Alfa-MOS Technology

AFP2913W
25V P-Channel Enhancement Mode MOSFET

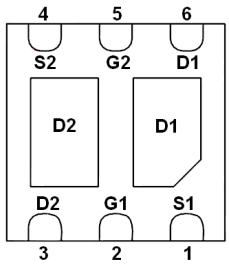
General Description

AFP2913W, 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.

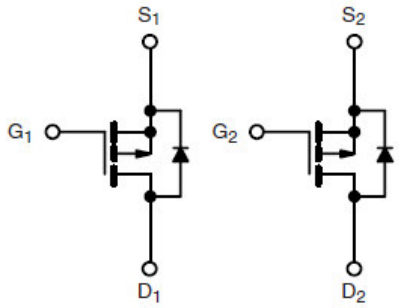
Features

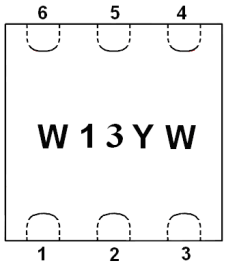
- -25V/-4.5A,$R_{DS(ON)}$=120mΩ@V_{GS}=-10V
- -25V/-3.8A,$R_{DS(ON)}$=155mΩ@V_{GS}=-4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN2X2-6L package design

Pin Description (DFN2X2-6L)



BOTTOM VIEW





TOP VIEW

Application

- Load Switch
- Portable Equipment
- Battery Powered System

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
AFP2913WFN226RG	W13YW	DFN2X2-6L	Tape & Reel	3000 EA

※ W13 parts code
※ Y year code
※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
※ AFP2913WFN226RG : 7"Tape & Reel ; Pb- Free ; Halogen- Free

Absolute Maximum Ratings

(T_A=25℃ Unless otherwise noted)

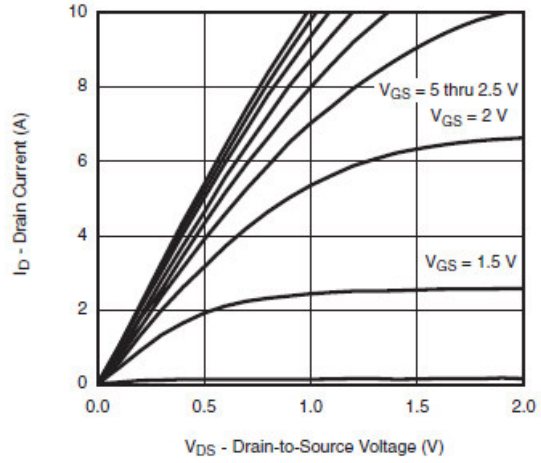
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	-25	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	-4.5	A
	T_A=70℃		-3.8	
Pulsed Drain Current		I_{DM}	-12	A
Continuous Source Current(Diode Conduction)		I_S	-1.6	A
Power Dissipation	T_A=25℃	P_D	6.5	W
	T_A=70℃		4.2	
Operating Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	120	℃/W

Electrical Characteristics

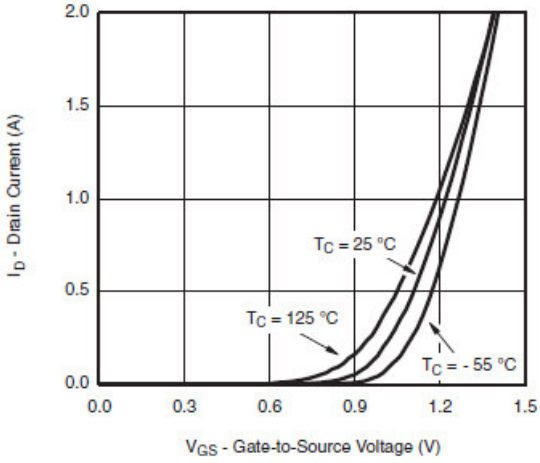
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-25			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	-1.0		-2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	uA
		V_{DS}=-20V,V_{GS}=0V T_J=85℃			-30	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V,V_{GS}=-4.5V	-8			A
		V_{DS}≦-5V,V_{GS}=-2.5V	-3			
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-4.5A		108	120	mΩ
		V_{GS}=-4.5V,I_D=-3.8A		142	155	
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-2.8A		6.5		S
Diode Forward Voltage	V_{SD}	I_S=-1.25A,V_{GS}=0V		-0.75	-1.3	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-10V,V_{GS}=-4.5V I_D≡-3.5A		5	10	nC
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			1.5		
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V f=1MHz		375		pF
Output Capacitance	C_{oss}			80		
Reverse Transfer Capacitance	C_{rss}			60		
Turn-On Time	$t_{d(on)}$	V_{DD}=-10V,R_L=2.85Ω I_D≡-3.5A,V_{GEN}=-4.5V R_G=1Ω		15	25	ns
	t_r			36	60	
Turn-Off Time	$t_{d(off)}$			25	50	
	t_f			15	25	

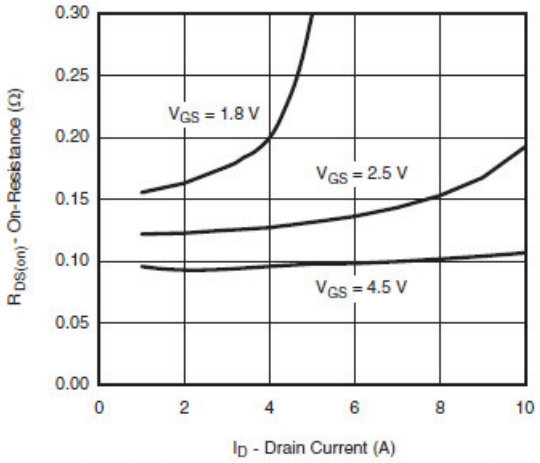
Typical Characteristics



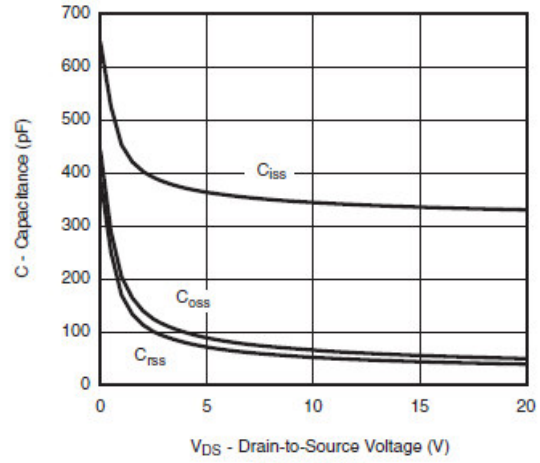
Output Characteristics



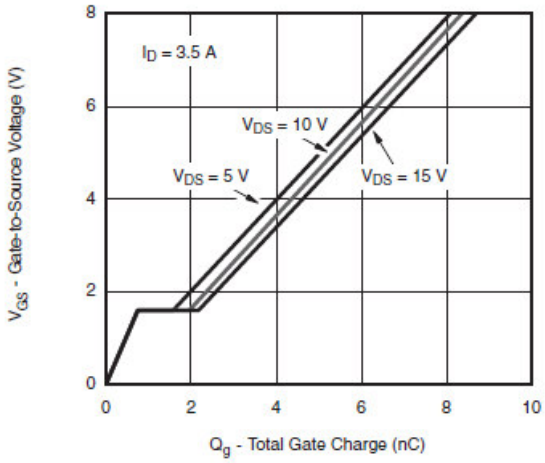
Transfer Characteristics



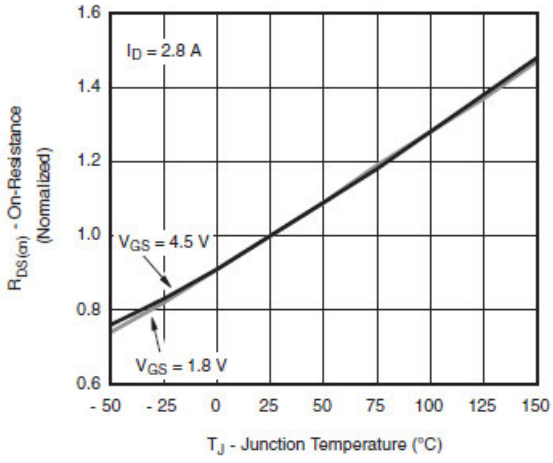
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

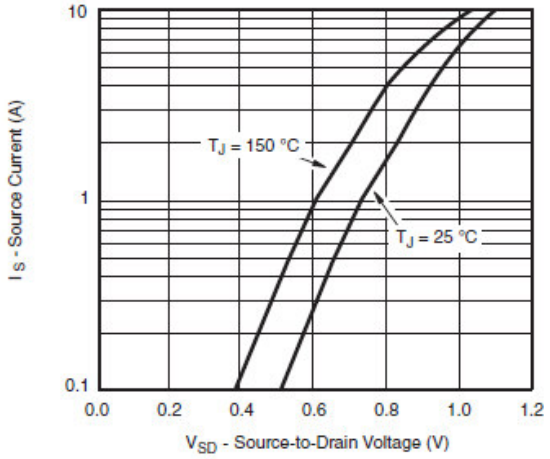


Gate Charge

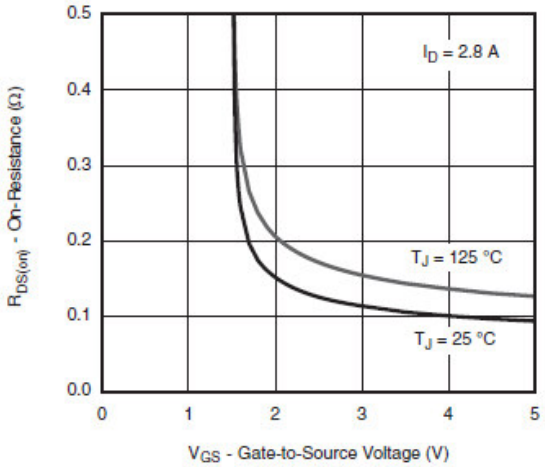


On-Resistance vs. Junction Temperature

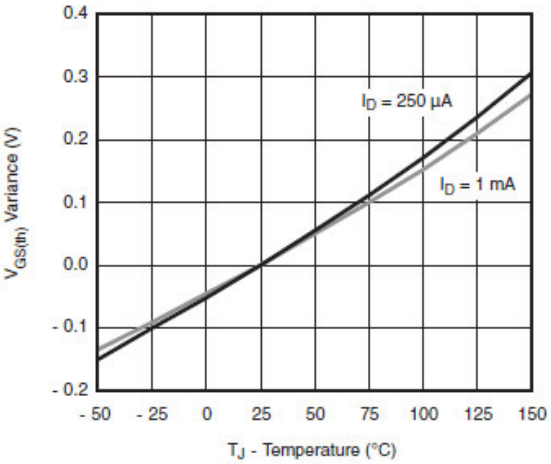
Typical Characteristics



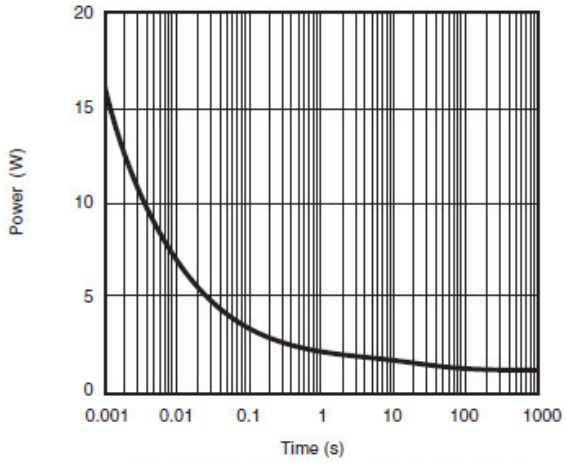
Soure-Drain Diode Forward Voltage



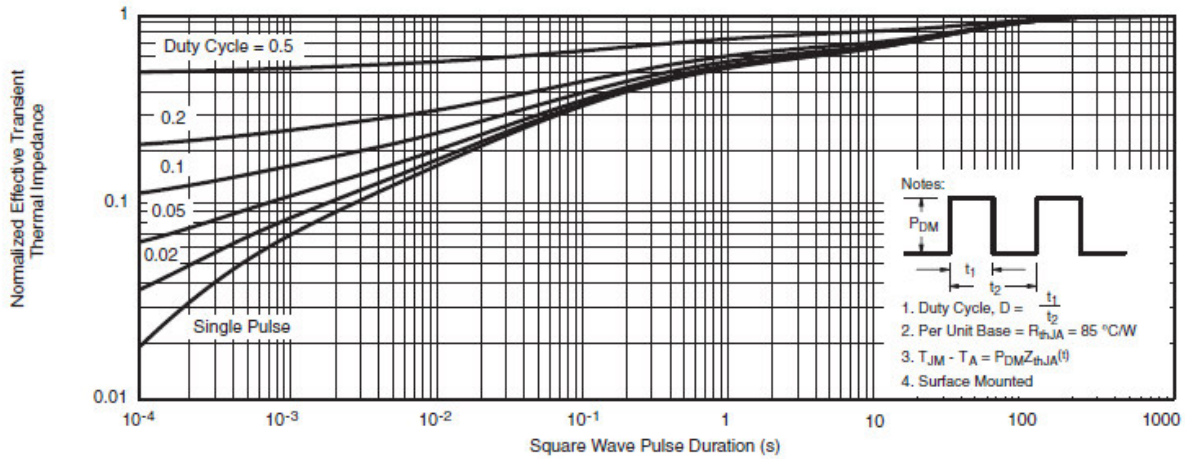
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



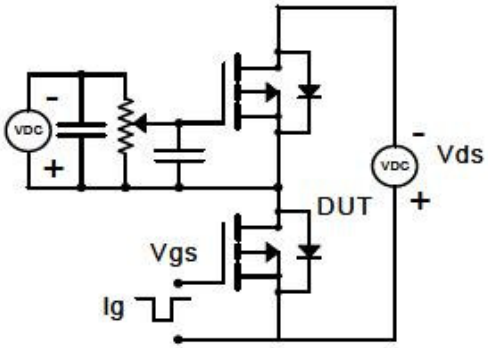
Single Pulse Power, Junction-to-Ambient

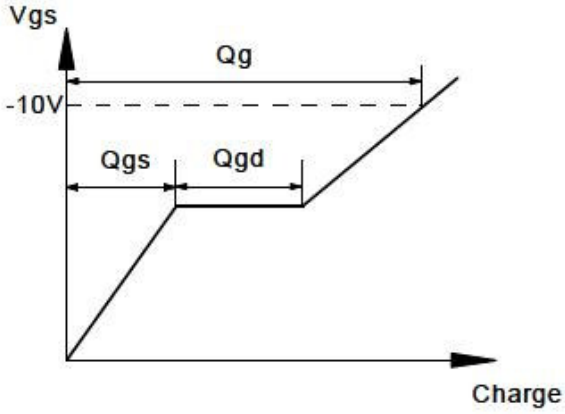


Normalized Thermal Transient Impedance, Junction-to-Ambient

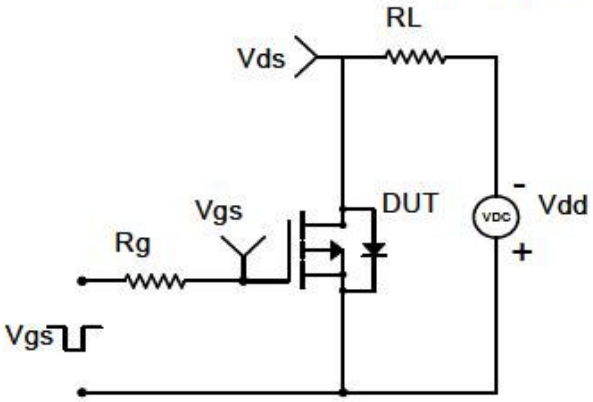
Typical Characteristics

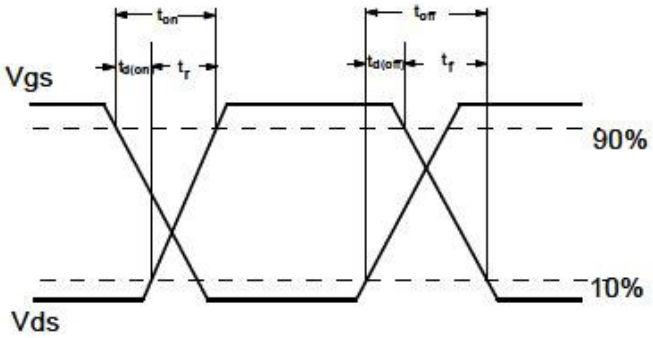
Gate Charge Test Circuit & Waveform



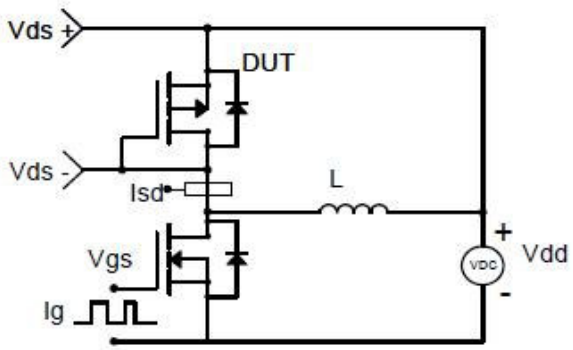


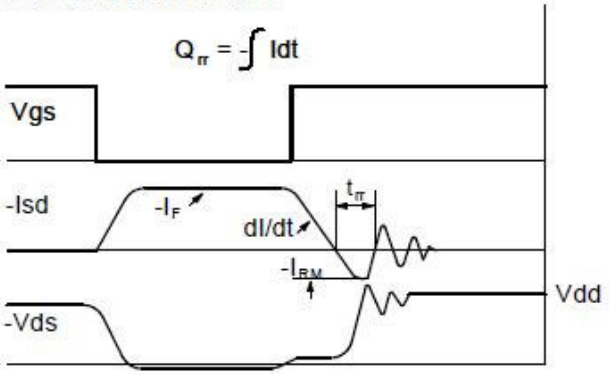
Resistive Switching Test Circuit & Waveforms



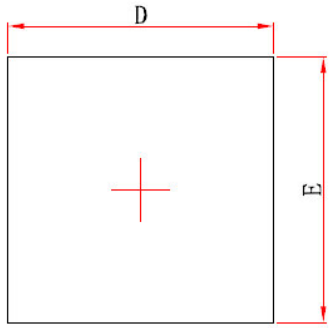


Diode Recovery Test Circuit & Waveforms

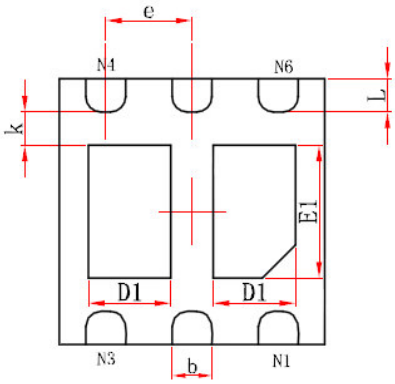




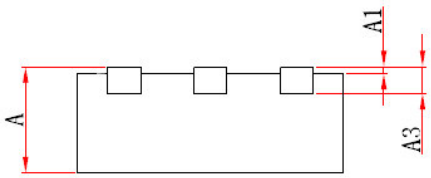
Package Information (DFN2X2-6L)



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	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	2.924	3.076	0.115	0.121
D1	1.400	1.600	0.055	0.063
E1	1.400	1.600	0.055	0.063
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.224	0.376	0.009	0.015

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