



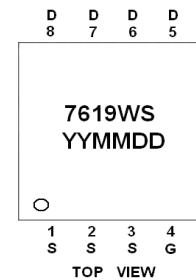
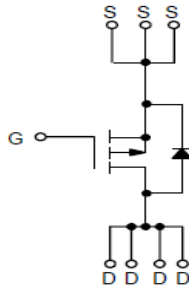
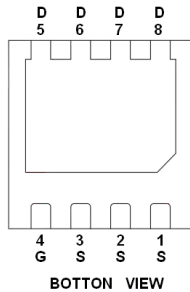
General Description

AFP7619WS, 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/-10A, $R_{DS(ON)}=18m\Omega@V_{GS}=-10V$
- -30V/-8A, $R_{DS(ON)}=28m\Omega@V_{GS}=-4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN3X3-8L package design

Pin Description (DFN3X3-8L)



Application

- DC-DC Converter
- POL

Pin Define

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

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP7619WSFN338RG	7619WS	DFN3X3-8L	Tape & Reel	5000 EA

※ YY year code

※ MM month code

※ DD date code

※ AFP7619WSFN338RG : 13" 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}	± 20	V	
Continuous Drain Current($T_J=150^\circ\text{C}$)	I_D	$T_A=25^\circ\text{C}$	-10	A
		$T_A=70^\circ\text{C}$	-8	
Pulsed Drain Current	I_{DM}	-50	A	
Continuous Source Current(Diode Conduction)	I_S	-3	A	
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	28	W
		$T_C=70^\circ\text{C}$	15	
Operating Junction Temperature	T_J	$T_A=25^\circ\text{C}$	3.2	°C
		$T_A=70^\circ\text{C}$	2.0	
Storage Temperature Range	T_{STG}	-55/150	°C	
Thermal Resistance Junction-to-Case (Drain)	$R_{\theta JC}$	5	°C/W	
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	40		

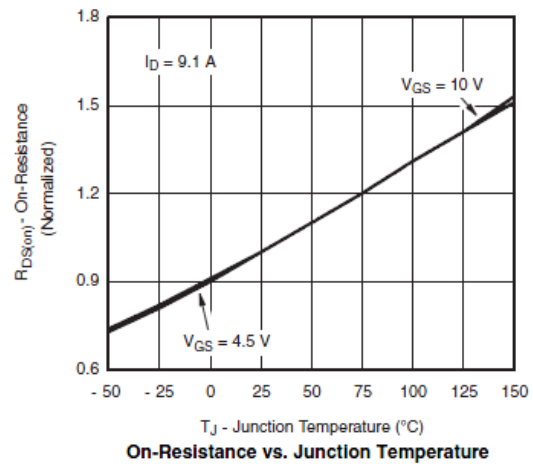
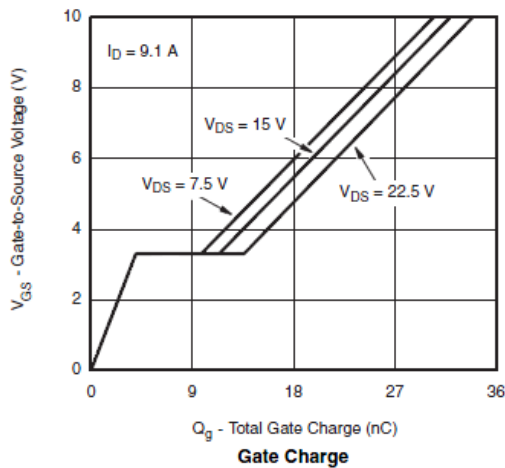
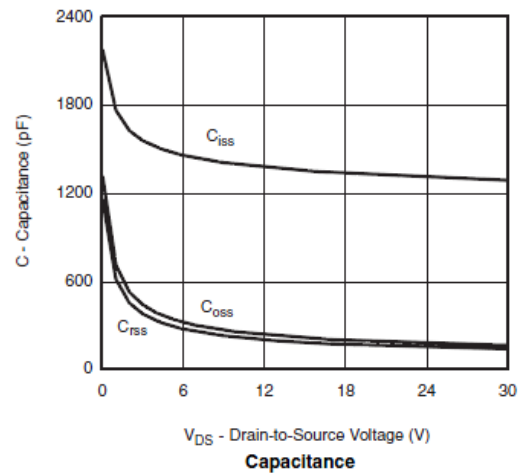
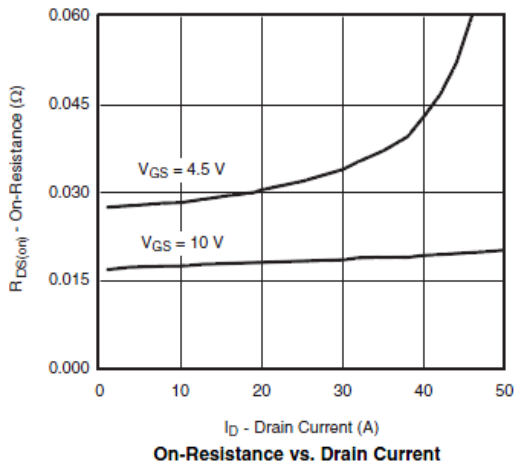
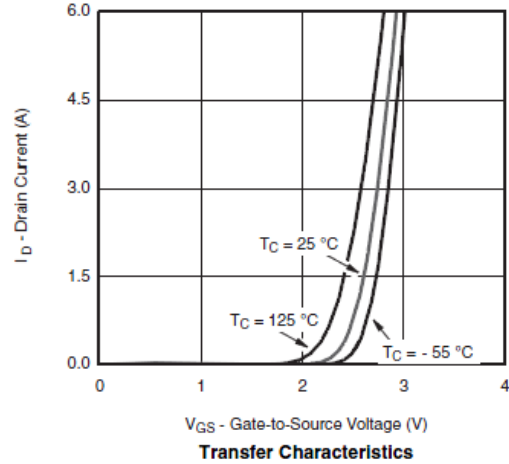
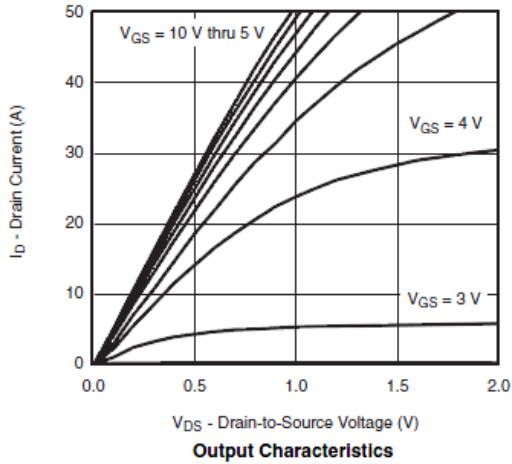
Electrical Characteristics

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

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-2.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 25V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$			-1	uA
		$V_{DS}=-24V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			-30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -10V, V_{GS}=-10V$	-30			A
		$V_{DS} \leq -5V, V_{GS}=-4.5V$	-5			
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-10A$		11	18	mΩ
		$V_{GS}=-4.5V, I_D=-8.0A$		16	28	
Forward Transconductance	g_{FS}	$V_{DS}=-10V, I_D=-9.0A$		22		S
Diode Forward Voltage	V_{SD}	$I_S=-2.3A, V_{GS}=0V$		-0.7	-1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-4.5V$ $I_D \equiv -6.0A$		20	30	nC
Gate-Source Charge	Q_{gs}		6			
Gate-Drain Charge	Q_{gd}		10			
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V$ $f=1\text{MHz}$		1600		pF
Output Capacitance	C_{oss}		350			
Reverse Transfer Capacitance	C_{rss}		300			
Turn-On Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=3\Omega$ $I_D \equiv -5.0A, V_{GEN}=-10V$		10	20	ns
	t_r		12	24		
Turn-Off Time	$t_{d(off)}$		$R_G=1\Omega$		30	
	t_f	10		20		

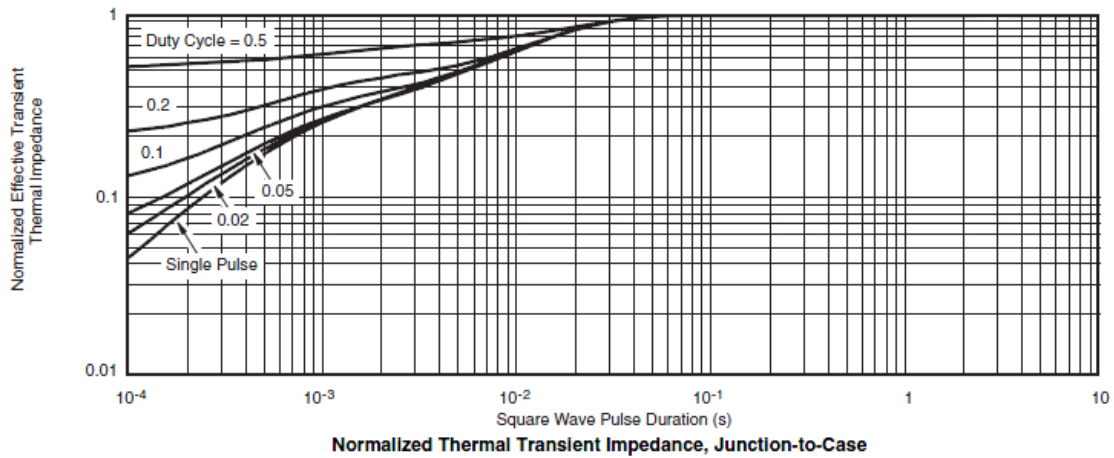
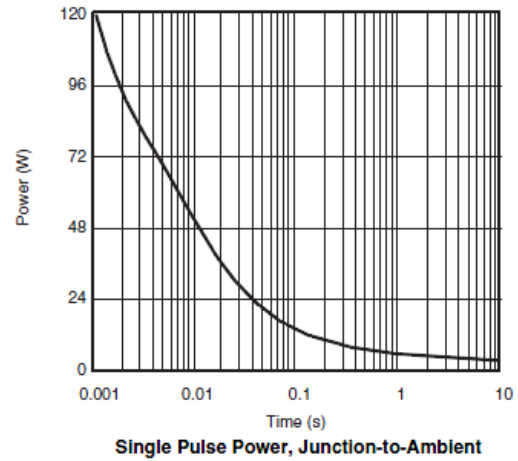
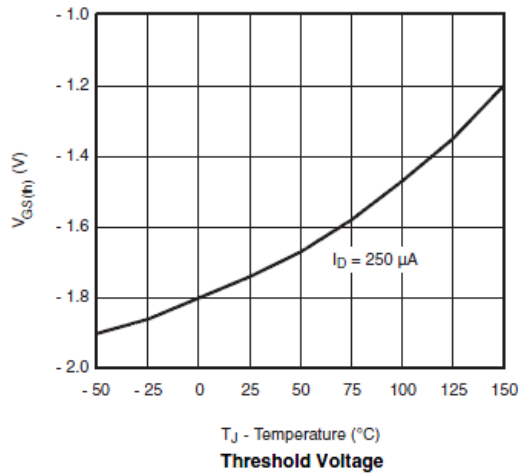
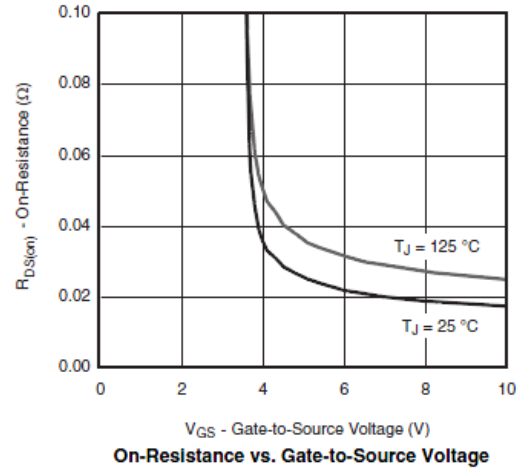
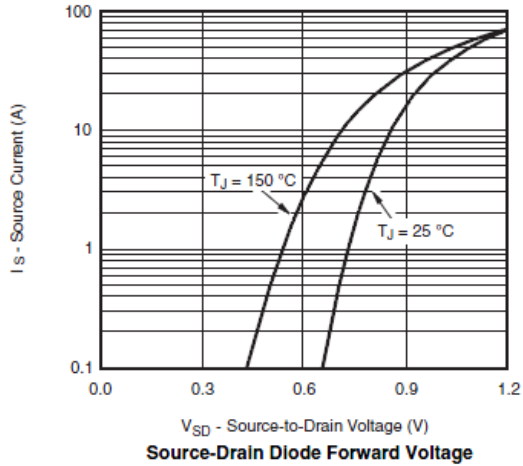


Typical Characteristics





Typical Characteristics





Typical Characteristics

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

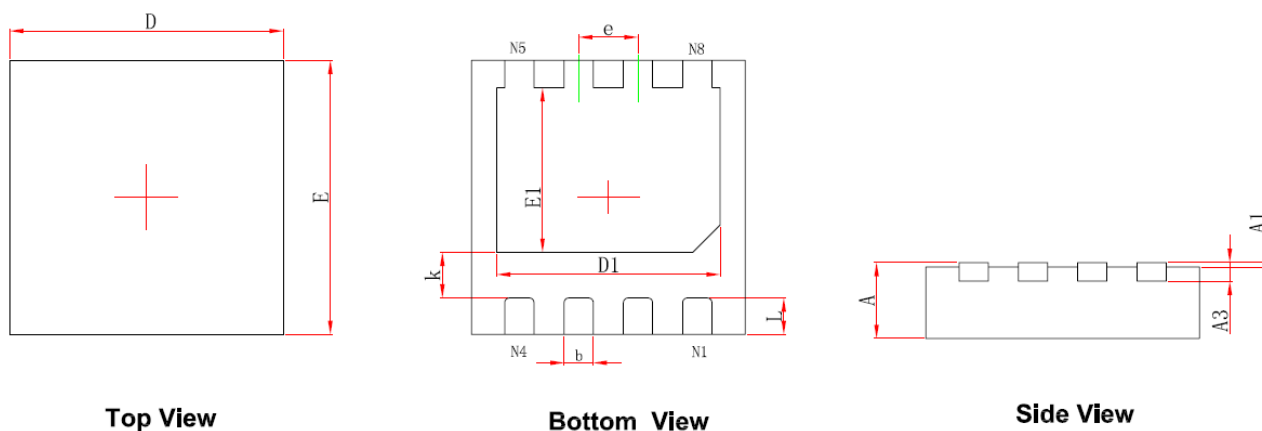


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (DFN3X3-8L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.800	0.900	0.031	0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.350	2.550	0.093	0.100
E1	1.700	1.900	0.067	0.075
k	0.450	0.550	0.018	0.022
b	0.270	0.370	0.011	0.015
e	0.650TYP.		0.026TYP.	
L	0.324	0.476	0.013	0.019

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