

## P-Channel -15V (D-S) MOSFET

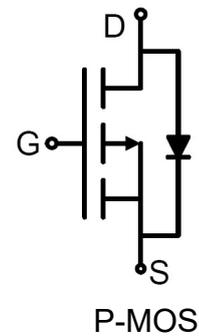
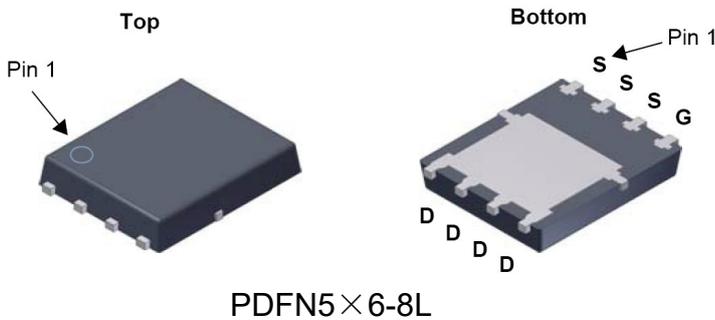
### ● FEATURES

$R_{DS(ON)} 2.6m\Omega @ V_{GS} = -4.5V$  (TYP)  
 $R_{DS(ON)} 3.3m\Omega @ V_{GS} = -2.5V$  (TYP)  
 high density cell design for extremely low  $R_{DS(ON)}$   
 Exceptional on-resistance and maximum DC current capability

### ● GENERAL DESCRIPTION

The FS4473 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



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-15	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous	$I_D$	-70	A
Pulsed Drain Current	$I_{DM}$	-180	A
Maximum Power Dissipation	$P_D$	35	W
Derating factor		0.28	W/ $^\circ C$
Single pulse avalanche energy (Note 5)	$E_{AS}$	300	mJ
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ C$

\* The device mounted on 1in<sup>2</sup> FR4 board with 2 oz copper

# FS4473

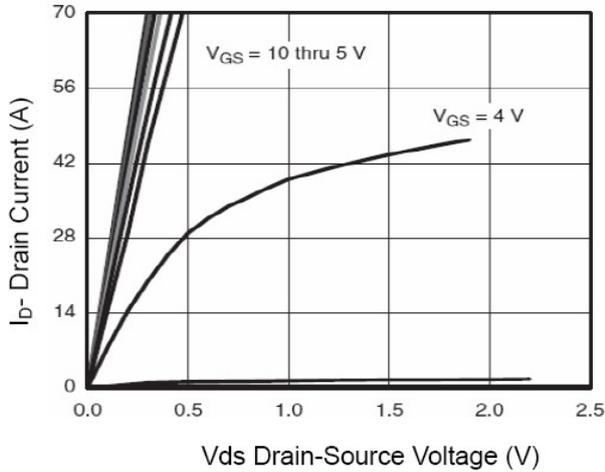
## ● Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-15	-18	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V	-	-	1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>On Characteristics</b> (Note 3)						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1	-1.5	-2.2	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-10A	-	3.3	4.5	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-10A	-	2.6	3.3	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-15A	-	20	-	S
<b>Dynamic Characteristics</b> (Note4)						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, F=1.0MHz	-	3590	-	PF
Output Capacitance	C <sub>oss</sub>		-	695	-	PF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	665	-	PF
<b>Switching Characteristics</b> (Note 4)						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =-15V, I <sub>D</sub> =-10A V <sub>GS</sub> =-10V, R <sub>GEN</sub> =6Ω	-	13	-	nS
Turn-on Rise Time	t <sub>r</sub>		-	12	-	nS
Turn-Off Delay Time	t <sub>d(off)</sub>		-	50	-	nS
Turn-Off Fall Time	t <sub>f</sub>		-	14	-	nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-15V, I <sub>D</sub> =-10A, V <sub>GS</sub> =-10V	-	84	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	11.7	-	nC
Gate-Drain Charge	Q <sub>gd</sub>		-	25	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage(Note 3)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-10A	-	-0.85	-1.2	V
Diode Forward Current(Note 2)	I <sub>S</sub>		-	-	-50	A
Reverse Recovery Time	t <sub>rr</sub>	T <sub>J</sub> = 25°C, I <sub>F</sub> = -10A di/dt = 100A/μs(Note3)	-	-	45	nS
Reverse Recovery Charge	Q <sub>rr</sub>		-	-	43	nC
Forward Turn-On Time	t <sub>on</sub>	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

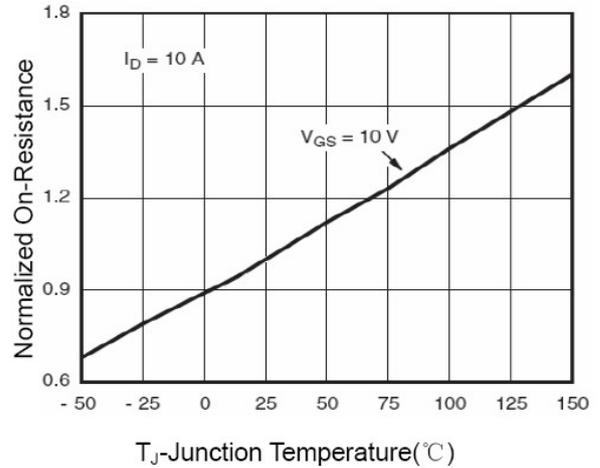
### Notes:

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
5. EAS condition: T<sub>J</sub>=25°C, V<sub>DD</sub>=-15V, V<sub>G</sub>=-10V, L=0.5mH, R<sub>g</sub>=25Ω

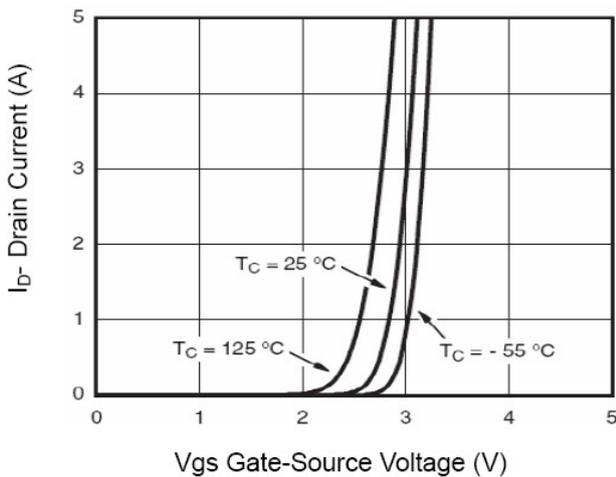
## ● TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



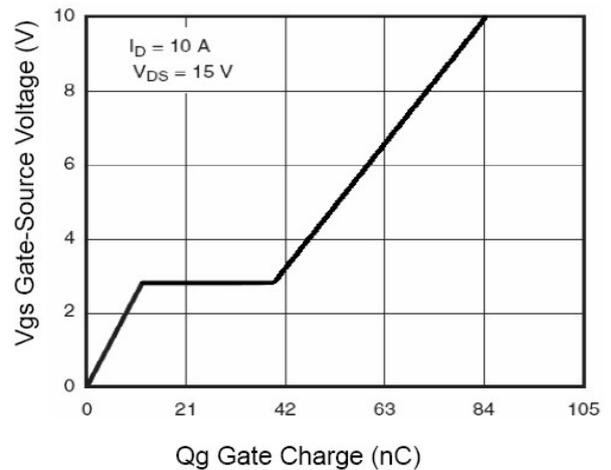
**Figure 1 Output Characteristics**



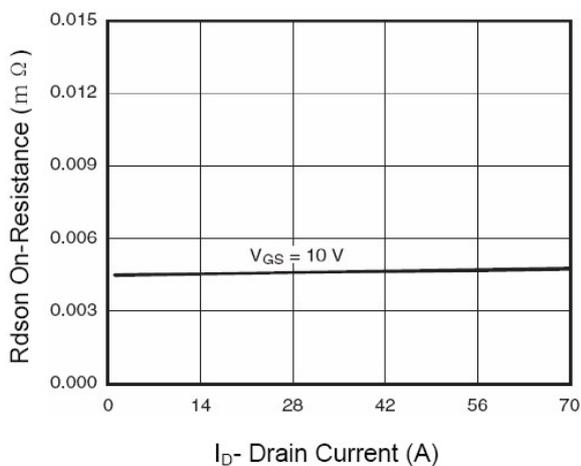
**Figure 4 Rdson-Junction Temperature**



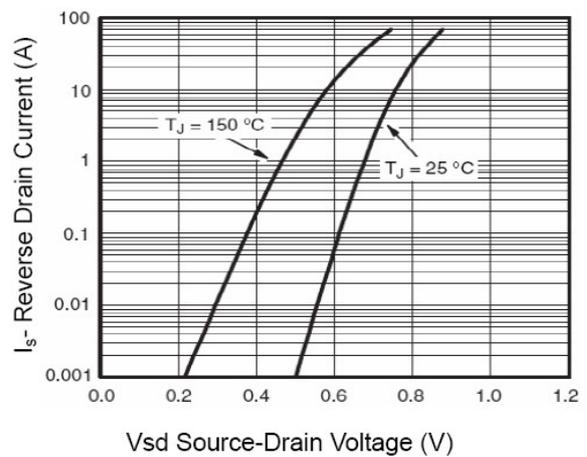
**Figure 2 Transfer Characteristics**



**Figure 5 Gate Charge**



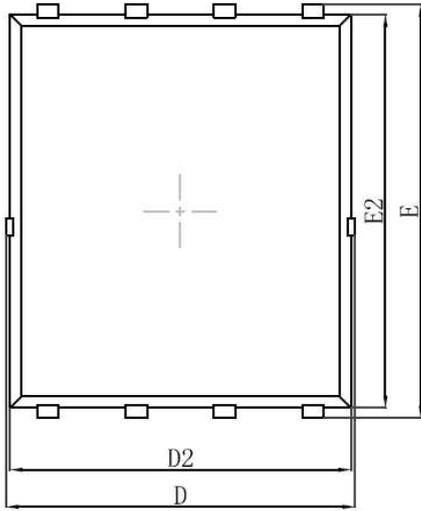
**Figure 3 Rdson- Drain Current**



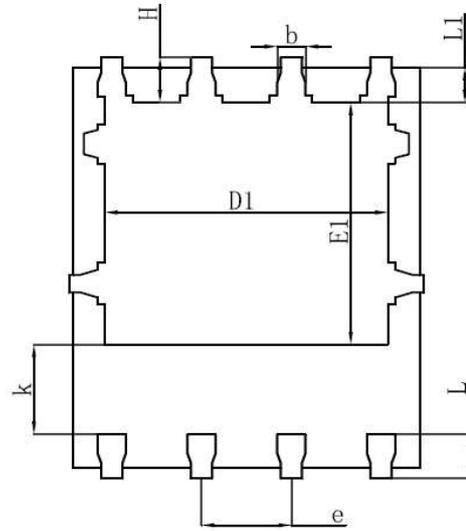
**Figure 6 Source- Drain Diode Forward**

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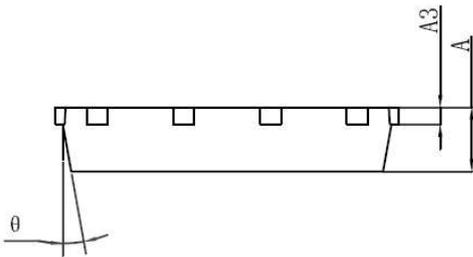
● PACKAGE PDFN5×6-8L



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°