



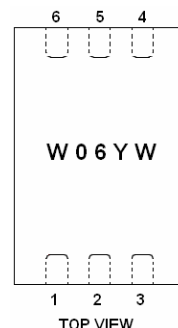
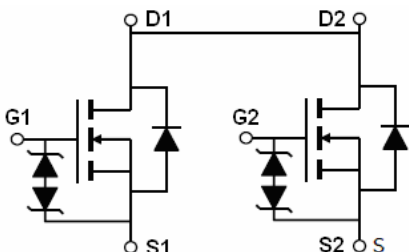
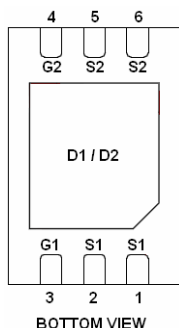
General Description

AFN8206WS, 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

- 20V/3.0A, $R_{DS(ON)}=11m\Omega@V_{GS}=4.5V$
- 20V/3.0A, $R_{DS(ON)}=13m\Omega@V_{GS}=2.5V$
- 20V/2.5A, $R_{DS(ON)}=20m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- ESD Protection (2KV) Diode design-in
- DFN2X3-6L package design

Pin Description (DFN2X3-6L)



Application

- Load Switch
- Portable Equipment
- Battery Powered System

Pin Define

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

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN8206WSFN236RG	W06YW	DFN2X3-6L	Tape & Reel	4000 EA

- ※ Y year code
- ※ W week code
- ※ AFN8206WSFN236RG : 7" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

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

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate –Source Voltage	V_{GSS}	± 12	V
Continuous Drain Current($T_J=150^\circ\text{C}$)	I_D	$T_A=25^\circ\text{C}$	11
		$T_A=70^\circ\text{C}$	8
Pulsed Drain Current	I_{DM}	40	A
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	1.56
		$T_A=70^\circ\text{C}$	1.0
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55/150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	65	$^\circ\text{C/W}$

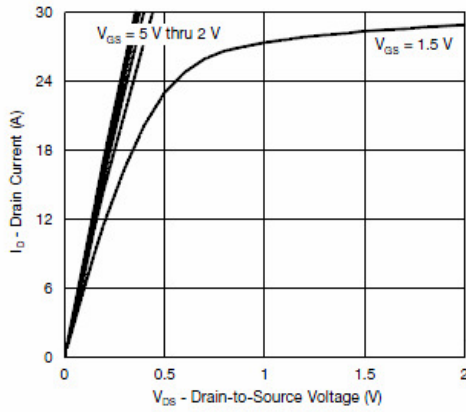
Electrical Characteristics

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

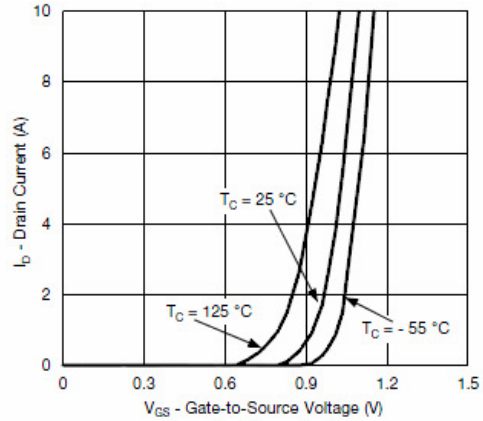
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu\text{A}$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.4		1.2	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$			10	μA
		$V_{DS}=16V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			50	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=4.5V$	12			A
		$V_{DS} \geq 5V, V_{GS}=2.5V$	8			
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3.0A$		9.3	11	m Ω
		$V_{GS}=2.5V, I_D=3.0A$		10.8	13	
		$V_{GS}=1.8V, I_D=2.5A$		16.2	20	
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=12.4A$		70		S
Diode Forward Voltage	V_{SD}	$I_S=3.0A, V_{GS}=0V$		0.85	1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V$ $I_D \equiv 11A$		15	25	nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			4		
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V$ $f=1\text{MHz}$		1400		pF
Output Capacitance	C_{oss}			200		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-On Time	$t_{d(on)}$	$V_{DD}=10V, R_L=1.0\Omega$ $I_D \equiv 10A, V_{GEN}=4.5V$ $R_G=1\Omega$		10	20	ns
	t_r			15	30	
Turn-Off Time	$t_{d(off)}$			35	70	
	t_f			10	20	



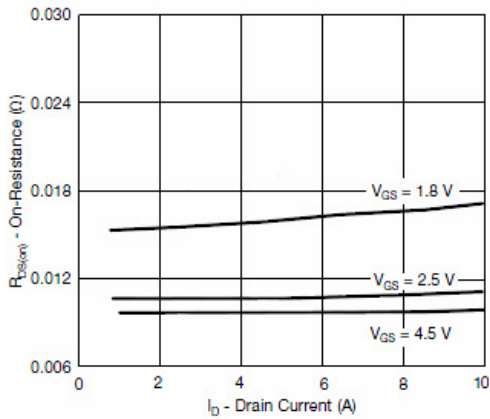
Typical Characteristics



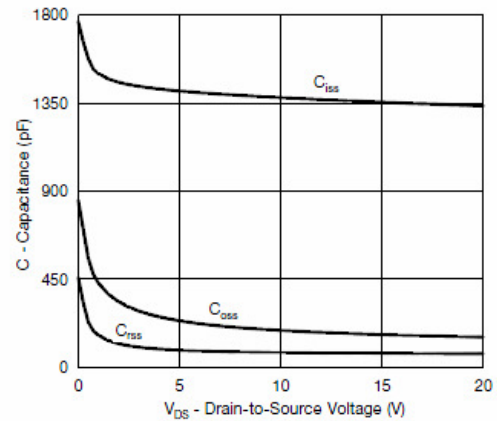
Output Characteristics



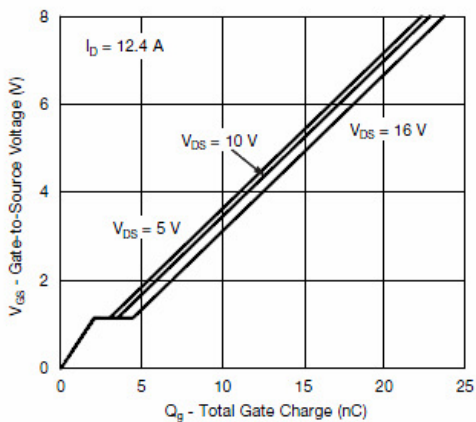
Transfer Characteristics



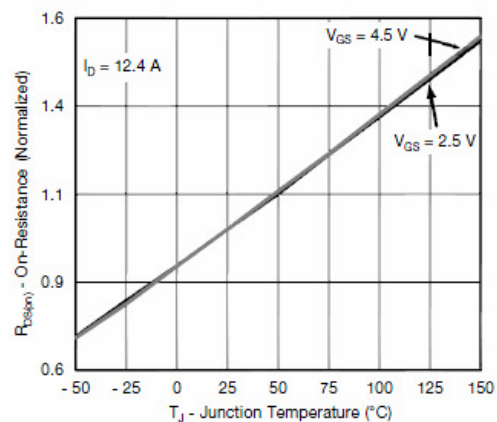
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



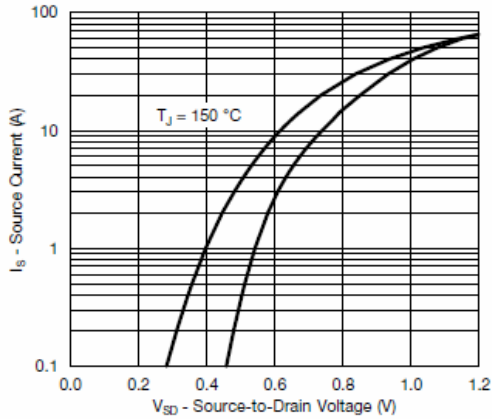
Gate Charge



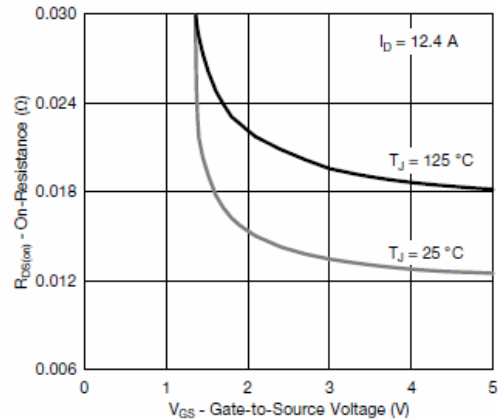
On-Resistance vs. Junction Temperature



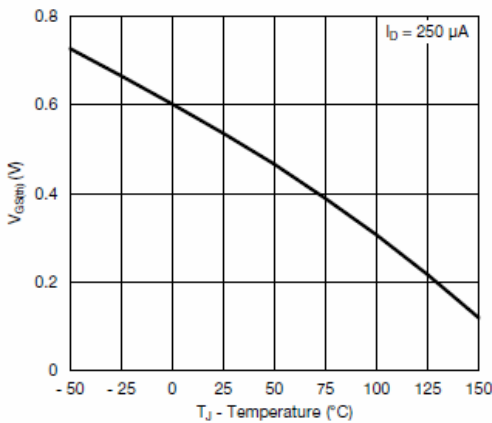
Typical Characteristics



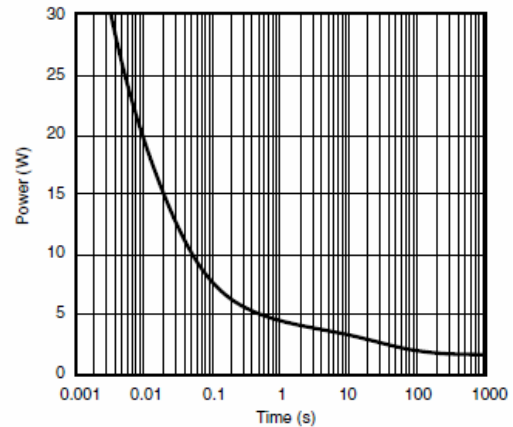
Source-Drain Diode Forward Voltage



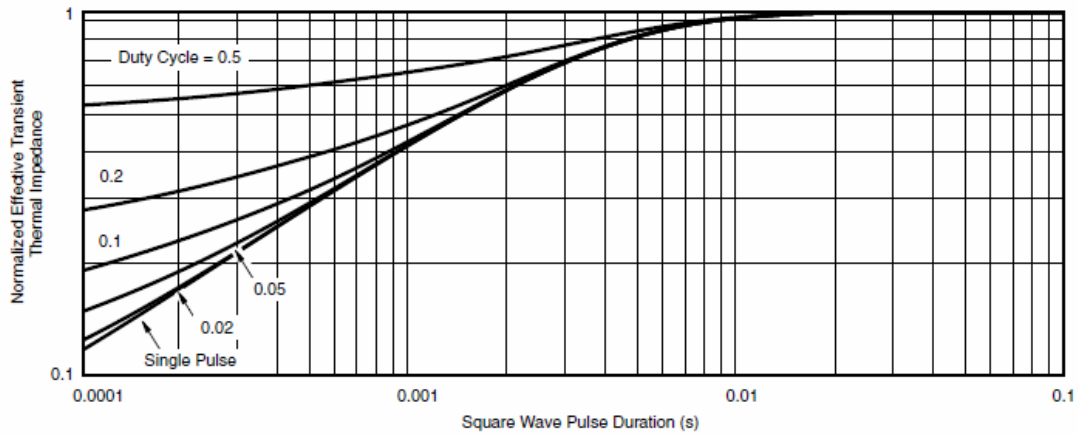
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient

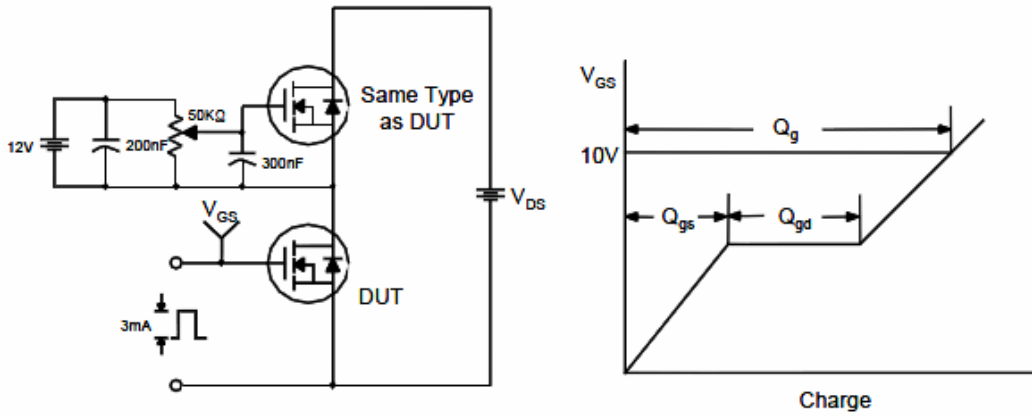


Normalized Thermal Transient Impedance, Junction-to-Case

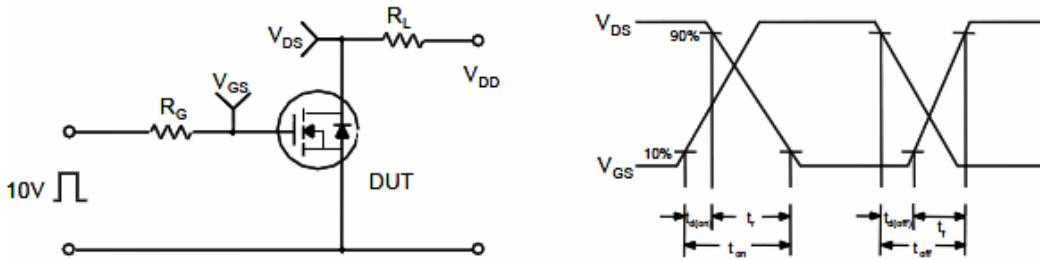


Typical Characteristics

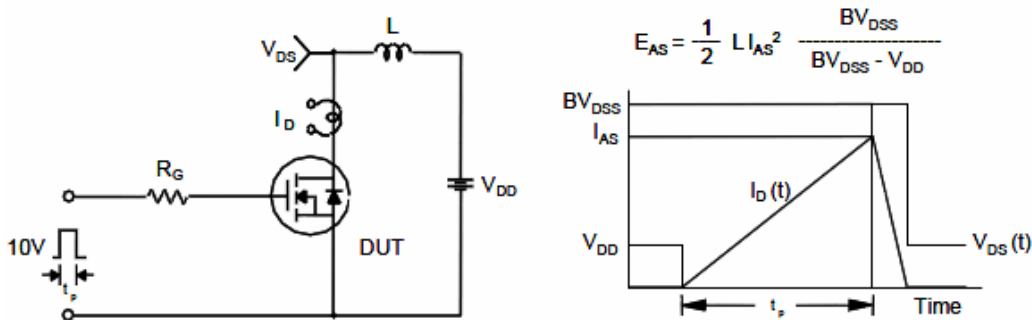
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

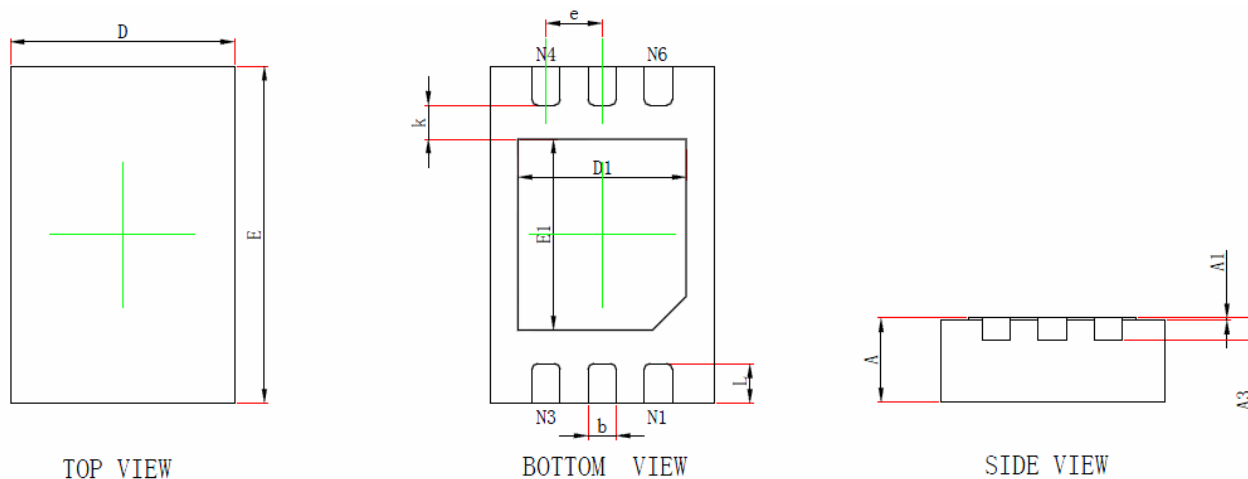


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (DFN2X3-6L)



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	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

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