



General Description

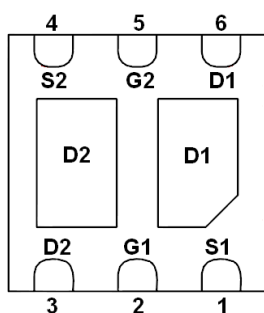
AFN3912W, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

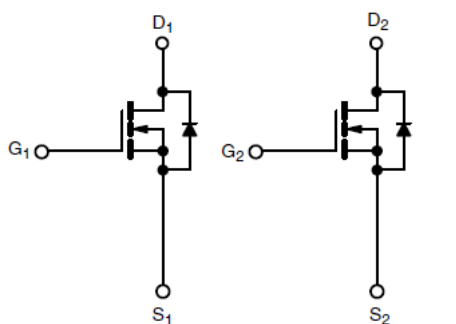
Features

- $I_D=5.2A, R_{DS(ON)}=25m\Omega@V_{GS}=10V$
- $I_D=4.2A, R_{DS(ON)}=38m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN2X2-6L package design

Pin Description (DFN2X2-6L)

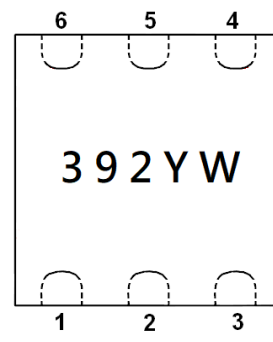


BOTTOM VIEW



N-Channel MOSFET

N-Channel MOSFET



TOP VIEW

Application

- Load Switch with Low Voltage Drop
- Load Switch for 1.2 V/1.5 V/1.8 V Power Lines
- Smart Phones, Tablet PCs, Portable Media Players

Pin Define

Pin	Symbol	Description
1	S1	Source1
2	G1	Gate1
3	D2	Drain2
4	S2	Source2
5	G2	Gate2
6	D1	Drain1

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN3912WFN226RG	392YW	DFN2X2-6L	Tape & Reel	4000 EA

※ 392 parts code

※ Y year code

※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)

※ AFN3912WFN226RG : 7" Tape & Reel ; Pb- Free ; Halogen- Free



※ Absolute Maximum Ratings

($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate –Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current($T_J=150^{\circ}\text{C}$)	I_D	$T_A=25^{\circ}\text{C}$	5.2
		$T_A=70^{\circ}\text{C}$	4.2
Pulsed Drain Current	I_{DM}	15	A
Continuous Source Current(Diode Conduction)	I_S	2.8	A
Power Dissipation	P_D	$T_A=25^{\circ}\text{C}$	3.5
		$T_A=70^{\circ}\text{C}$	2.2
Operating Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55/150	$^{\circ}\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	36	$^{\circ}\text{C}/\text{W}$

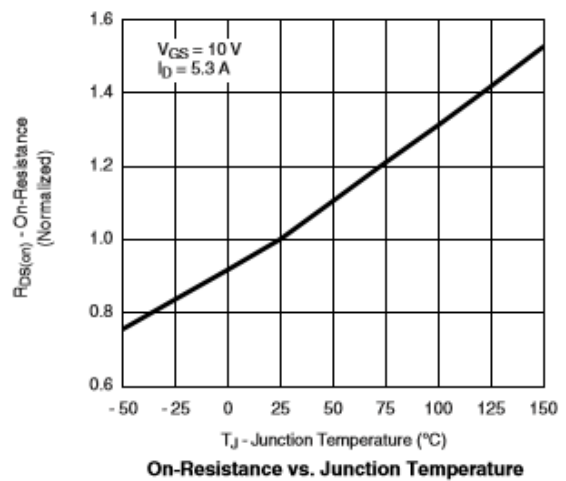
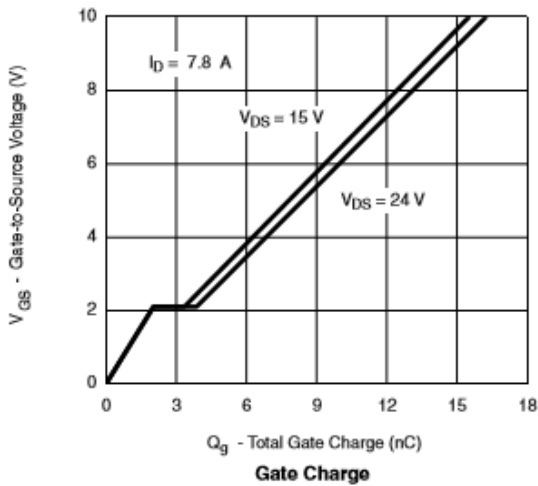
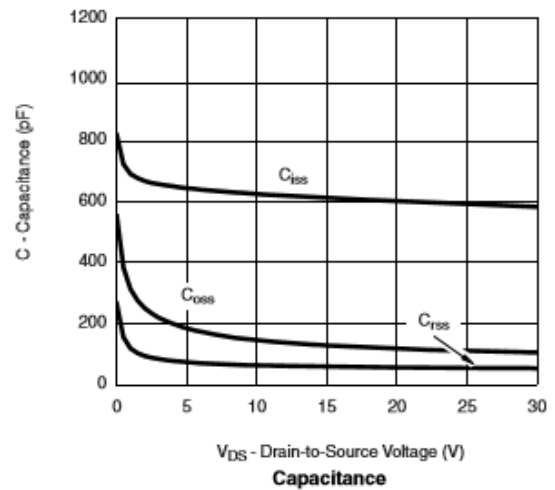
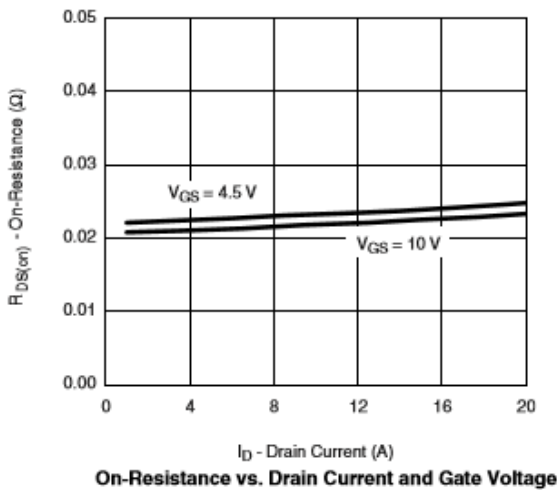
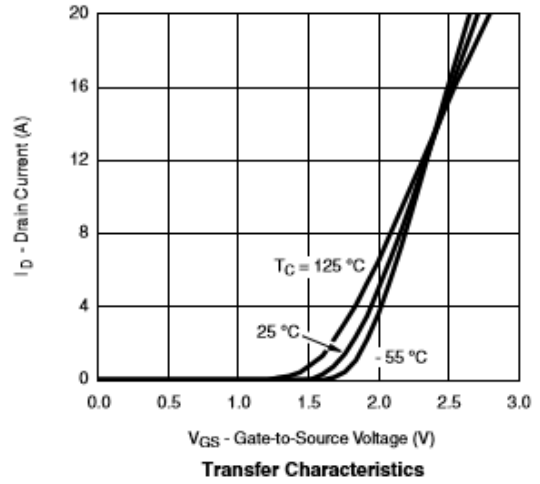
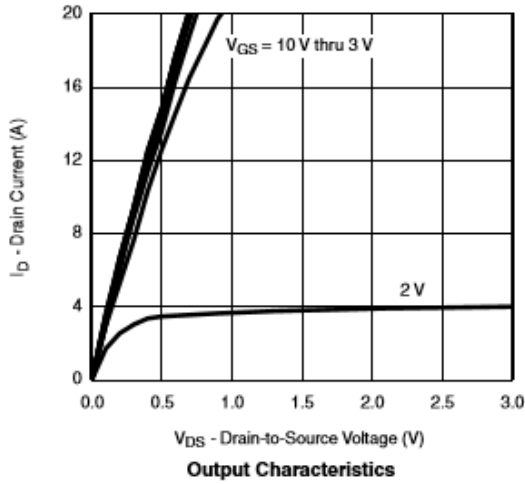
※ Electrical Characteristics

($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.1		2.1	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 12\text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24\text{V}, V_{GS}=0\text{V}$			1	uA
		$V_{DS}=24\text{V}, V_{GS}=0\text{V}$ $T_J=85^{\circ}\text{C}$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5\text{V}, V_{GS}=10\text{V}$	15			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=5.2\text{A}$		20	25	m Ω
		$V_{GS}=4.5\text{V}, I_D=4.2\text{A}$		30	38	
Forward Transconductance	g_{FS}	$V_{DS}=10\text{V}, I_D=6.1\text{A}$		20		S
Diode Forward Voltage	V_{SD}	$I_S=2.0\text{A}, V_{GS}=0\text{V}$		0.8	1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}$ $I_D \equiv 7.8\text{A}$		7	11	nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			1.7		
Input Capacitance	C_{iss}	$V_{DS}=15\text{V}, V_{GS}=0\text{V}$ $f=1\text{MHz}$		650		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			45		
Turn-On Time	$t_{d(on)}$	$V_{DD}=15\text{V}, R_L=2.4\Omega$ $I_D \equiv 6.2\text{A}, V_{GEN}=10\text{V}$ $R_G=1\Omega$		10	20	ns
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$			20	40	
	t_f			10	20	

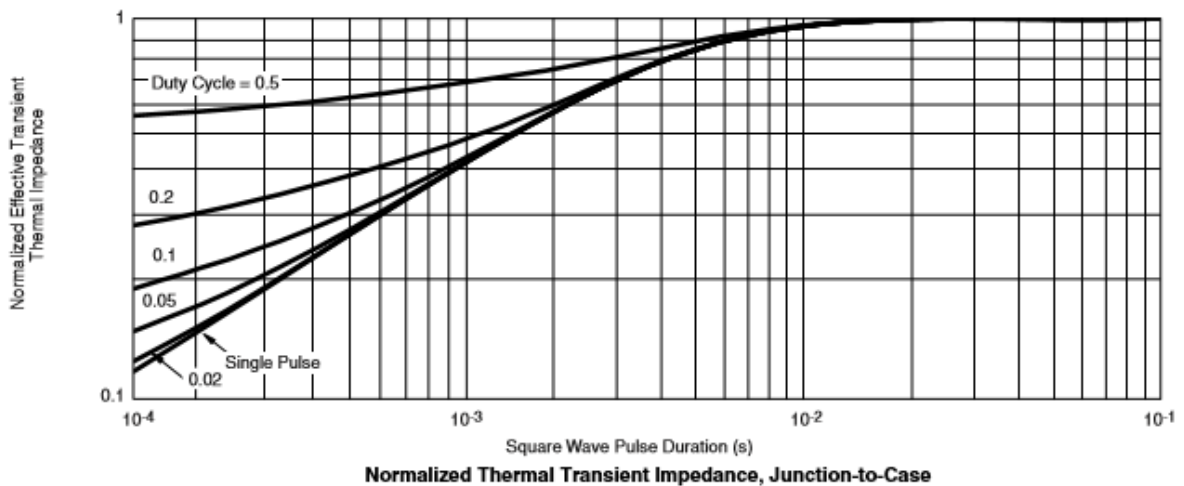
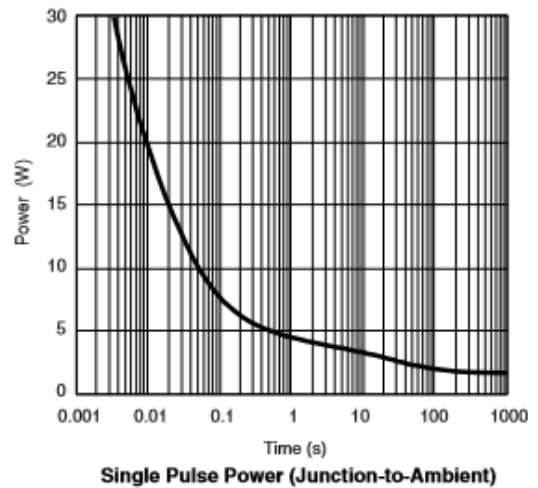
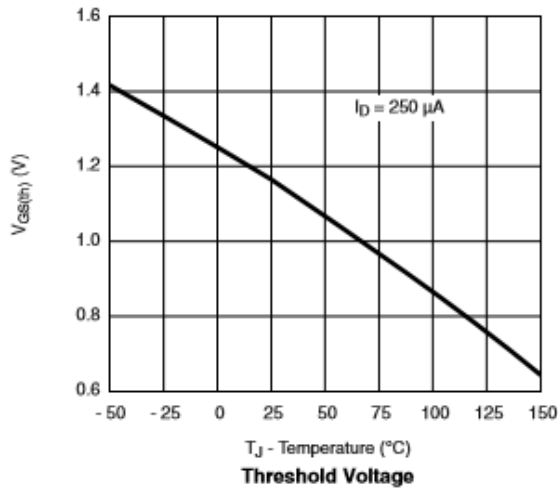
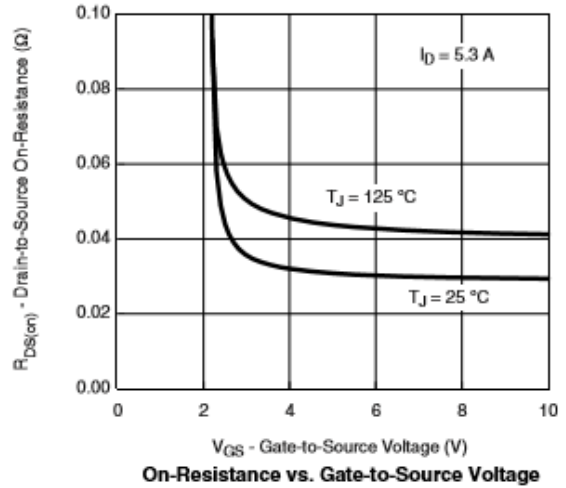
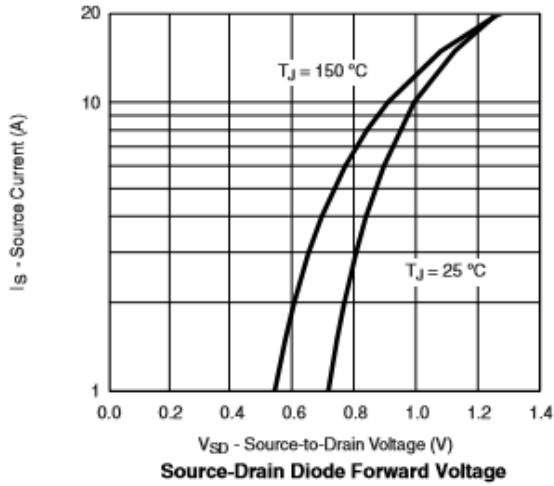


※ Typical Characteristics





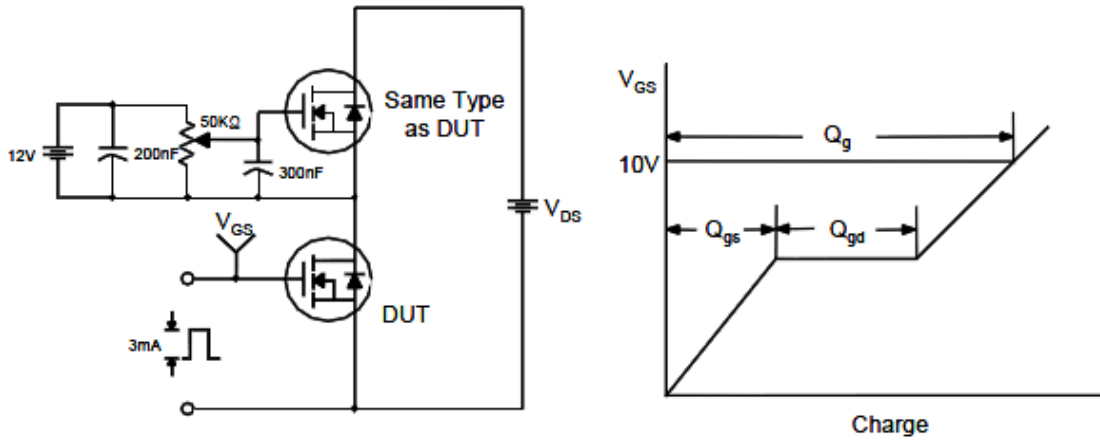
※ Typical Characteristics



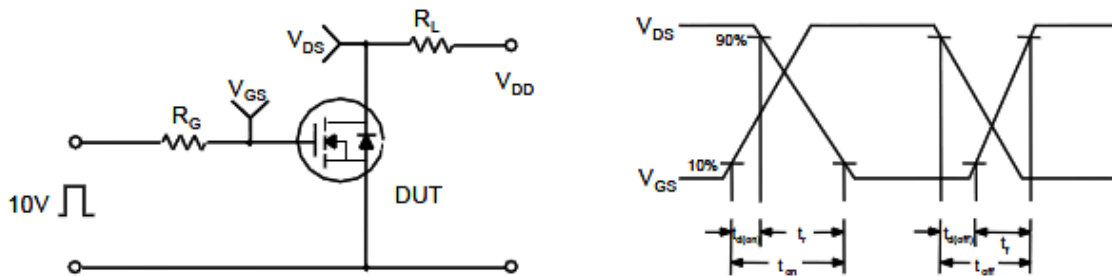


Typical Characteristics

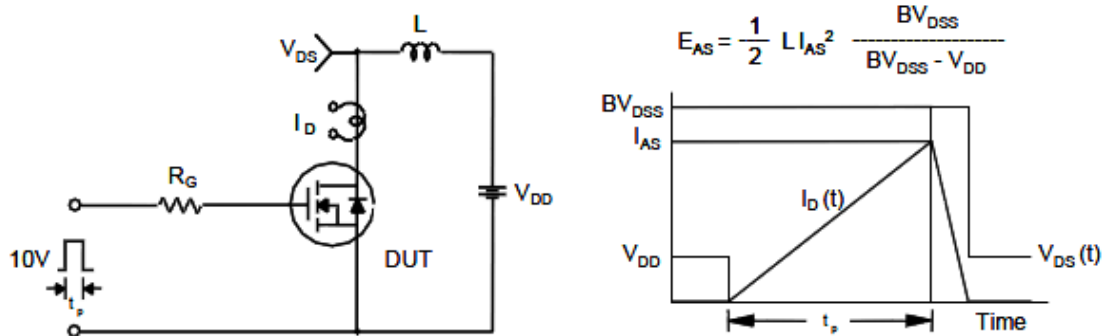
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

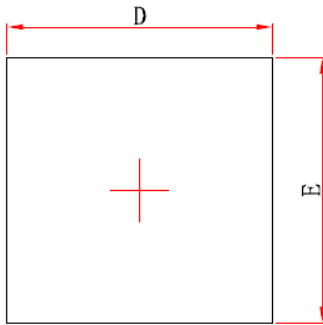


Unclamped Inductive Switching Test Circuit & Waveforms

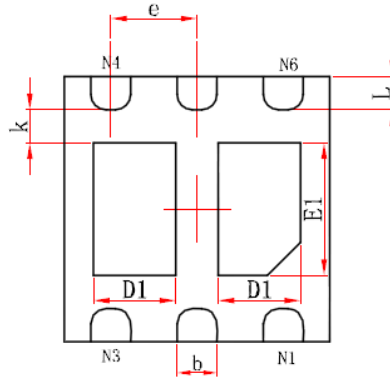




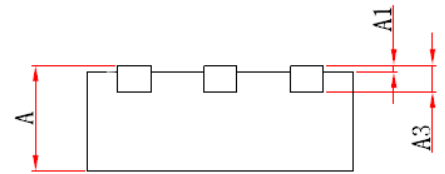
Package Information (DFN2X2-6L)



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
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	0.520	0.720	0.020	0.028
E1	0.900	1.100	0.035	0.043
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

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