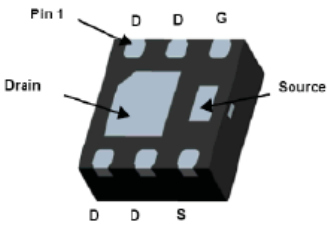
P-Channel MOSFET

KI3415PDFN

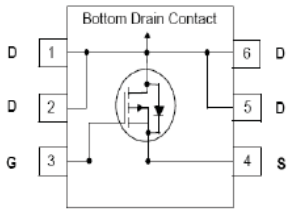
■ Features

- V_{DS} = -12V, I_D = -16A
- $R_{DS(ON)}$ < 22mΩ @ V_{GS} = -2.5V
- $R_{DS(ON)}$ < 18mΩ @ V_{GS} = -4.5V

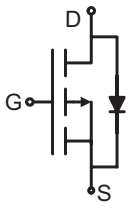
DFN2X2-6L



DFN2X2-6L bottom view



Pin assignment



■ Absolute Maximum Ratings T_C = 25℃ unless otherwise noted.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	-16	A
Pulsed Drain Current (Note 1)	I_{DM}	-65	
Power Dissipation	P_D	18	W
Thermal Resistance, Junction- to-Case (Note 2)	R_{thJC}	6.9	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

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■ Electrical Characteristics T_A = 25℃ unless otherwise noted.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = -250μA, V_{GS} = 0V	-12			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -12V, V_{GS} = 0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250μA	-0.4		-1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D = -6.7A			18	mΩ
		V_{GS} = -2.5V, I_D = -6.2A			22	
Forward Transconductance	g_{FS}	V_{DS} = -5V, I_D = -6.7A	20			S
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS}=0V, f = 1MHz		2700		pF
Output Capacitance	C_{oss}			680		
Reverse Transfer Capacitance	C_{rss}			590		
Total Gate Charge	Q_g	V_{DS} = -6V, I_D = -10A V_{GS} = -4.5V		35	48	nC
Gate Source Charge	Q_{gs}			5		
Gate Drain Charge	Q_{gd}			10		
Turn-On DelayTime	$t_{d(on)}$	V_{DD} = -10V, I_D = -1A V_{GS} = -4.5V, R_{GEN} = 10Ω		11		ns
Turn-On Rise Time	t_r			35		
Turn-Off DelayTime	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			10		
Maximum Body-Diode Continuous Current (Note 2)	I_S				-16	A
Diode Forward Voltage (Note 3)	V_{SD}	I_S = -8 A,V_{GS} = 0V			-1.2	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 Characterisitics

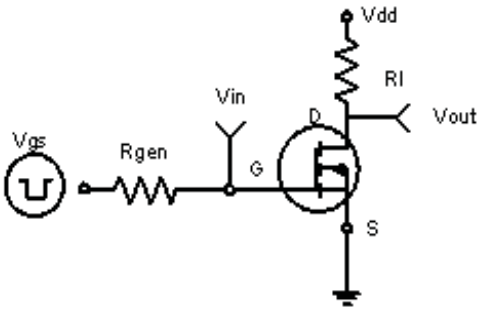


Figure 1:Switching Test Circuit

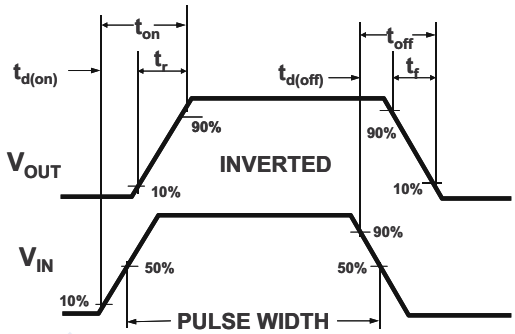
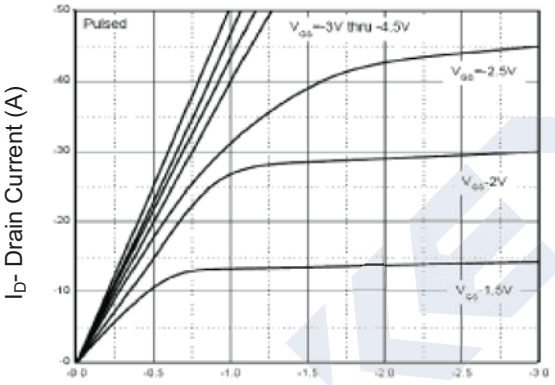
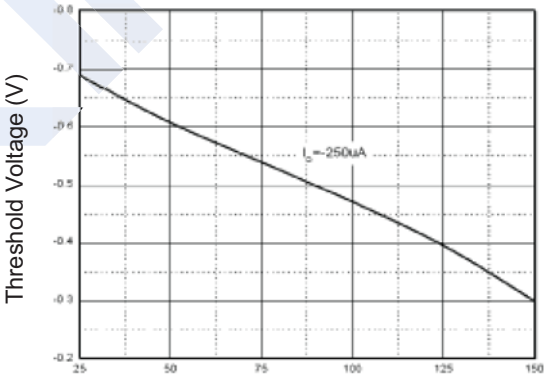


Figure 2:Switching Waveforms



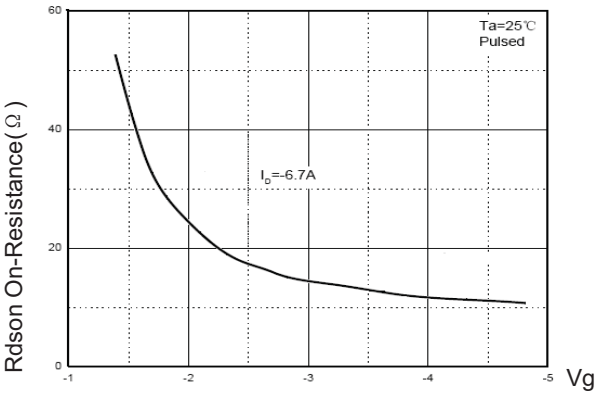
Vds Drain-Source Voltage (V)

Figure 3 Output Characteristics



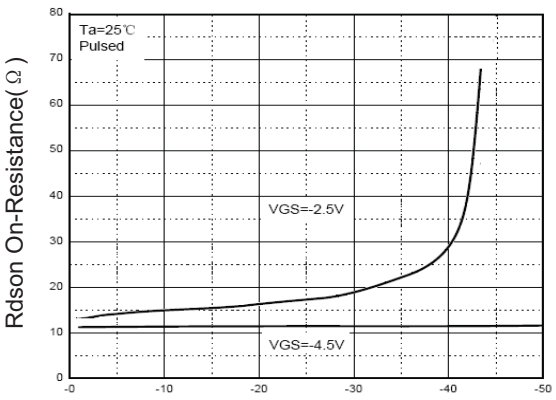
T_J-Junction Temperature(℃)

Figure 4 Drain Current



s Gate-Source Voltage (V)

Figure 5 Rdson vs Vgs



I_D- Drain Current (A)

Figure 6 Drain-Source On-Resistance

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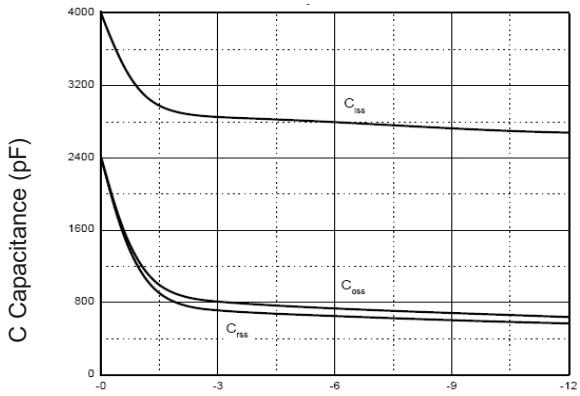
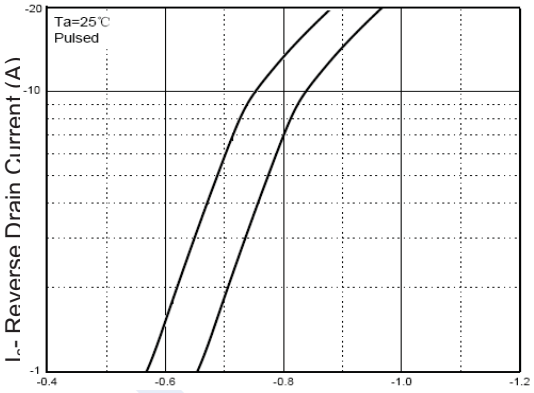


Vds Drain-Source Voltage (V)

Figure 7 Capacitance vs Vds



Vsd Source-Drain Voltage (V)

Figure 8 Source- Drain Diode Forward

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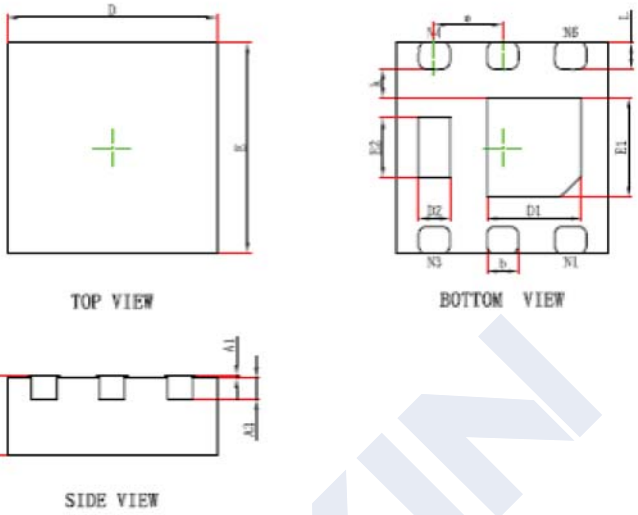
■ DFN2X2-6L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

Notes

1. All dimensions are in millimeters.
2. Tolerance ±0.10mm (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.