

**Features**

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

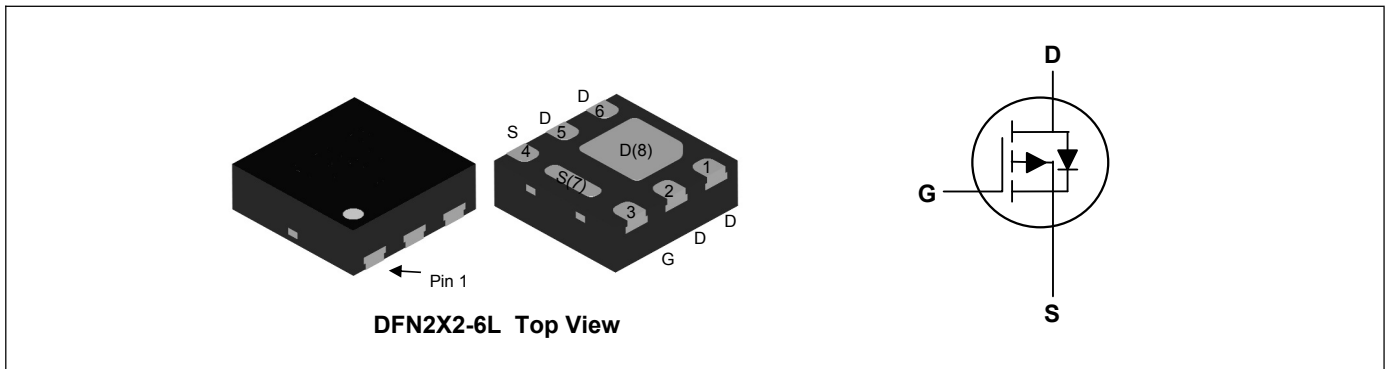
**Product Summary**



$V_{DS}$	-12	V
$I_D$	-16	A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$ )	18	m $\Omega$
$R_{DS(ON)}$ (at $V_{GS}=-2.5V$ )	22	m $\Omega$

**Applications**

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



**Absolute Maximum Ratings ( $T_C=25^{\circ}C$ , unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	-12	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1</sup>	$I_D$	-16	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	-65	A
Total Power Dissipation <sup>3</sup>	$P_D$	2.5	W
Storage Temperature Range	$T_{STG}$	-55 to 150	$^{\circ}C$
Operating Junction Temperature Range	$T_J$	-55 to 150	$^{\circ}C$

**Thermal Characteristics**

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	---	50	$^{\circ}C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-12	---	---	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-6.7A	---	11	18	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-6.2A	---	14	22	mΩ
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250uA	-0.4	---	-1.0	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-12V, V <sub>GS</sub> =0V	---	---	-1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	---	---	±100	nA
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-6.7A	20	---	---	S
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-6V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-10A	---	35	---	nC
Gate-Source Charge	Q <sub>gs</sub>		---	5	---	
Gate-Drain Charge	Q <sub>gd</sub>		---	10	---	
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =-10V, V <sub>GS</sub> =-4.5V, R <sub>G</sub> =10Ω, I <sub>D</sub> =-1A	---	11	---	ns
Rise Time	T <sub>r</sub>		---	35	---	
Turn-Off Delay Time	T <sub>d(off)</sub>		---	30	---	
Fall Time	T <sub>f</sub>		---	10	---	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHz	---	2680	---	pF
Output Capacitance	C <sub>oss</sub>		---	680	---	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	570	---	

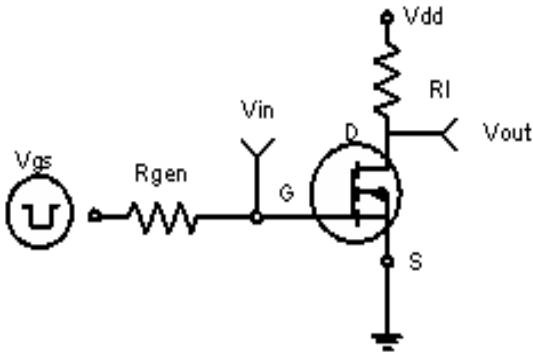
**Drain-Source Diode Characteristics**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current <sup>1</sup>	I <sub>S</sub>		---	---	-16	A
Diode Forward Voltage <sup>2</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-8A, T <sub>J</sub> =25°C	---	---	-1.2	V

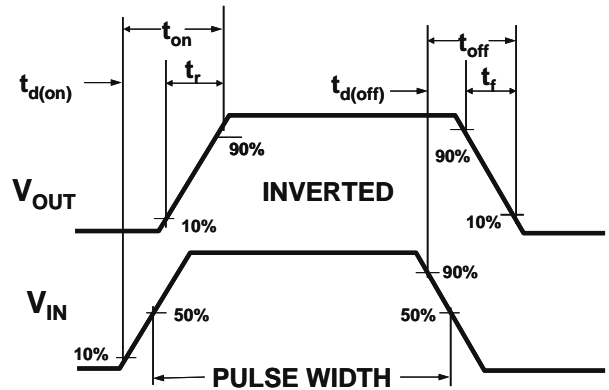
**Note:**

- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature

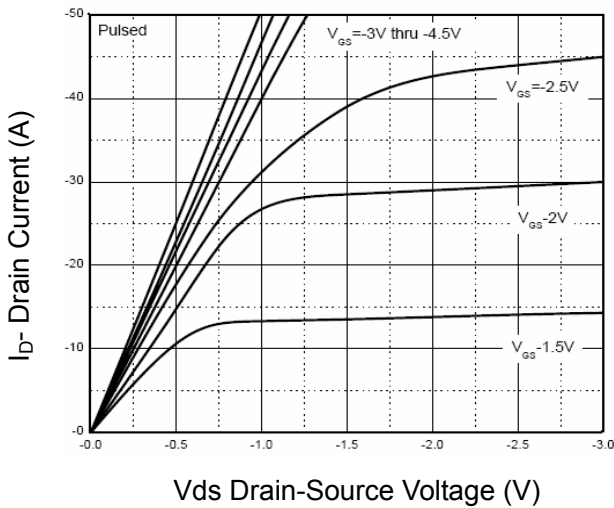
**Typical Characteristics**



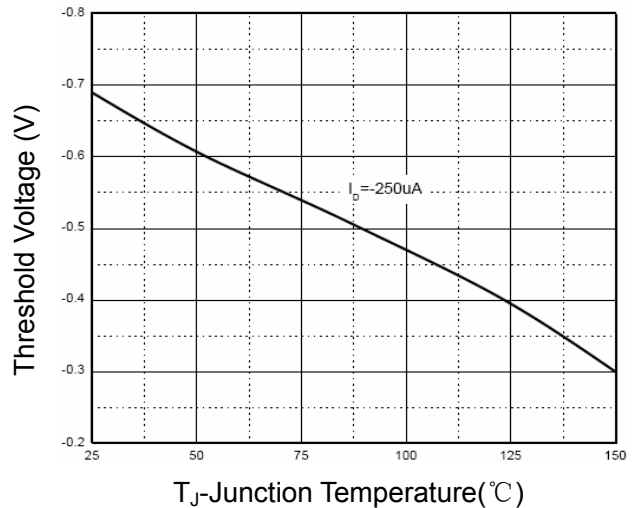
**Figure 1: Switching Test Circuit**



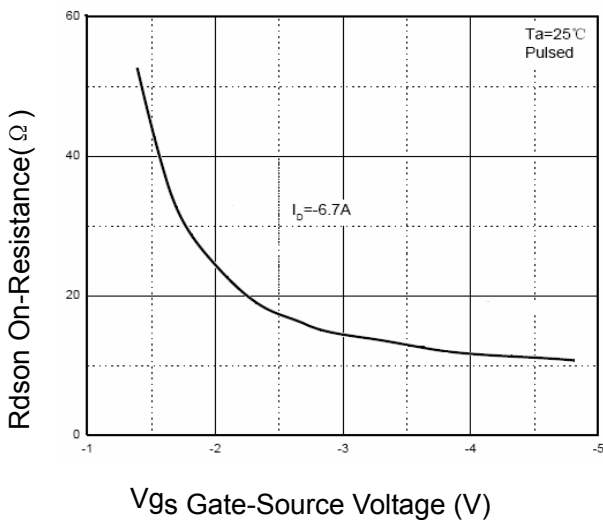
**Figure 2: Switching Waveforms**



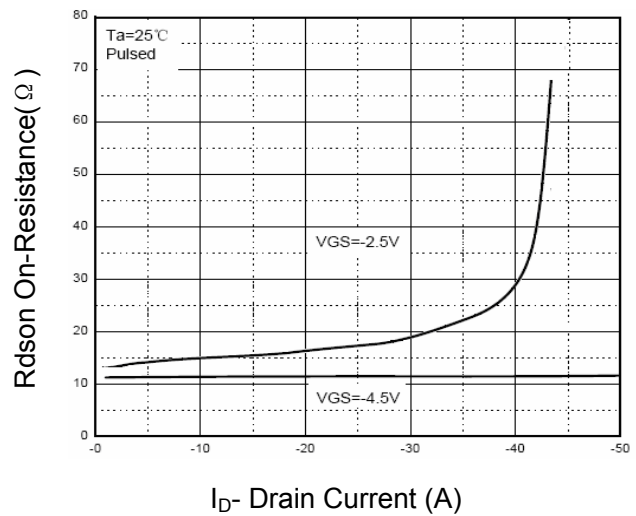
**Figure 3 Output Characteristics**



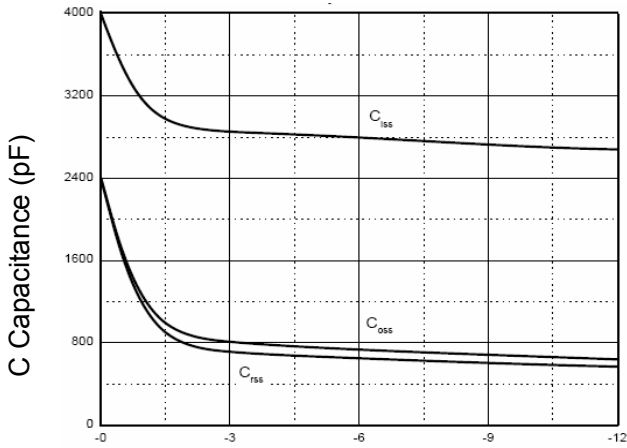
**Figure 4 Drain Current**



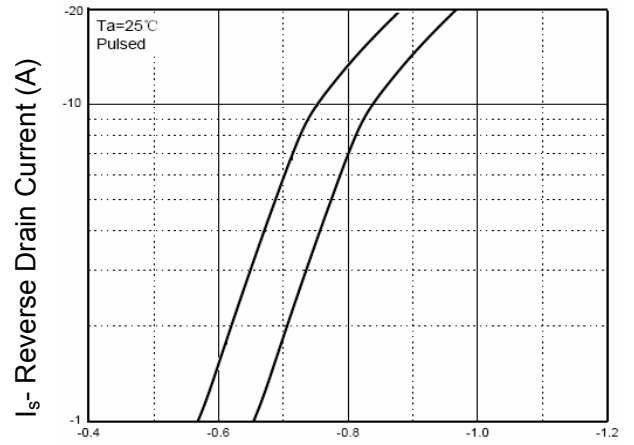
**Figure 5 Rdson vs Vgs**



**Figure 6 Drain-Source On-Resistance**

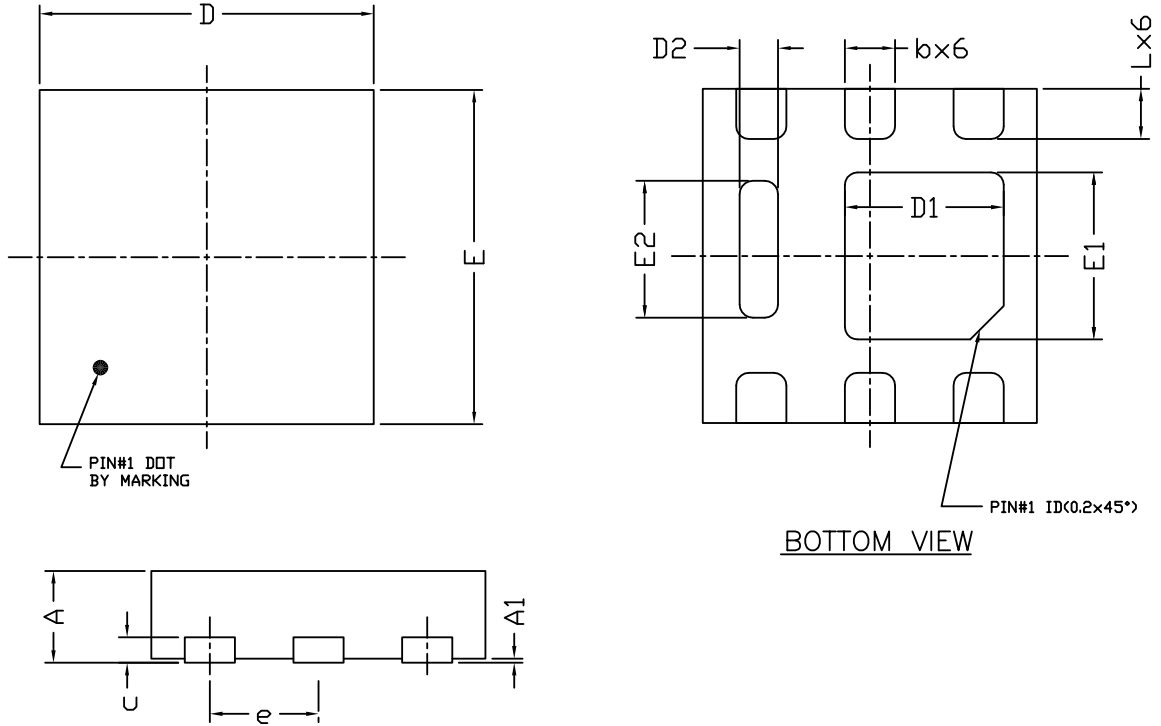


Vds Drain-Source Voltage (V)  
**Figure 7 Capacitance vs Vds**



Vsd Source-Drain Voltage (V)  
**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
<b>A</b>	0.50	0.55	0.60	<b>D2</b>	0.13	0.25	0.40
<b>A1</b>	0.00	---	0.05	<b>E</b>	1.90	2.00	2.10
<b>b</b>	0.25	0.30	0.35	<b>E1</b>	0.82	1.00	1.20
<b>c</b>	0.15 REF			<b>E2</b>	0.45	0.75	0.90
<b>D</b>	1.90	2.00	2.10	<b>e</b>	0.65 REF		
<b>D1</b>	0.85	0.95	1.05	<b>L</b>	0.20	0.25	0.32