



General Description

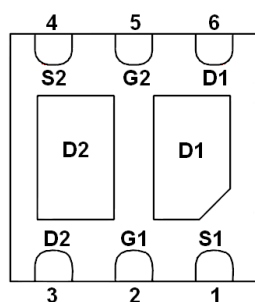
AFP2923W, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

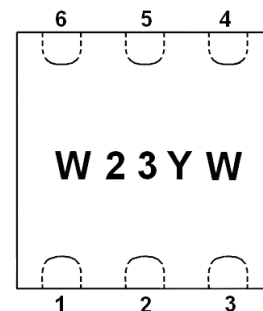
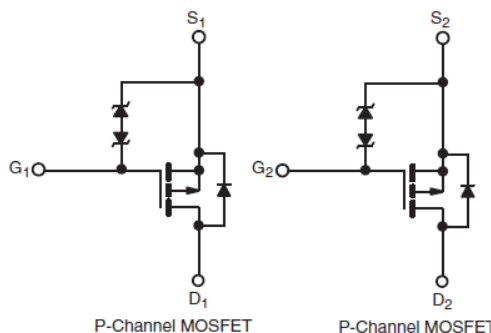
Features

- $I_D = -4.5A, R_{DS(ON)} = 42m\Omega @ V_{GS} = -4.5V$
- $I_D = -3.4A, R_{DS(ON)} = 52m\Omega @ V_{GS} = -2.5V$
- $I_D = -2.4A, R_{DS(ON)} = 68m\Omega @ V_{GS} = -1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- ESD protection
- DFN2X2-6L package design

Pin Description (DFN2X2-6L)



BOTTOM VIEW



TOP VIEW

Application

- Charger Switches and Load Switches for Portable Devices
- DC/DC Converters

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
AFP2923WFN226RG	W23YW	DFN2X2-6L	Tape & Reel	4000 EA

- ※ W23 parts code
- ※ Y year code
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFP2923WFN226RG : 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 _C =25°C	-4.5
		T _C =70°C	-4.5
Pulsed Drain Current	I _{DM}	-20	A
Continuous Source Current(Diode Conduction)	I _S	-1.6	A
Power Dissipation	P _D	T _C =25°C	7.8
		T _C =70°C	5.0
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	52	°C/W
Thermal Resistance-Junction to Case(Drian)	R _{θjc}	12.5	

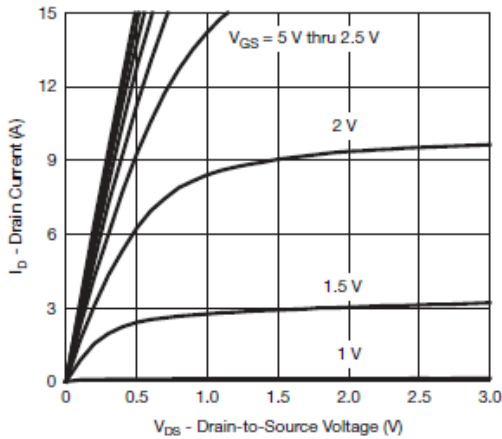
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

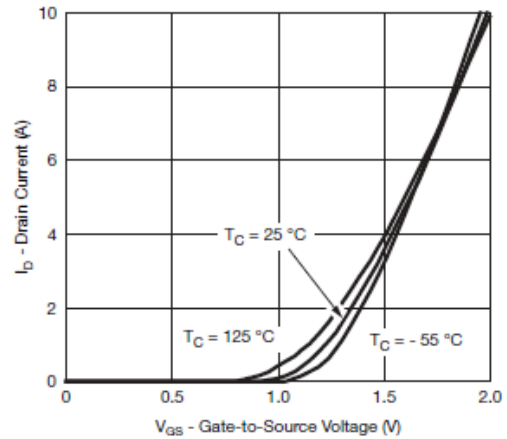
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.4		-1.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±10	uA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1	uA
		V _{DS} =-16V, V _{GS} =0V T _J =85°C			-10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ -5V, V _{GS} =-4.5V	-10			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-4.5A		37	42	mΩ
		V _{GS} =-2.5V, I _D =-3.4A		46	52	
		V _{GS} =-1.8V, I _D =-2.4A		59	68	
Forward Transconductance	g _{FS}	V _{DS} =-6V, I _D =-4.6A		12		S
Diode Forward Voltage	V _{SD}	I _S =-1.25A, V _{GS} =0V		-0.85	-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-6V, V _{GS} =-4.5V I _D ≐-5.6A		10	18	nC
Gate-Source Charge	Q _{gs}			2.5		
Gate-Drain Charge	Q _{gd}			2.8		
Input Capacitance	C _{iss}	V _{DS} =-6V, V _{GS} =0V f=1MHz		1450		pF
Output Capacitance	C _{oss}			265		
Reverse Transfer Capacitance	C _{rss}			255		
Turn-On Time	t _{d(on)}	V _{DD} =-10V, R _L =2.7Ω I _D ≐-3.7A, V _{GEN} =-4.5V R _G =1Ω		15	25	ns
	t _r			25	40	
Turn-Off Time	t _{d(off)}			40	65	
	t _f			15	25	



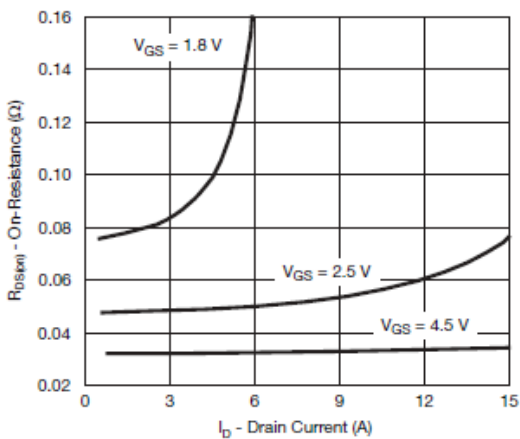
Typical Characteristics



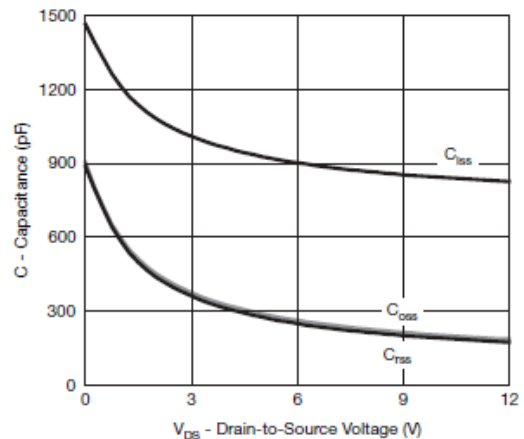
Output Characteristics



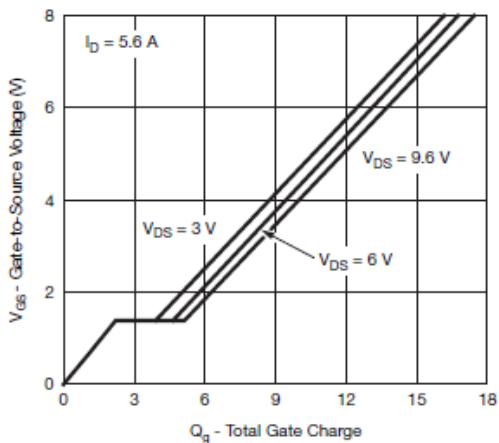
Transfer Characteristics



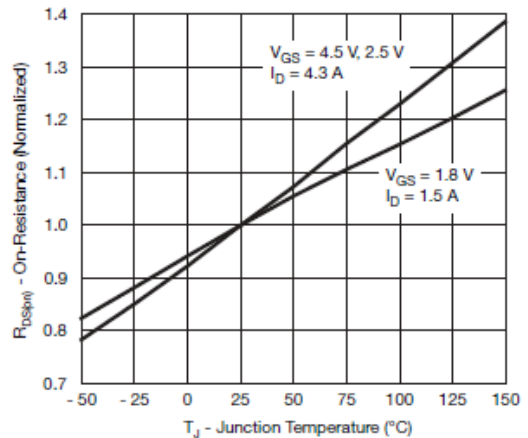
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



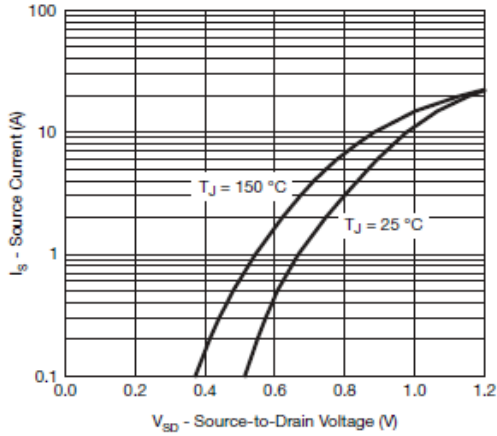
Gate Charge



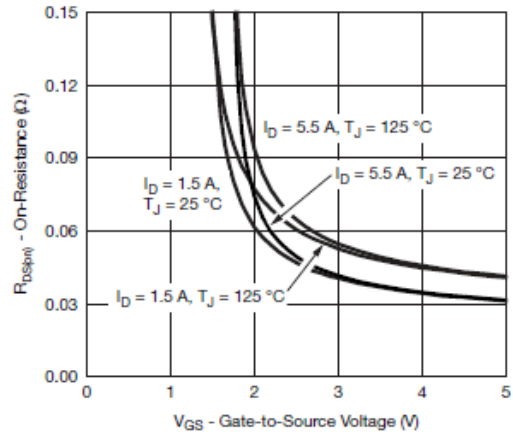
On-Resistance vs. Junction Temperature



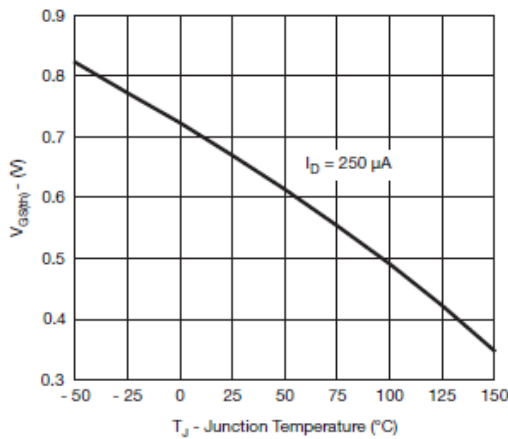
Typical Characteristics



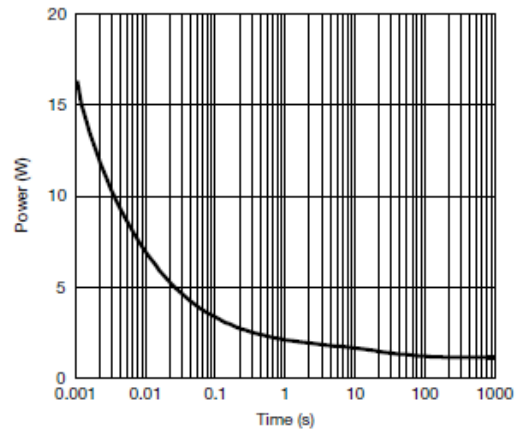
Source-Drain Diode Forward Voltage



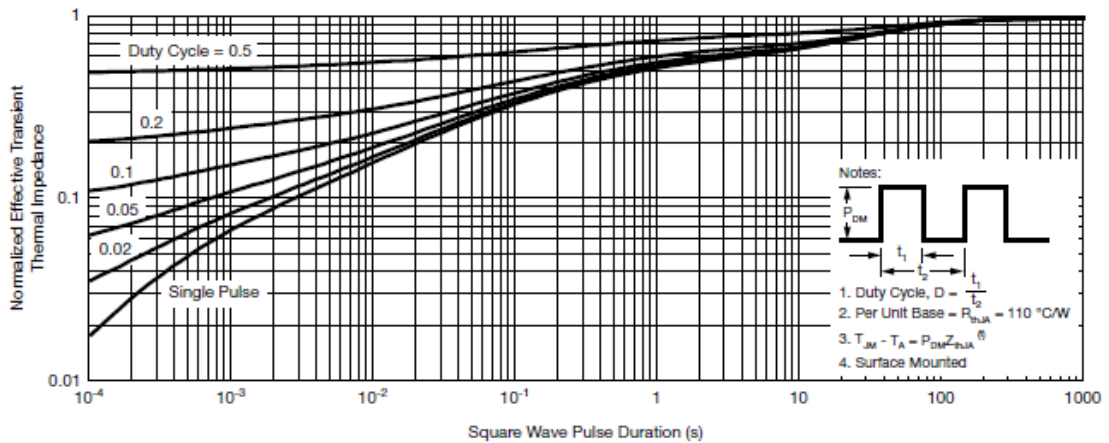
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient

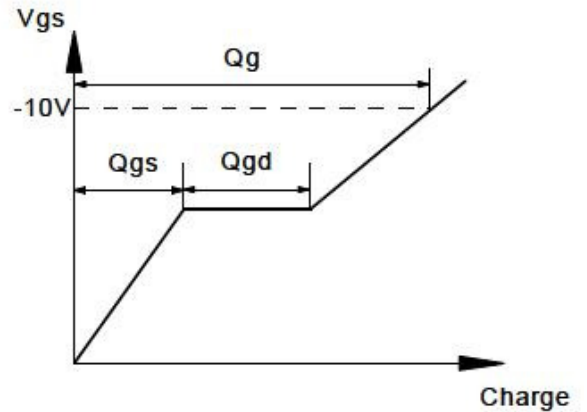
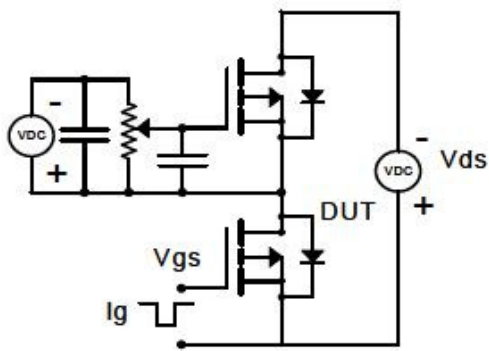


Normalized Thermal Transient Impedance, Junction-to-Ambient

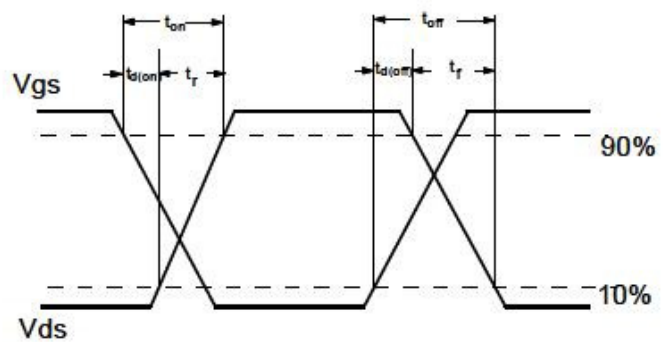
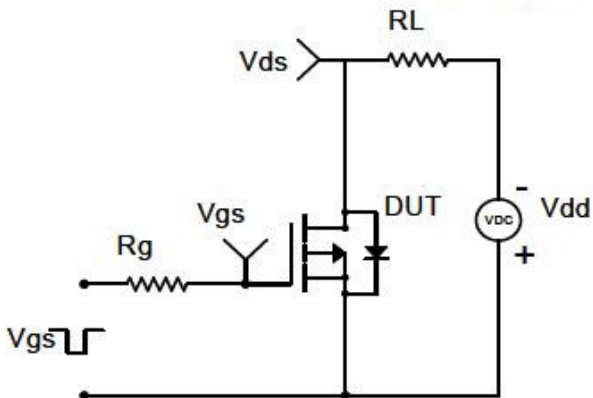


Typical Characteristics

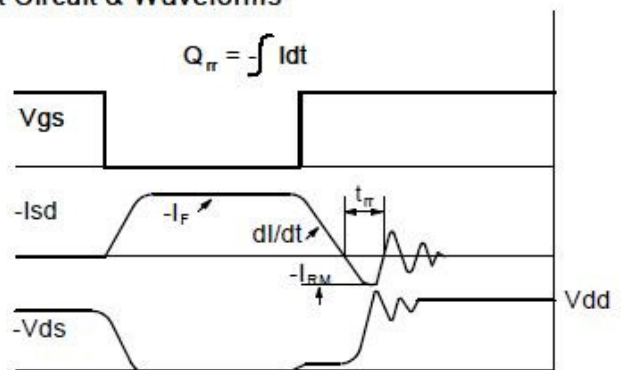
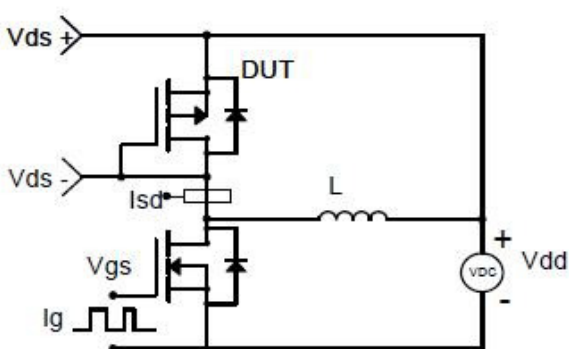
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

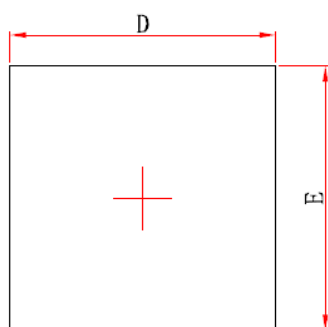


Diode Recovery Test Circuit & Waveforms

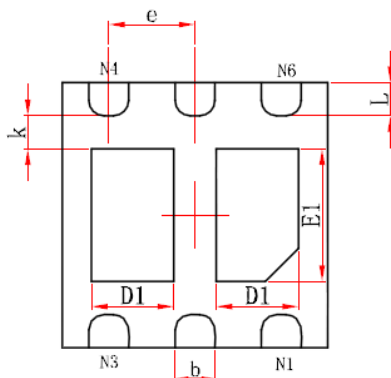




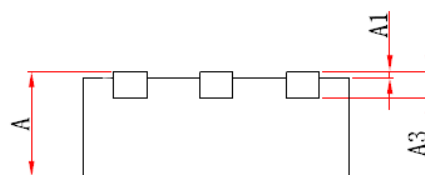
Package Information (DFN2X2-6L)



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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