



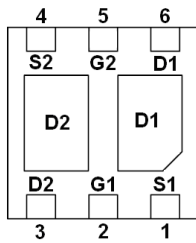
General Description

AFP2825W, 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.

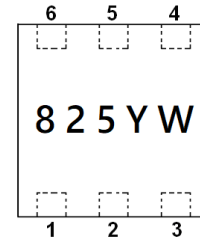
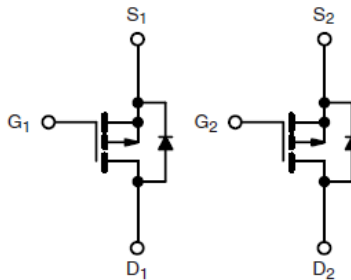
Features

- -30V/-4.0A, $R_{DS(ON)} = 95m\Omega @ V_{GS} = -10V$
- -30V/-3.0A, $R_{DS(ON)} = 105m\Omega @ V_{GS} = -4.5V$
- -30V/-2.0A, $R_{DS(ON)} = 135m\Omega @ V_{GS} = -2.5V$
- 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

- Smart Phones, Tablet PCs, Mobile Computing :
 - Battery Switches
 - Load Switches
 - Power Management

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
AFP2825WFN226RG	825YW	DFN2X2-6L	Tape & Reel	4000 EA

- ※ 825 parts code
- ※ Y year code
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFP2825WFN226RG : 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}	-30	V
Gate-Source Voltage	V_{GSS}	± 12	V
Continuous Drain Current($T_J=150^\circ\text{C}$)	I_D	$T_A=25^\circ\text{C}$	-4.0
		$T_A=70^\circ\text{C}$	-3.0
Pulsed Drain Current	I_{DM}	-20	A
Continuous Source Current(Diode Conduction)	I_S	-1.6	A
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	7.8
		$T_C=70^\circ\text{C}$	5.0
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55/150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	120	$^\circ\text{C/W}$

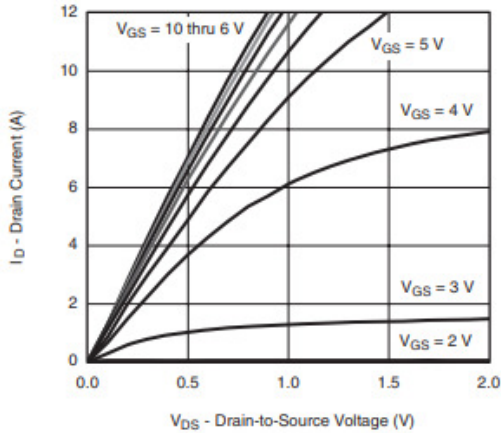
Electrical Characteristics

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

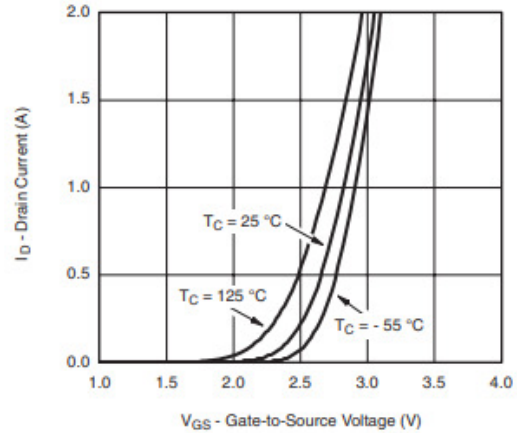
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu\text{A}$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-0.5		-1.2	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$			-1	μA
		$V_{DS}=-24V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			-30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -5V, V_{GS}=-10V$	-10			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.0A$		85	95	m Ω
		$V_{GS}=-4.5V, I_D=-3.0A$		95	105	
		$V_{GS}=-2.5V, I_D=-2.0A$		125	135	
Forward Transconductance	g_{FS}	$V_{DS}=-15V, I_D=-3A$		8		S
Diode Forward Voltage	V_{SD}	$I_S=-3A, V_{GS}=0V$		-0.75	-1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V$ $I_D \equiv -4.0A$		4.2	7.2	nC
Gate-Source Charge	Q_{gs}			1.3		
Gate-Drain Charge	Q_{gd}			1.6		
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V$ $f=1\text{MHz}$		450		pF
Output Capacitance	C_{oss}			56		
Reverse Transfer Capacitance	C_{rss}			46		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=5\Omega$ $I_D \equiv -3A, V_{GEN}=-10V$ $R_G=1\Omega$		10	20	ns
	t_r			5	10	
Turn-Off Time	$t_{d(off)}$			20	40	
	t_f			5	10	



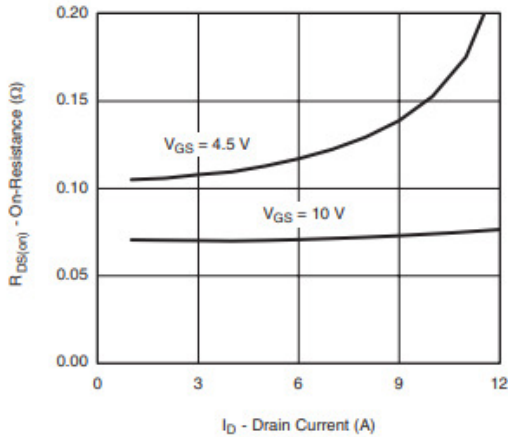
Typical Characteristics



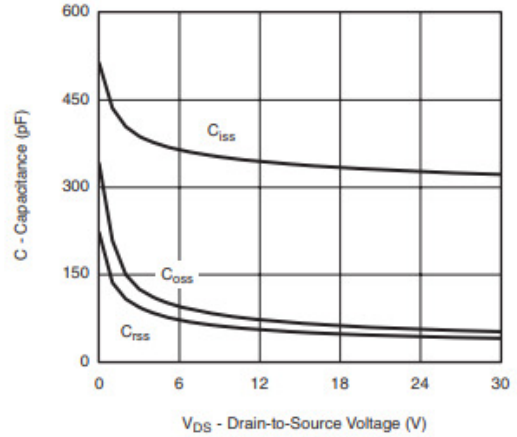
Output Characteristics



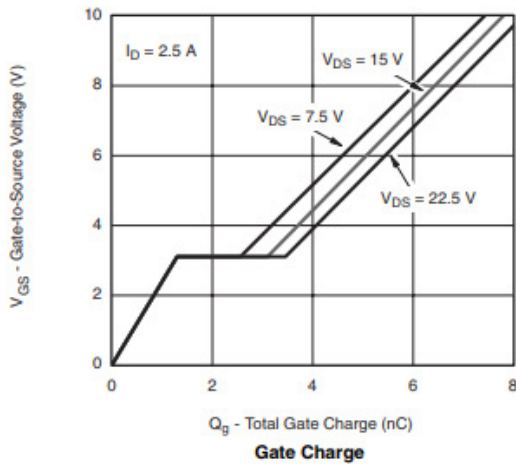
Transfer Characteristics



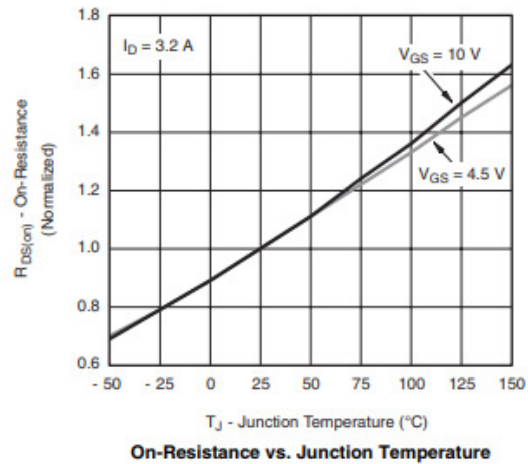
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



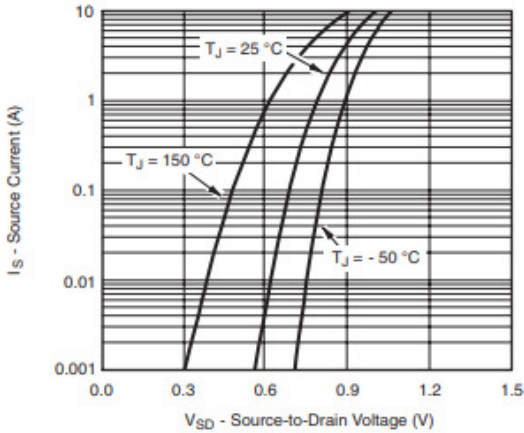
Gate Charge



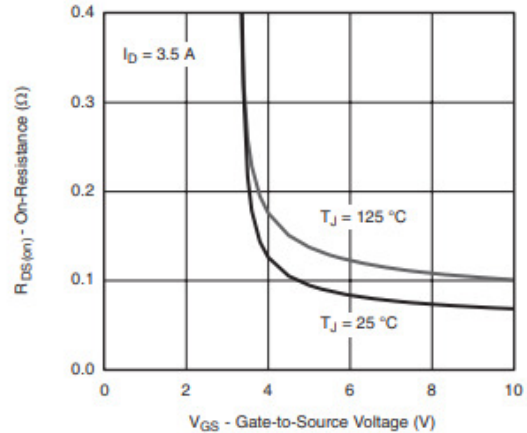
On-Resistance vs. Junction Temperature



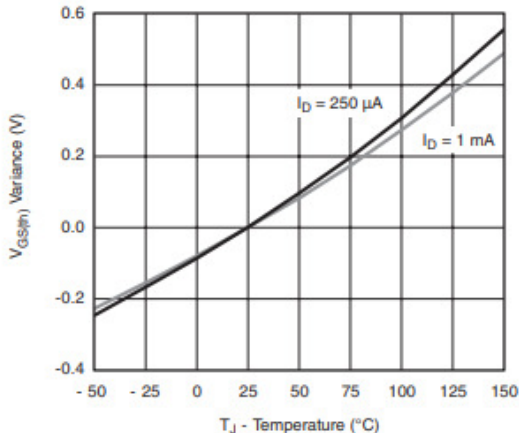
Typical Characteristics



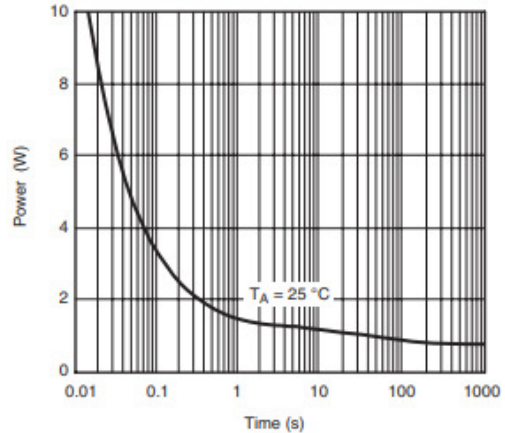
Source-Drain Diode Forward Voltage



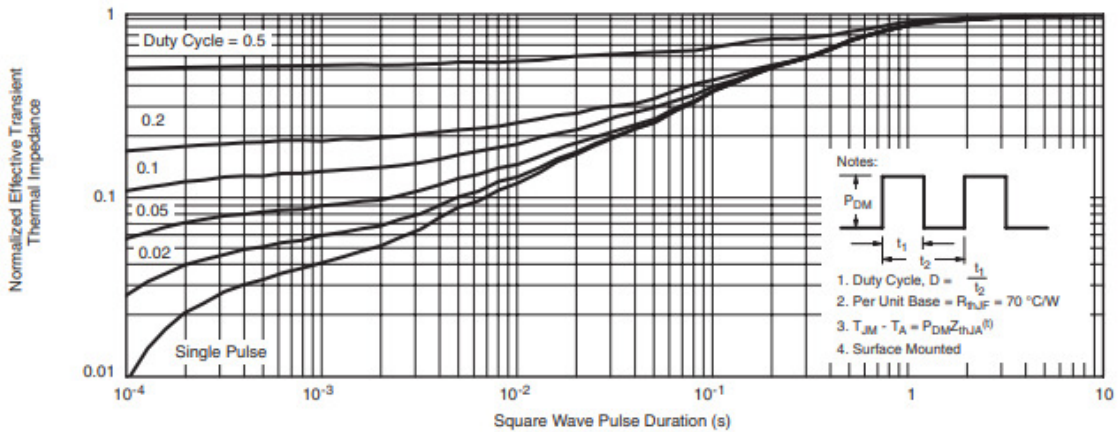
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient

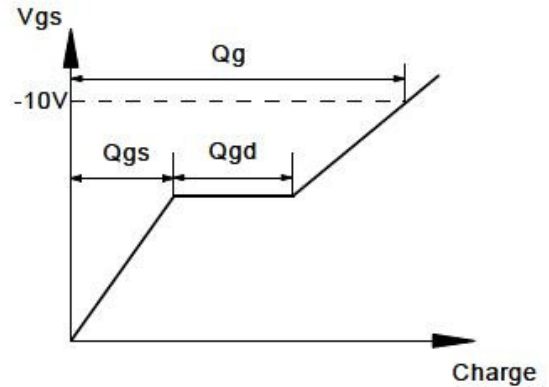
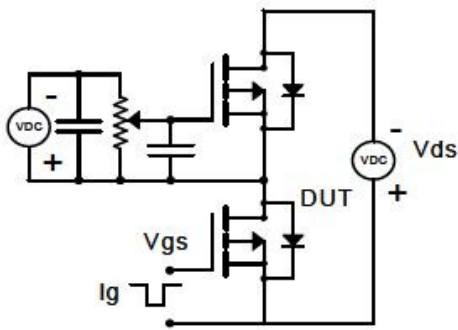


Normalized Thermal Transient Impedance, Junction-to-Foot

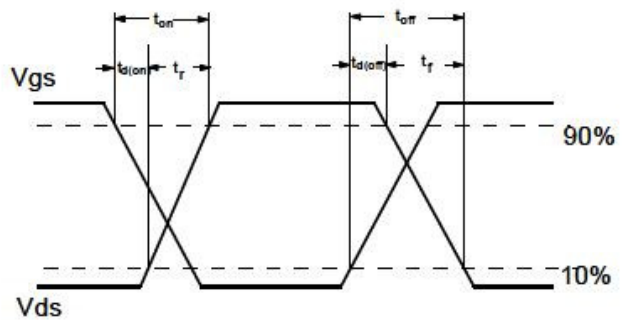
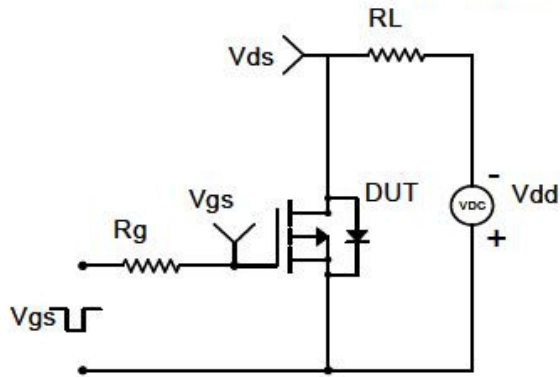


Typical Characteristics

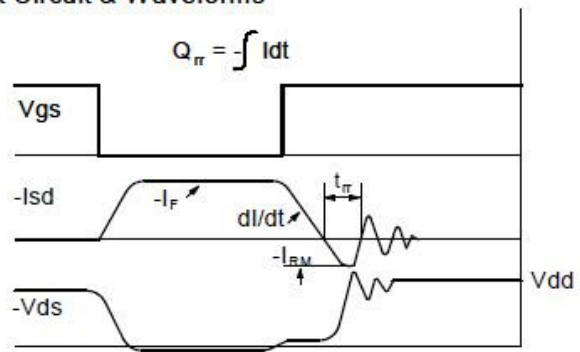
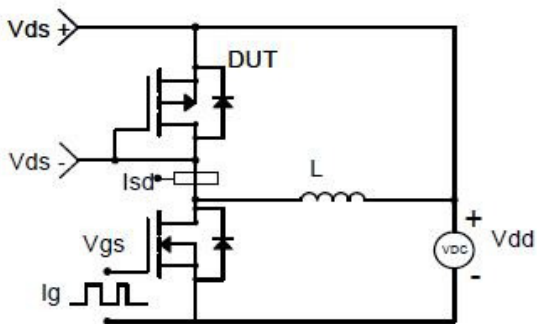
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

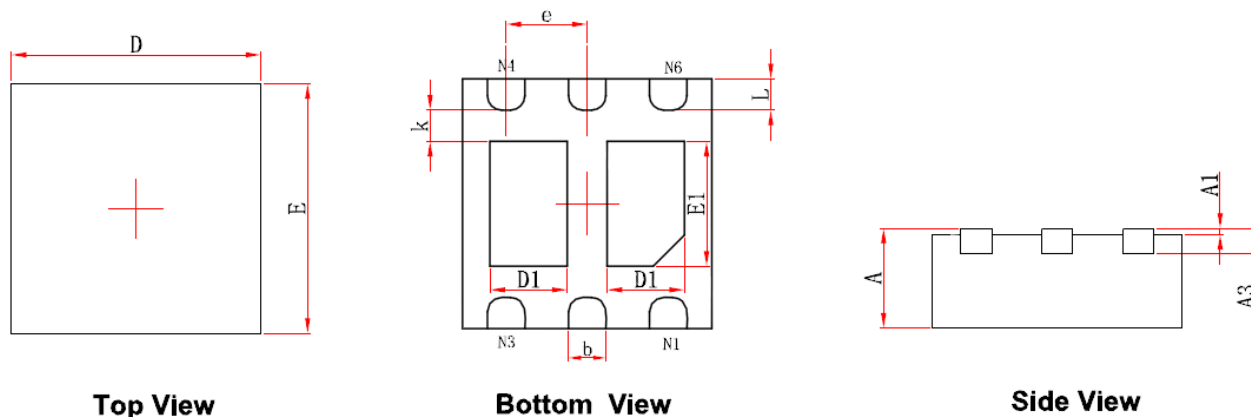


Diode Recovery Test Circuit & Waveforms





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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