



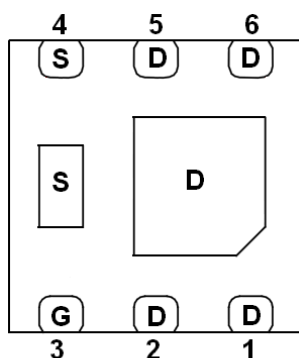
General Description

AFN2442W, 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.

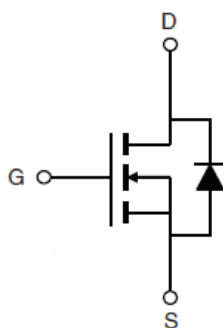
Features

- 40V/ 8A, $R_{DS(ON)} = 24m\Omega @ V_{GS} = 10V$
- 40V/ 6A, $R_{DS(ON)} = 34m\Omega @ V_{GS} = 4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN2X2-6L package design

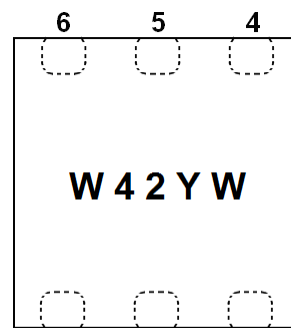
Pin Description (DFN2X2-6L)



BOTTOM VIEW



N-Channel MOSFET



TOP VIEW

Application

- DC/DC Converter
- High Frequency Switching

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
AFN2442WFN226RG	W42YW	DFN2X2-6L	Tape & Reel	4000 EA

- ※ W42 part code
- ※ Y year code
- ※ W week code
- ※ AFN2442WFN226RG : 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}	40	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current($T_J=150^\circ\text{C}$)	I_D	$T_A=25^\circ\text{C}$	8
		$T_A=70^\circ\text{C}$	6
Pulsed Drain Current	I_{DM}	20	A
Continuous Source Current(Diode Conduction)	I_S	8	A
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	2
		$T_A=70^\circ\text{C}$	1.5
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55/150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	56	$^\circ\text{C/W}$

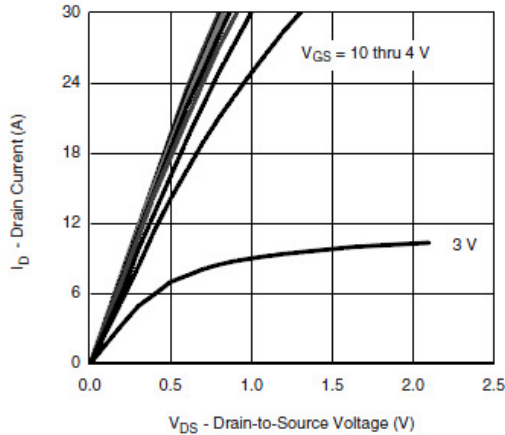
Electrical Characteristics

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

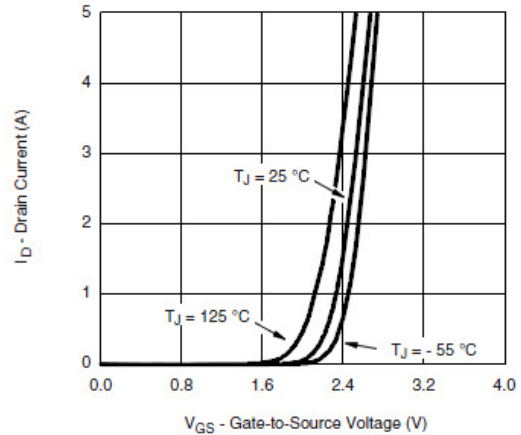
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu\text{A}$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0		3.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 16V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=32V, V_{GS}=0V$			1	uA
		$V_{DS}=32V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=10V$	15			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8A$		18	24	m Ω
		$V_{GS}=4.5V, I_D=6A$		25	34	
Forward Transconductance	g_{FS}	$V_{DS}=15V, I_D=5.0A$		25		S
Diode Forward Voltage	V_{SD}	$I_S=2A, V_{GS}=0V$		0.85	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=20V, V_{GS}=4.5V$ $I_D=5A$		10	14	nC
Gate-Source Charge	Q_{gs}			2.8		
Gate-Drain Charge	Q_{gd}			3.2		
Input Capacitance	C_{iss}	$V_{DS}=20V, V_{GS}=0V$ $f=1\text{MHz}$		850		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			75		
Turn-On Time	$t_{d(on)}$	$V_{DD}=20V, R_L=4\Omega$ $I_D=5.0A, V_{GEN}=10V$ $R_G=1\Omega$		6	12	ns
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$			20	36	
	t_f			6	12	



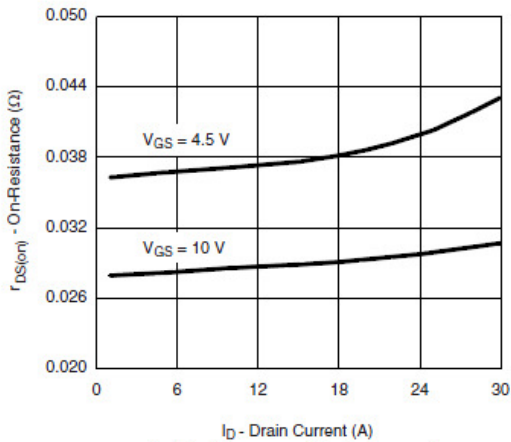
Typical Characteristics (P-Channel)



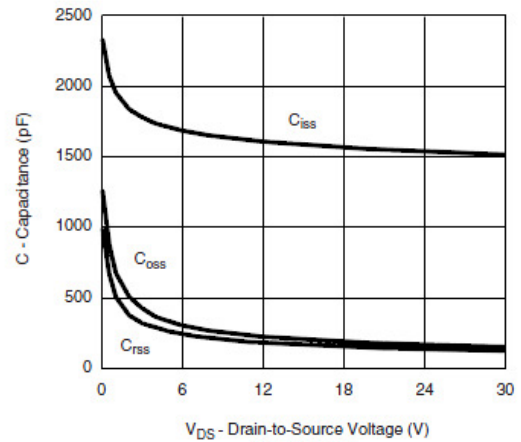
Output Characteristics



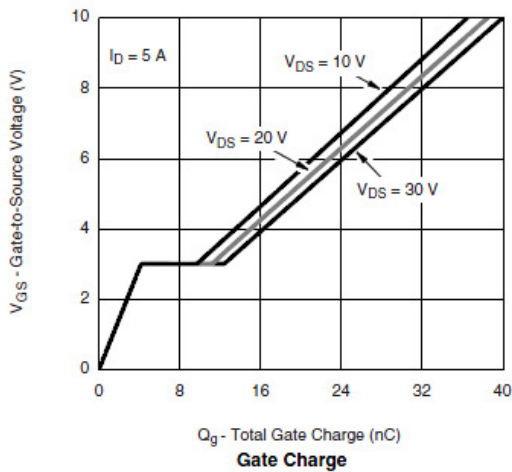
Transfer Characteristics



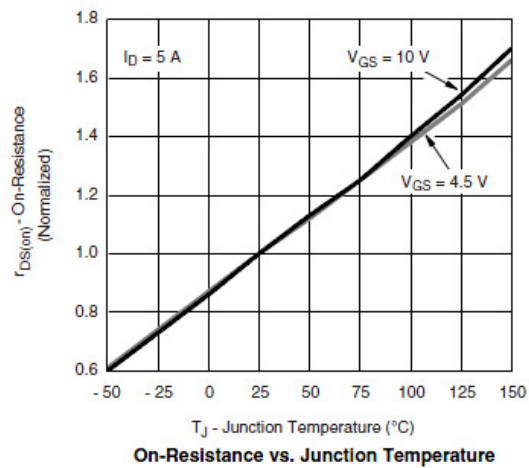
On-Resistance vs. Drain Current



Capacitance



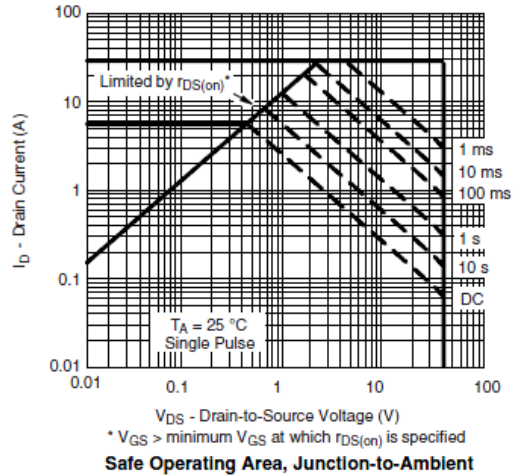
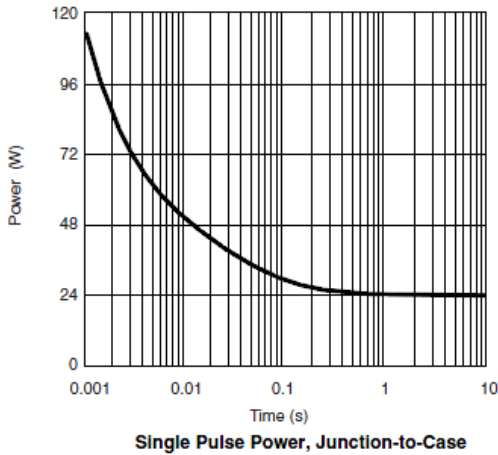
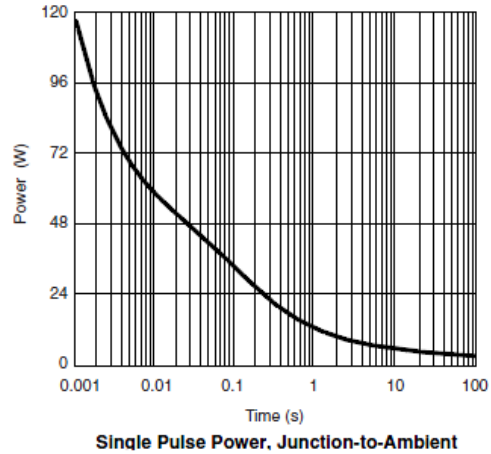
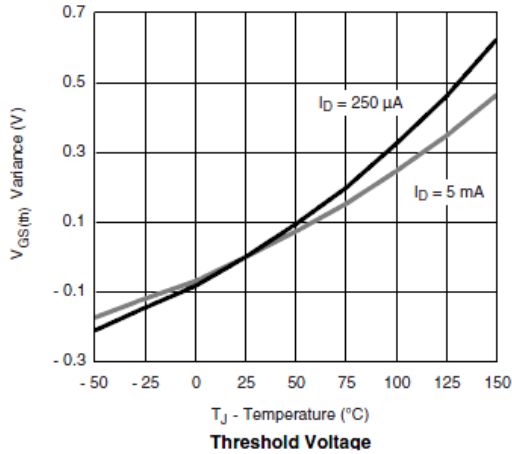
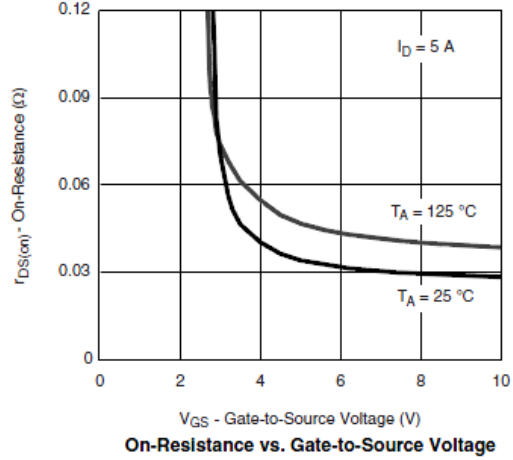
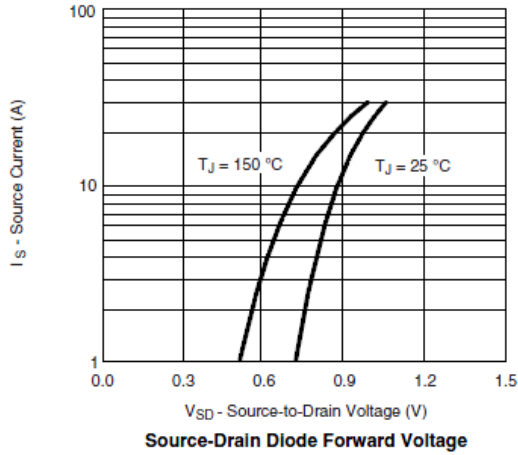
Gate Charge



On-Resistance vs. Junction Temperature



Typical Characteristics (P-Channel)





Typical Characteristics

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

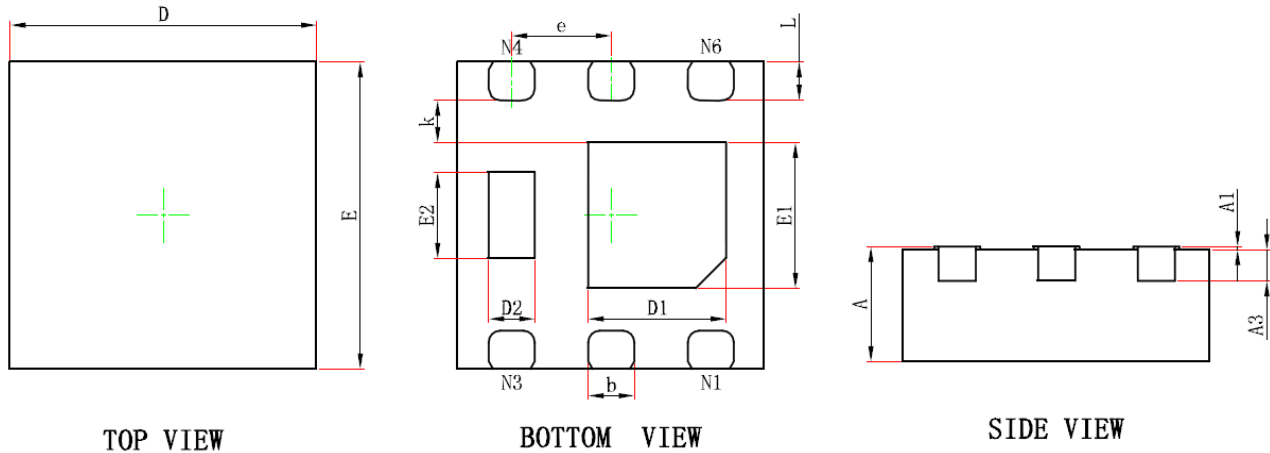


Unclamped Inductive Switching Test Circuit & Waveforms





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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 2F, No.80, Sec.1, Cheng Kung Rd., Nan Kang Dist., Taipei City 115, Taiwan (R.O.C.)
 Tel : 886 2) 2651 3928
 Fax : 886 2) 2786 8483
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