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

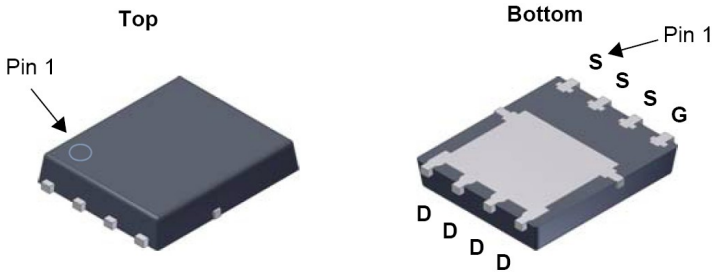
FEATURES

RDS(ON)≤3.5mΩ@VGS=-4.5V
RDS(ON)≤ 5.0mΩ@VGS=-2.5V
high density cell design for extremely low RDS(ON)
Exceptional on-resistance and maximum DC current capability

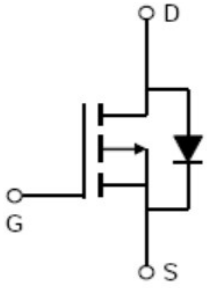
GENERAL DESCRIPTION

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℃ 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℃)	-70	A
	Drain Current–Continuous(T_C=100℃)	-54	A
I_{DM}	Drain Current–Pulsed[1]	-360	A
P_D	Power Dissipation(T_C=25℃)	41.67	W
	Power Dissipation–Derate above 25℃	0.33	W/℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junctionto ambient	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junctionto Case	---	3	℃/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=10μs, Duty Cycle=1%
C: Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

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

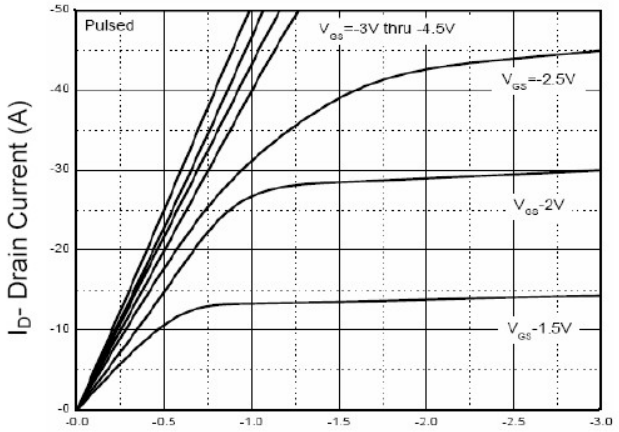
Q_g	TotalGate Charge[2,3]	V_{DS}=-16V , V_{GS}=-4.5V , I_D=-5A	---	149	225	nC
Q_{gs}	Gate-Source Charge[2,3]		---	14.4	22	
Q_{gd}	Gate-Drain Charge[2,3]		---	42.8	65	
$T_{d(on)}$	Turn-On Delay Time[2,3]	V_{DD}=-15V , V_{GS}=-4.5V , R_G=25 I_D=-1A	---	21.2	42	nS
T_r	Rise Time[2,3]		---	20.6	40	
$T_{d(off)}$	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	
Rg	Gate resistance	V_{GS}=0V, V_{DS}=0V,F=1MHz	---	2.6	---	Ω

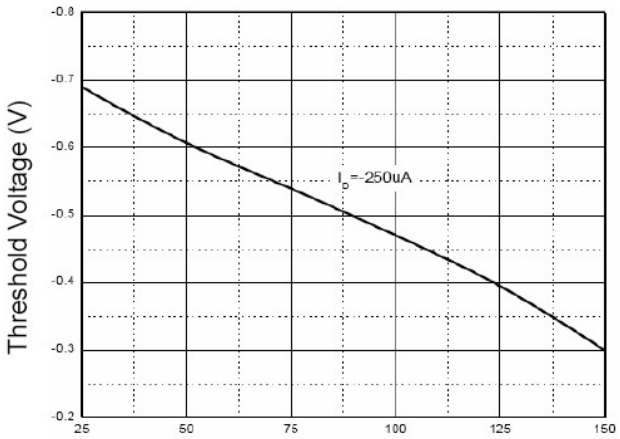
Drain-Source Diode Characteristics and Maximum Ratings

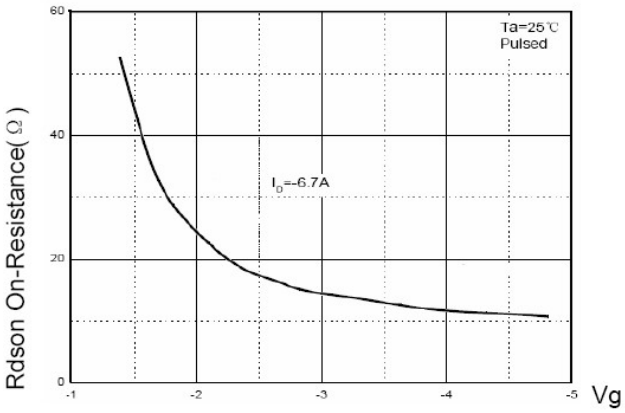
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-90	A
I_{SM}	Pulsed Source Current		---	---	-180	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-1A , T_J=25°C	---	---	-1	V

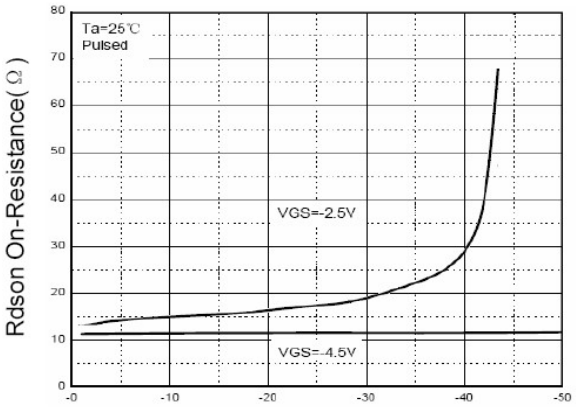
Notes:
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

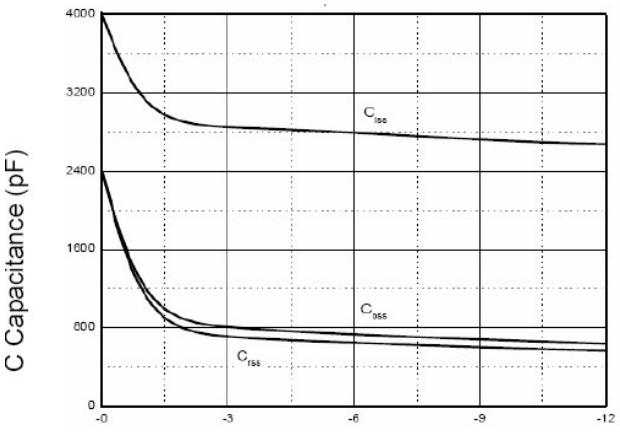
- **Typical Performance Characteristics** (T =25℃)

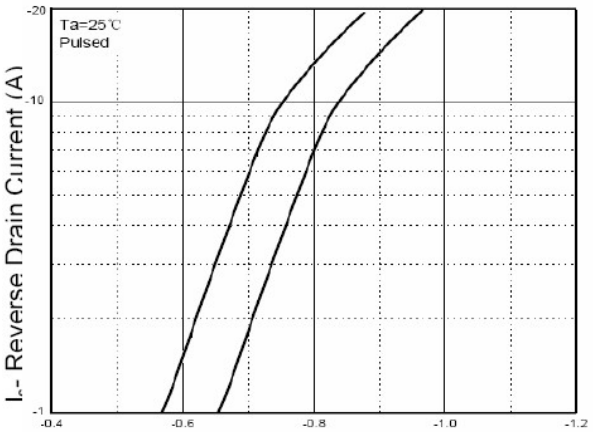




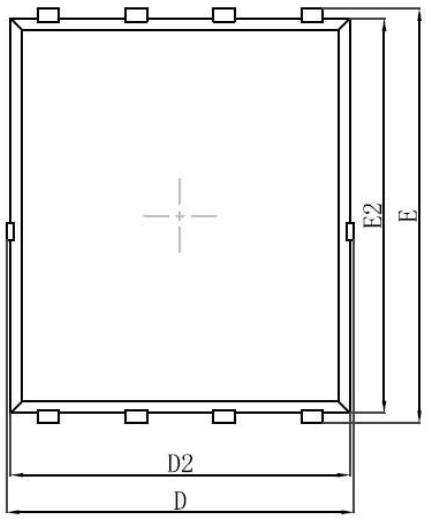




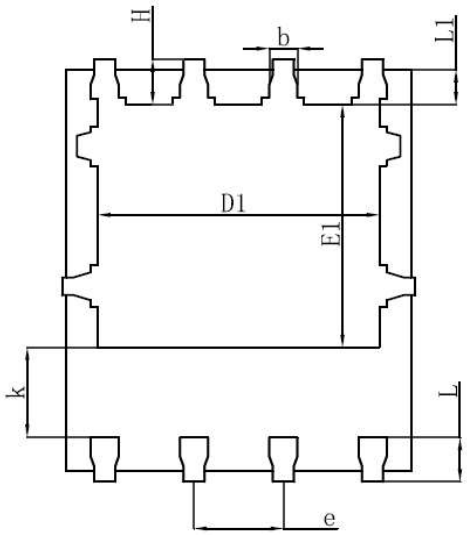




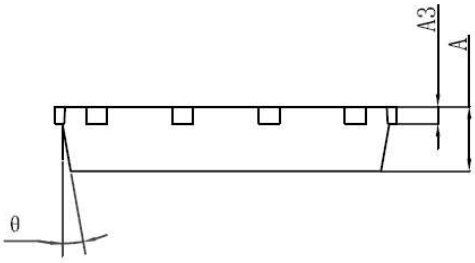
- **DFN5X6-8L Package Information**



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°