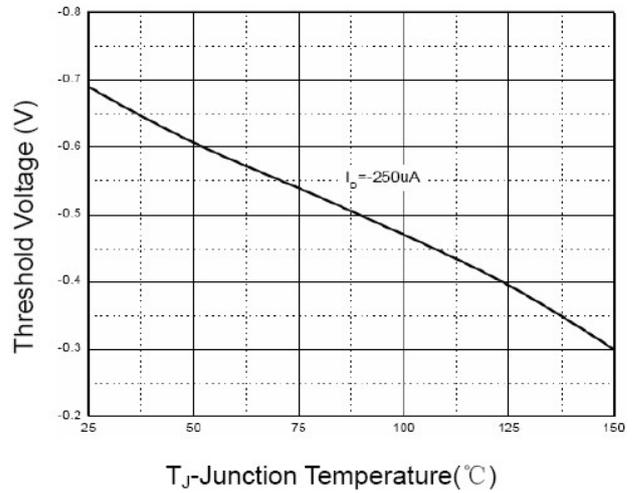
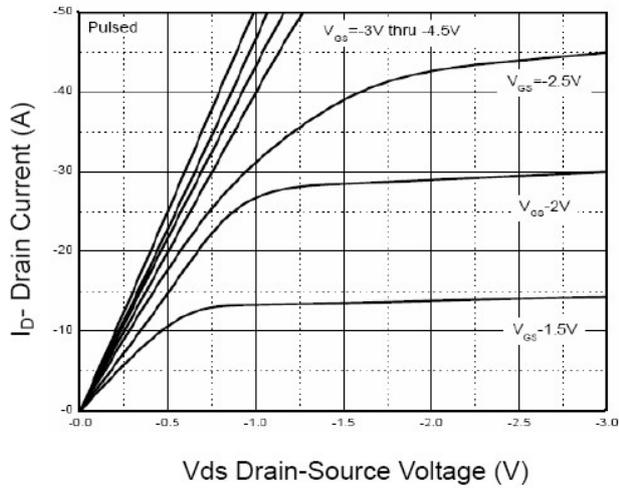
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	-90	A
I _{SM}	Pulsed Source Current		---	---	-180	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-1A, T _J =25°C	---	---	-1	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

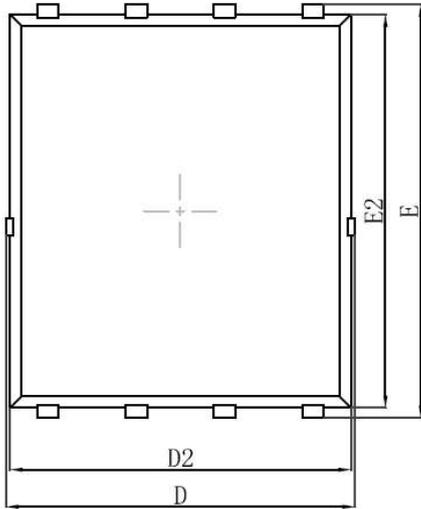
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- Typical Performance Characteristics (T = 25°C)

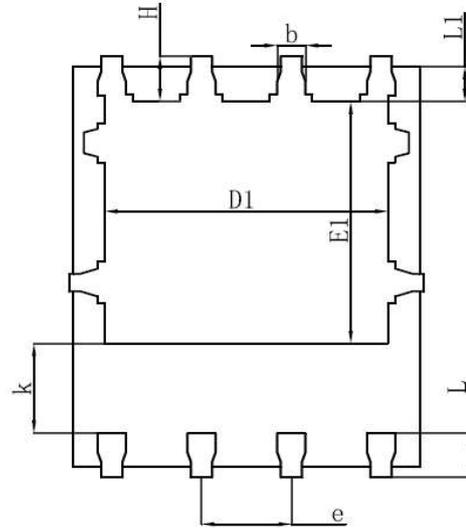


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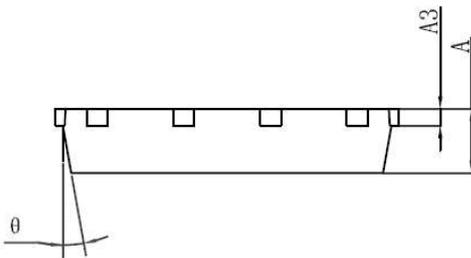
● DFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	8°	12°	8°	12°