



General Description

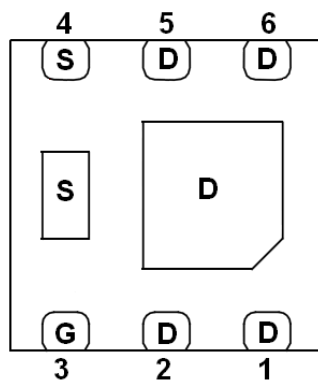
AFN2448WS, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

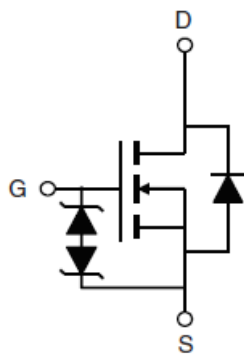
Features

- $I_D=3.0A, R_{DS(ON)}=11m\Omega@V_{GS}=4.5V$
- $I_D=3.0A, R_{DS(ON)}=13m\Omega@V_{GS}=2.5V$
- $I_D=3.0A, R_{DS(ON)}=20m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- ESD Protection (>2KV) Diode design-in
- DFN2X2-6L package design

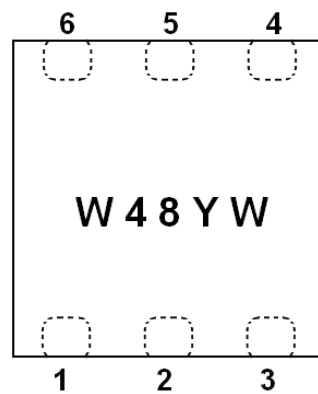
Pin Description (DFN2X2-6L)



BOTTOM VIEW



N-Channel MOSFET



TOP VIEW

Application

- For Smart Phones and Mobile Computing
 - Load Switches
 - DC/DC Converters

Pin Define

Pin	Symbol	Description
1,2,5,6	D	Drain
4	S	Source
3	G	Gate

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN2448WSFN226RG	W48YW	DFN2X2-6L	Tape & Reel	4000 EA

※ W48 part code

※ Y year code

※ W week code

※ AFN2448WSFN226RG : 7" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	20	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C	12
		T _A =70°C	10
Pulsed Drain Current	I _{DM}	30	A
Continuous Source Current(Diode Conduction)	I _S	2.9	A
Power Dissipation	P _D	T _A =25°C	3.5
		T _A =70°C	2.2
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	36	°C/W

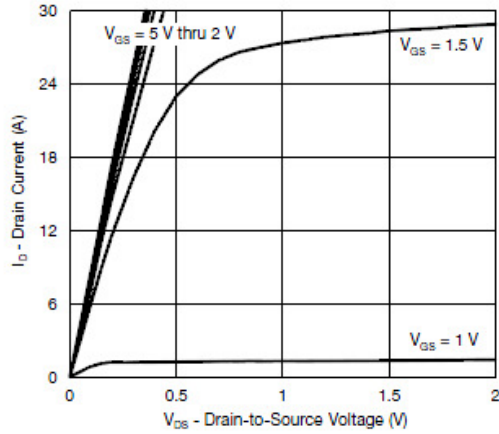
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

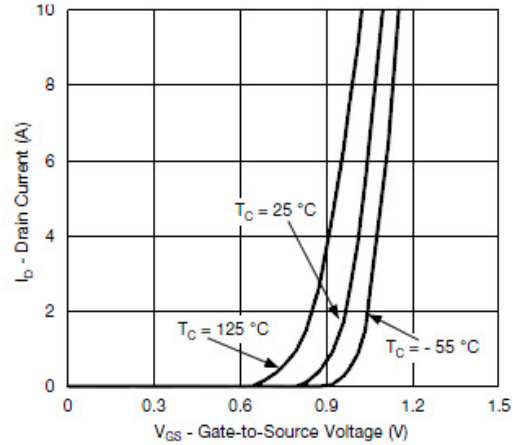
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.5		1.3	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±10	uA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			10	uA
		V _{DS} =16V, V _{GS} =0V T _J =85°C			30	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =4.5V	12			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3.0A		9.2	11	mΩ
		V _{GS} =2.5V, I _D =3.0A		10.7	13	
		V _{GS} =1.8V, I _D =3.0A		16.8	20	
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =12.4A		70		S
Diode Forward Voltage	V _{SD}	I _S =10A, V _{GS} =0V		0.85	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D ≡12.4A		13	20	nC
Gate-Source Charge	Q _{gs}			2.5		
Gate-Drain Charge	Q _{gd}			1.5		
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1MHz		1340		pF
Output Capacitance	C _{oss}			200		
Reverse Transfer Capacitance	C _{rss}			85		
Turn-On Time	t _{d(on)}	V _{DD} =10V, R _L =1.0Ω I _D ≡10A, V _{GEN} =4.5V R _G =1Ω		8	15	ns
	t _r			15	25	
Turn-Off Time	t _{d(off)}			30	60	
	t _f			8	15	



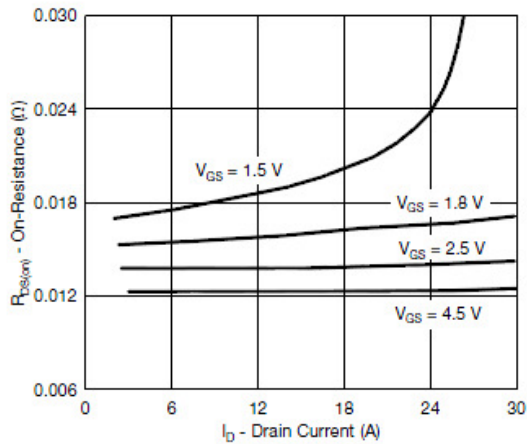
Typical Characteristics



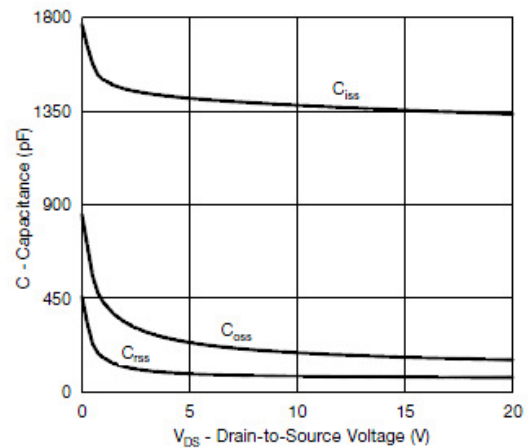
Output Characteristics



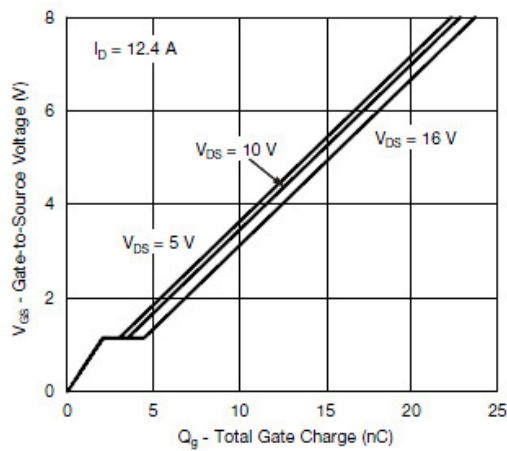
Transfer Characteristics



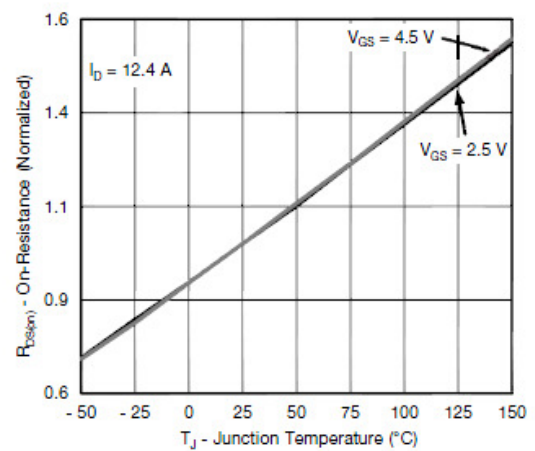
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



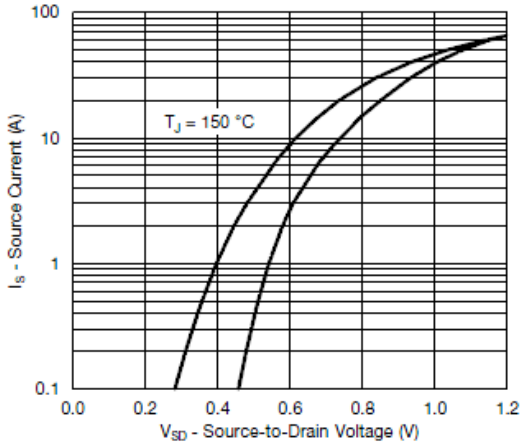
Gate Charge



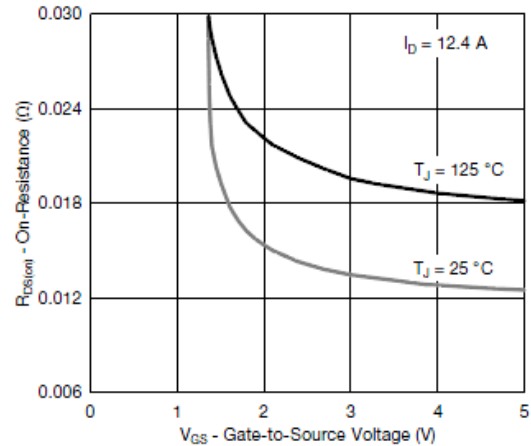
On-Resistance vs. Junction Temperature



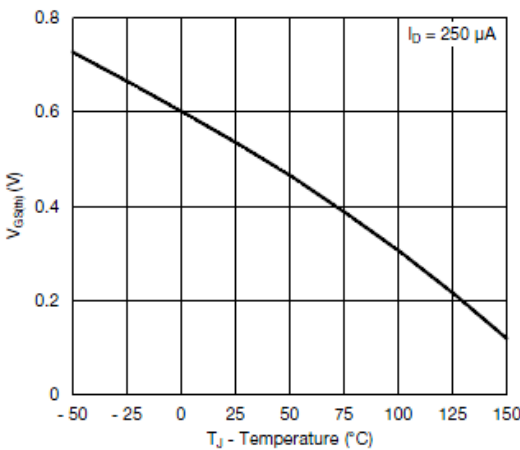
Typical Characteristics



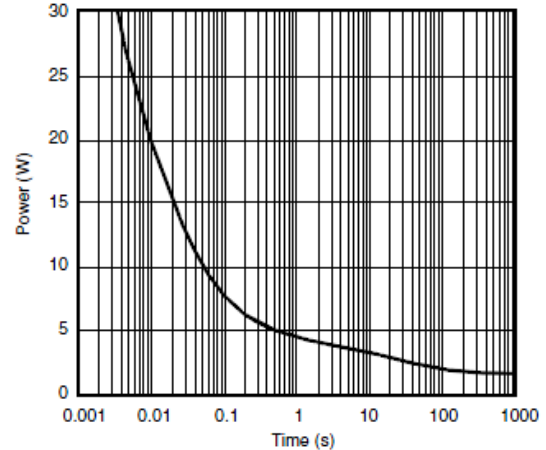
Source-Drain Diode Forward Voltage



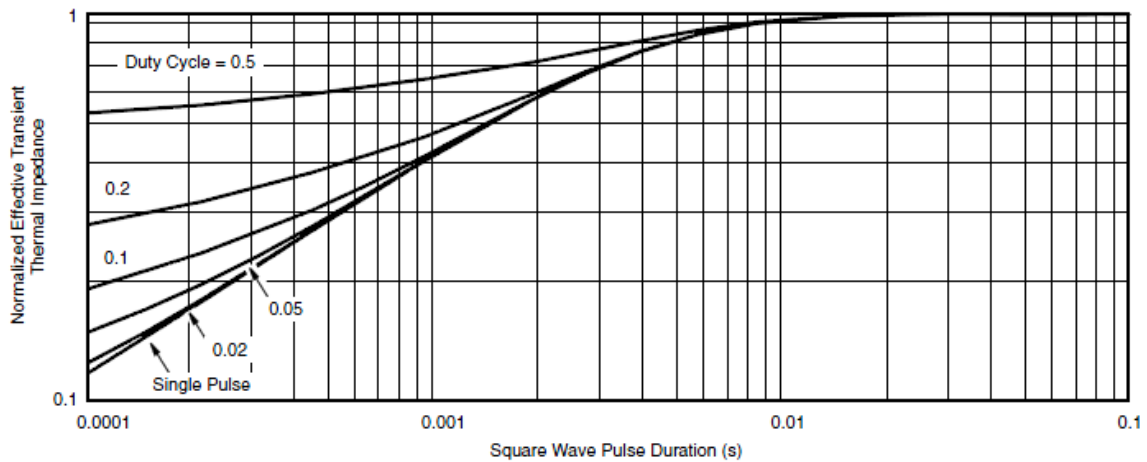
On-Resistance vs. Gate-to-Source Voltage



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

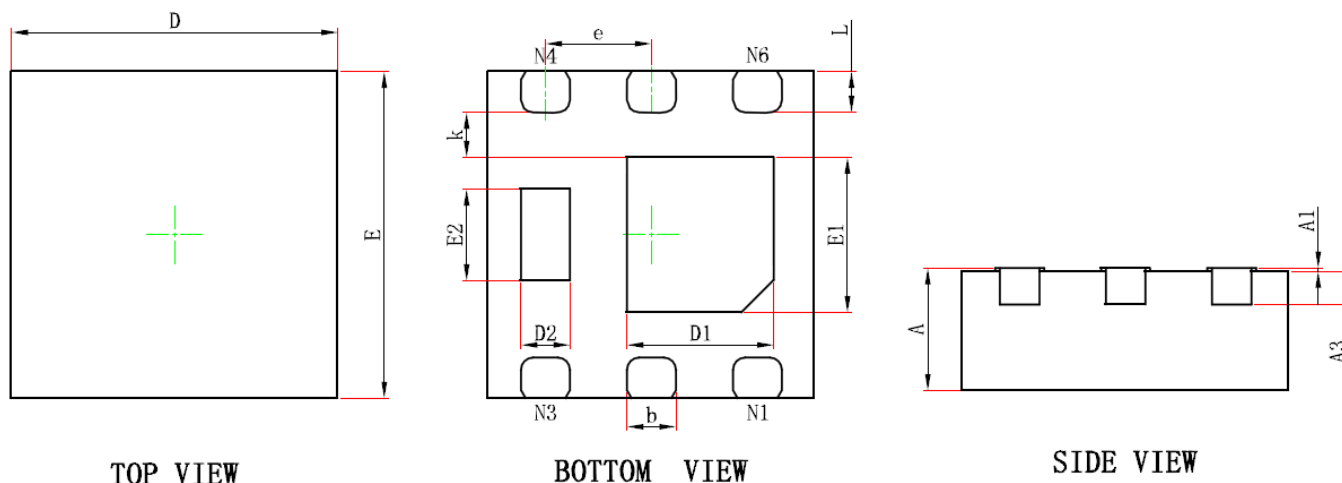


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (DFN2X2-6L)



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	1.924	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

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