



General Description

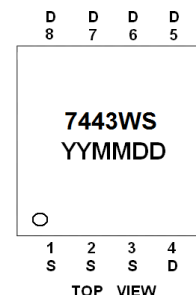
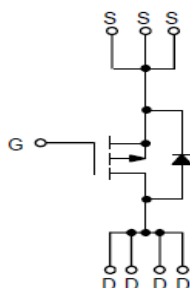
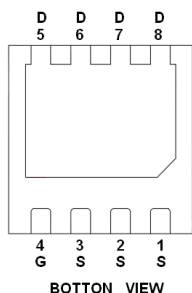
AFP7443WS, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- -40V/-12A, $R_{DS(ON)}=13m\Omega@V_{GS}=-10V$
- -40V/-10A, $R_{DS(ON)}=17m\Omega@V_{GS}=-4.5V$
- 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
AFP7443WSFN338RG	7443WS	DFN3X3-8L	Tape & Reel	5000 EA

※ YY year code

※ MM month code

※ DD date code

※ AFP7443WSFN338RG : 13" 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}	-40	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C	-12
		T _A =70°C	-10
Pulsed Drain Current	I _{DM}	-60	A
Continuous Source Current(Diode Conduction)	I _S	-3	A
Power Dissipation	P _D	T _C =25°C	28
		T _A =25°C	3.2
		T _C =70°C	15
		T _A =70°C	2.0
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance Junction-to-Case (Drain)	R _{θJC}	5	°C/W
Thermal Resistance-Junction to Ambient	R _{θJA}	40	

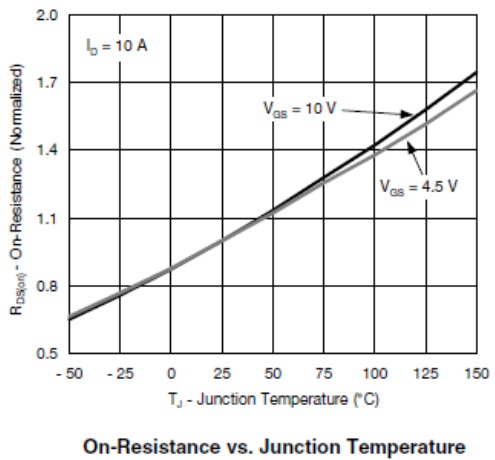
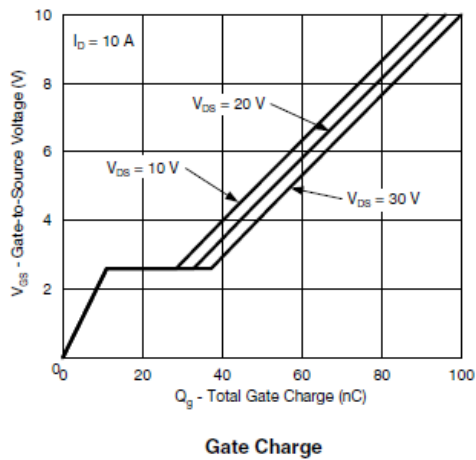
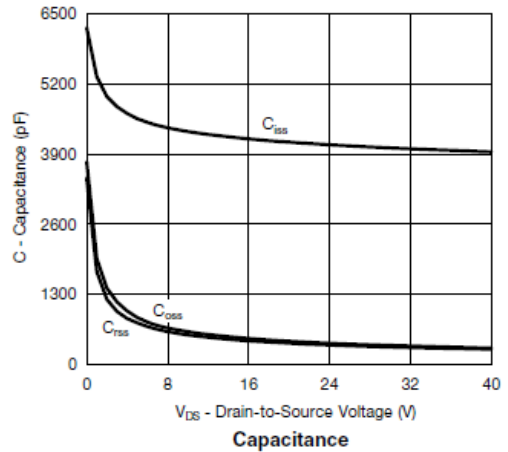
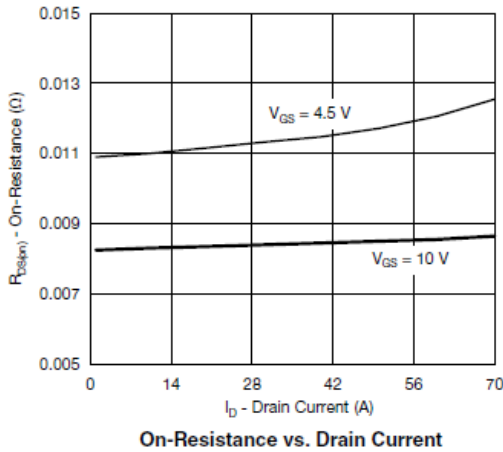
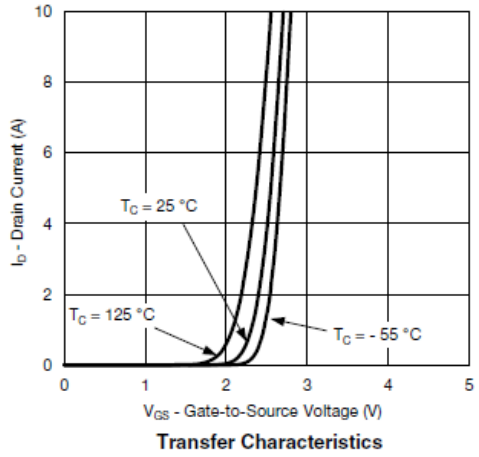
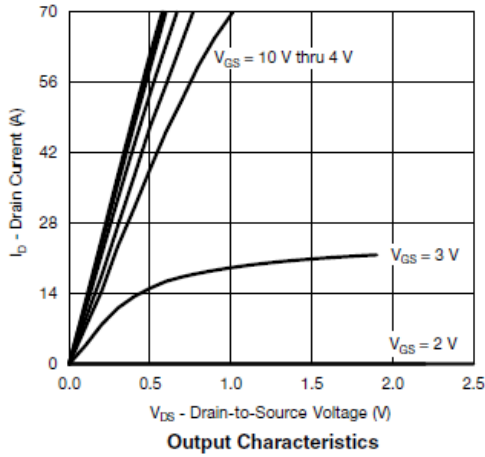
Electrical Characteristics

(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	-40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250uA	-1.0		-2.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} = ±20V			±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°C			-20	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ -10V, V _{GS} = -10V	-25			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -12A		10	13	mΩ
		V _{GS} = -4.5V, I _D = -10A		14	17	
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -12A		40		S
Diode Forward Voltage	V _{SD}	I _S = -1A, V _{GS} =0V		-0.8	-1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-20V, V _{GS} =-4.5V I _D = -10A		45	90	nC
Gate-Source Charge	Q _{gs}			10		
Gate-Drain Charge	Q _{gd}			20		
Input Capacitance	C _{iss}	V _{DS} =-20V, V _{GS} =0V f=1MHz		4150		pF
Output Capacitance	C _{oss}			435		
Reverse Transfer Capacitance	C _{rss}			400		
Turn-On Time	t _{d(on)}	V _{DD} =-20V, R _L =2Ω I _D ≡ -10A, V _{GEN} =-10V R _G =1Ω		15	30	ns
	t _r			15	30	
Turn-Off Time	t _{d(off)}			55	110	
	t _f			12	25	

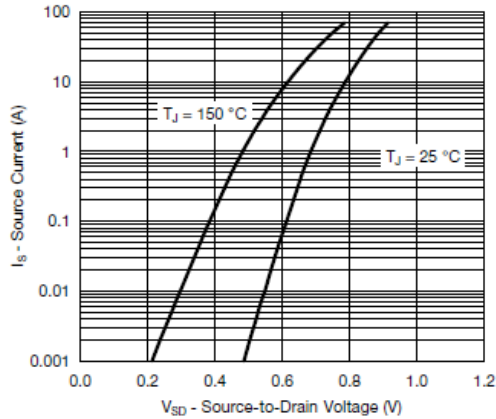


Typical Characteristics

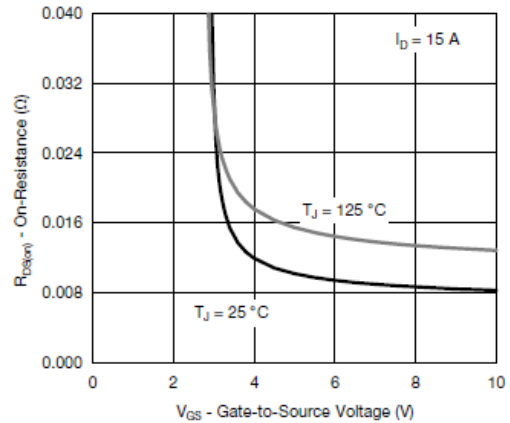




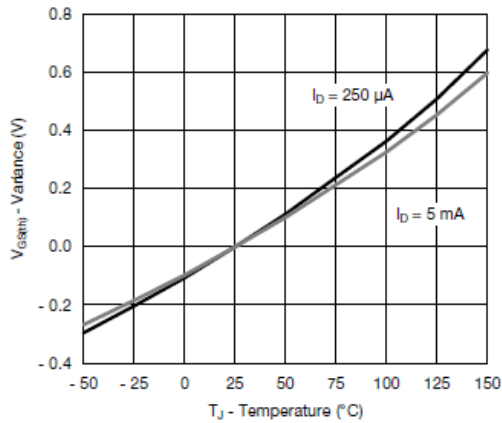
Typical Characteristics



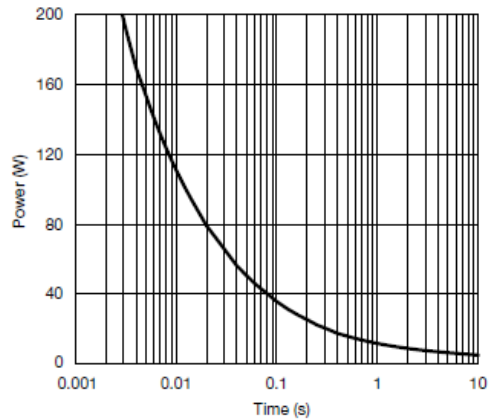
Source-Drain Diode Forward Voltage



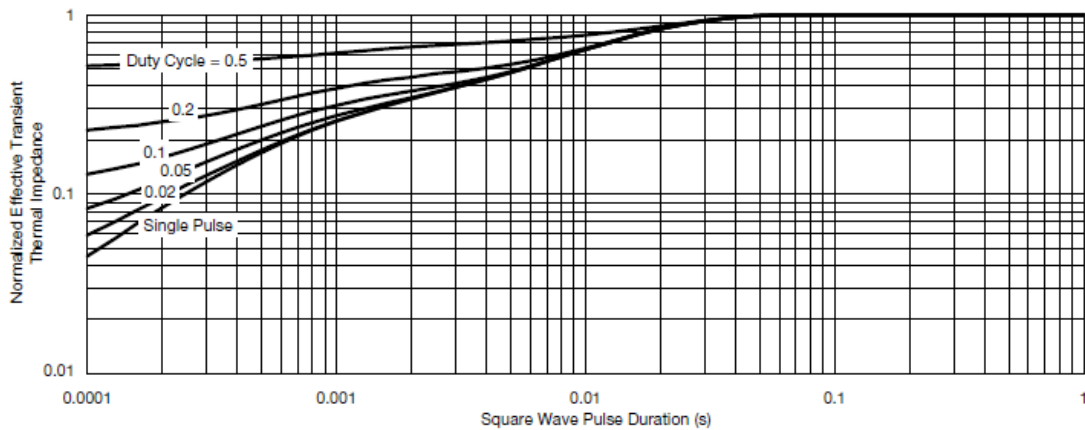
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case



Typical Characteristics

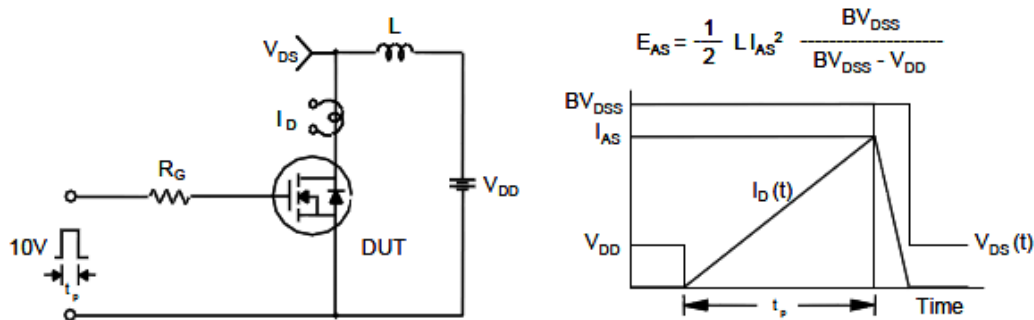
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

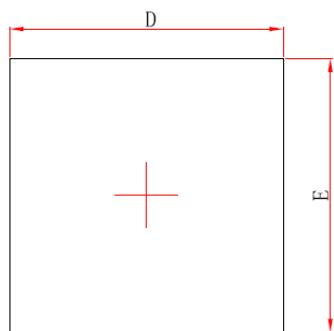


Unclamped Inductive Switching Test Circuit & Waveforms

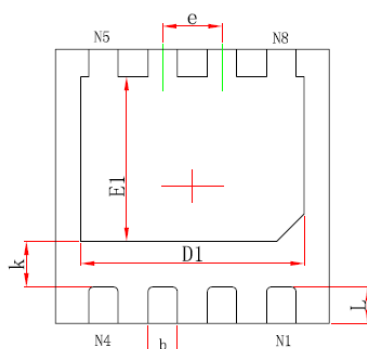




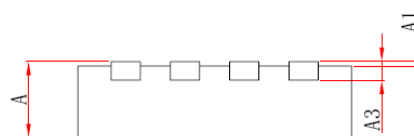
Package Information (DFN3X3-8L)



Top View



Bottom View



Side View

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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