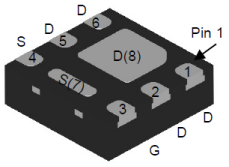
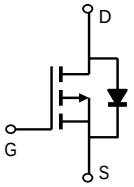
P-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Pin Description

DFN2X2-6L	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	-12	V
$R_{DS(ON)-Typ}$	11	mΩ
I_D	-16	A

Absolute Maximum Ratings (T_A=25℃, Unless Otherwise Noted)

Symbol	Parameter	P-Channel	Unit
V_{DSS}	Drain-Source Voltage	-12	V
V_{GSS}	Gate-Source Voltage	±12	V
T_J	Maximum Junction Temperature	-55 to 150	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested	-65	A
I_D	Continuous Drain Current	-16	A
P_D	Maximum Power Dissipation	2.5	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	50	℃/W

Note ①: Max. current is limited by bonding wire.

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in² FR-4 board with 1oz.

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Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-12	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-12V, V_{GS}=0V	---	---	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.4	---	-1.0	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=-4.5V, I_D=-6.7A	---	11	18	mΩ
		V_{GS}=-2.5V, I_D=-6.2A	---	14	22	
gfs	Forward Transconductance	V_{DS}=-5V, I_D=-6.7A	20	---	---	S
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-10V, Freq.=1MHz	---	2680	---	pF
C_{oss}	Output Capacitance		---	680	---	
C_{rss}	Reverse Transfer Capacitance		---	570	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=-10V , V_{GS}=-4.5V , R_G=10Ω, I_D=-1A	---	11	---	nS
T_r	Turn-on Rise Time		---	35	---	
$T_{d(off)}$	Turn-off Delay Time		---	30	---	
T_f	Turn-off Fall Time		---	10	---	
Q_g	Total Gate Charge	V_{DS}=-6V , V_{GS}=-4.5V , I_D=-10A	---	35	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	10	---	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	I_S=-8A, V_{GS}=0V	---	---	-1.2	V

Note ④： Pulse test (pulse width 300us, duty cycle 2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

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Typical Characteristics

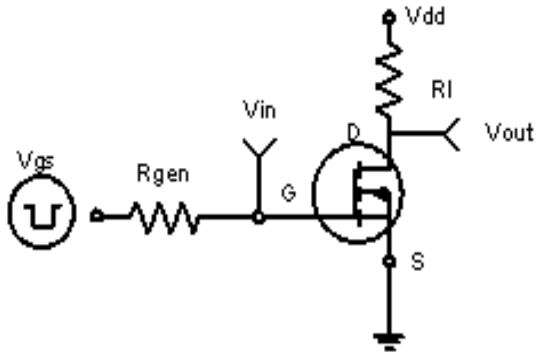


Figure 1:Switching Test Circuit

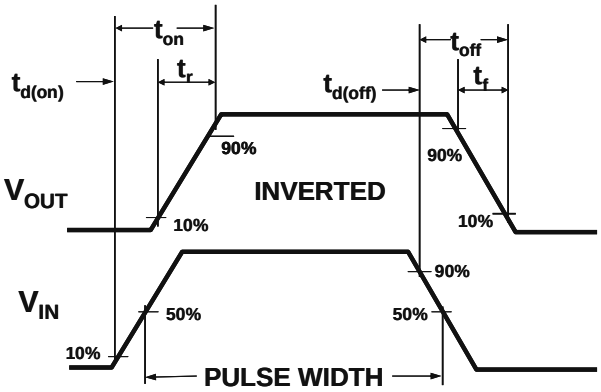


Figure 2:Switching Waveforms

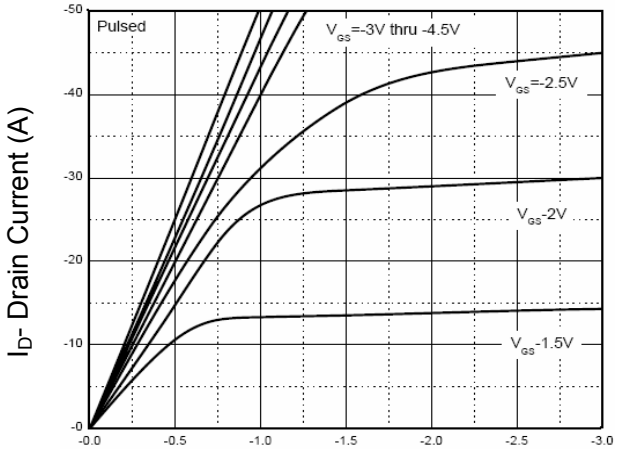


Figure 3 Output Characteristics

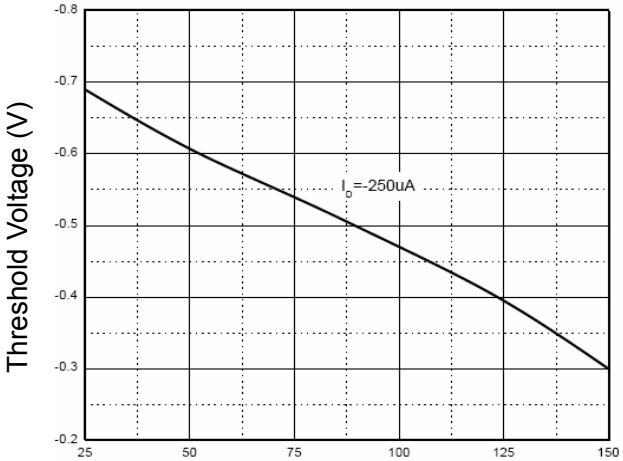


Figure 4 Drain Current

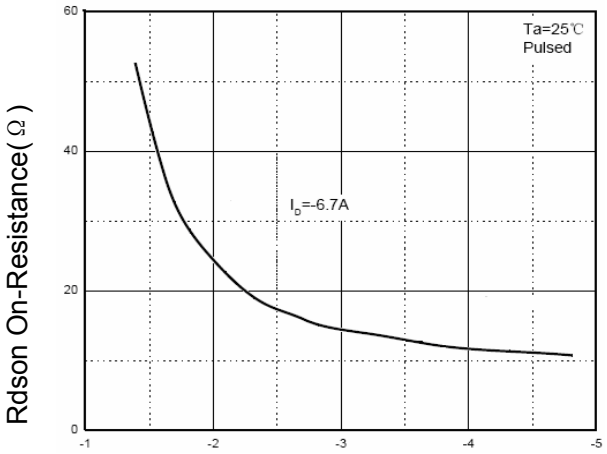


Figure 5 Rdson vs Vgs

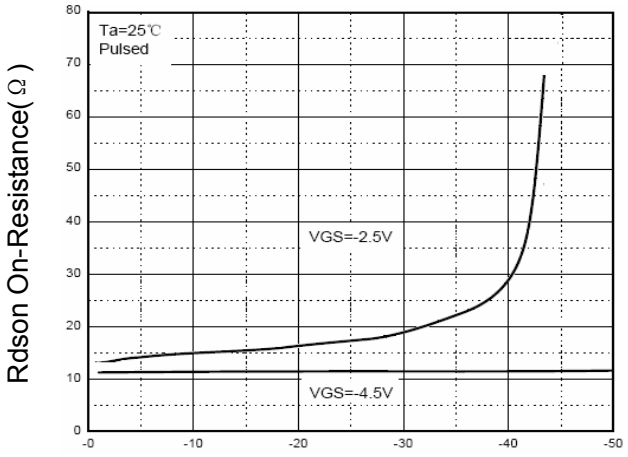


Figure 6 Drain-Source On-Resistance

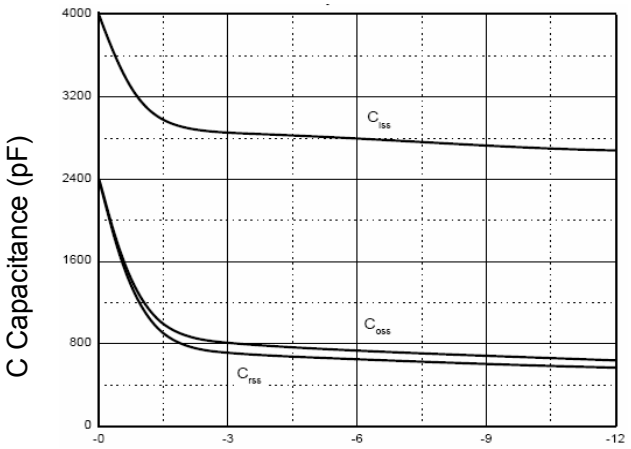


Figure 7 Capacitance vs Vds

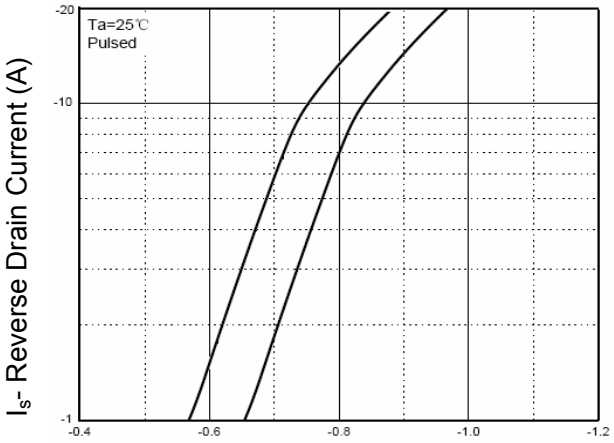
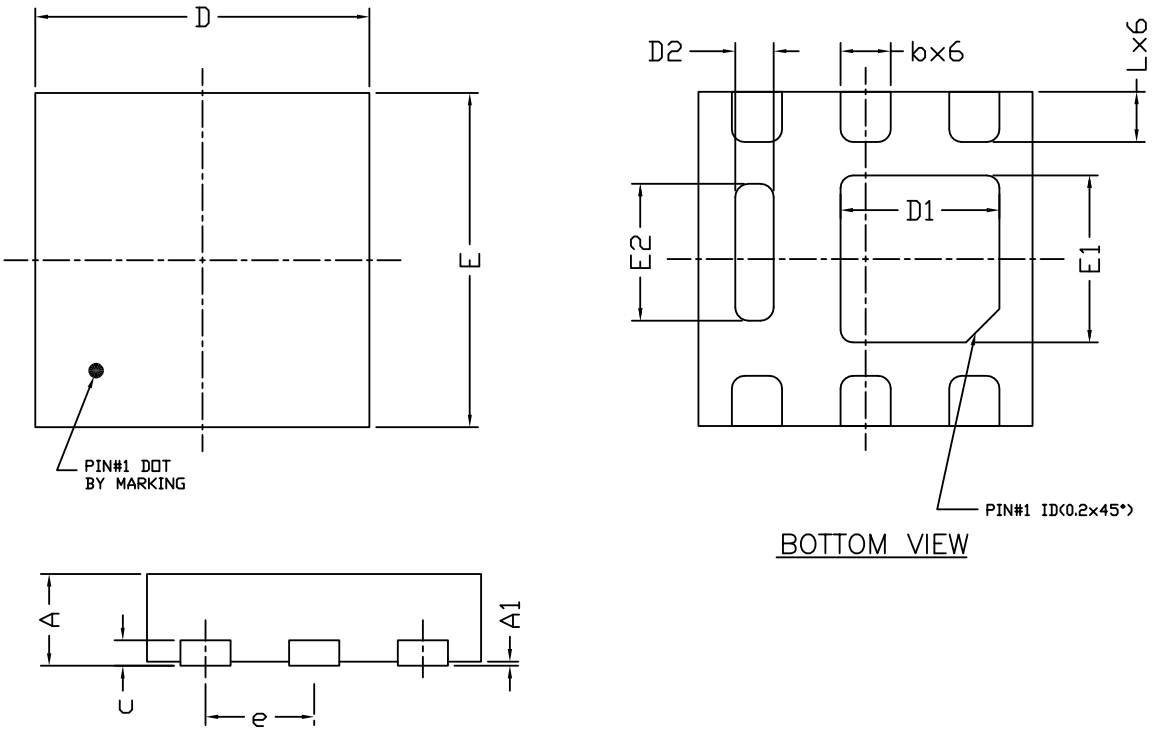


Figure 8 Source- Drain Diode Forward

DFN2X2-6L Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.50	0.55	0.60	D2	0.13	0.25	0.40
A1	0.00	---	0.05	E	1.90	2.00	2.10
b	0.25	0.30	0.35	E1	0.82	1.00	1.20
c	0.15 REF			E2	0.45	0.75	0.90
D	1.90	2.00	2.10	e	0.65 REF		
D1	0.85	0.95	1.05	L	0.20	0.25	0.32