



General Description

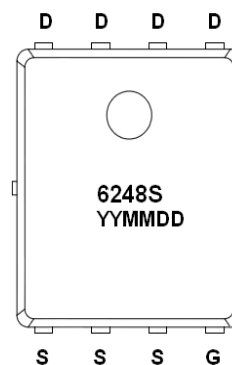
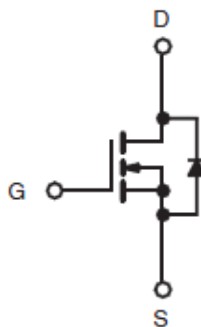
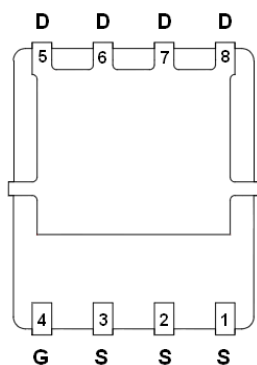
AFN6248S, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- 60V/18A, $R_{DS(ON)} = 7.5m\Omega @ V_{GS}=10V$
- 60V/14A, $R_{DS(ON)} = 9.2m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN5X6-8L package design

Pin Description (DFN5X6-8L)



Application

- Synchronous Rectifier
- Power Supplies
- LED TV

Pin Define

Pin	Symbol	Description
4	G	Gate
1~3	S	Source
5~8	D	Drain

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN6248SFN568RG	6248S	DFN5X6-8L	Tape & Reel	2500 EA

※ 6248S : Parts Code

※ YYMMDD : Date Code

※ AFN6248SFN568RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	60	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _{DSM}	18	A
		14	
Pulsed Drain Current	I _{DM}	40	
Continuous Source Current(Diode Conduction)	I _S	4.3	
Single Pulse Avalanche Current	I _{AS}	50	
Power Dissipation	P _{DSM}	7.4	W
		4.7	
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	15	°C/W
		45	

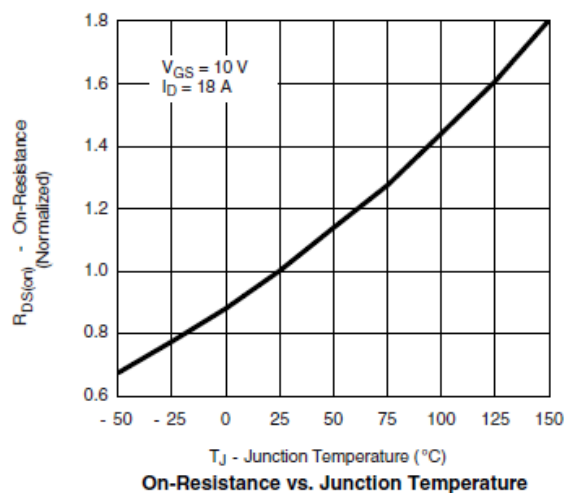
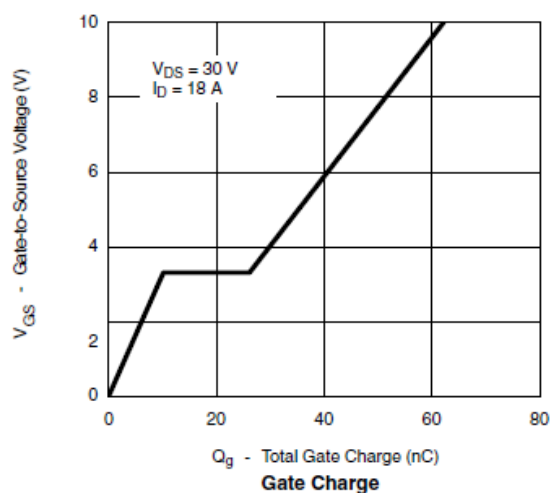
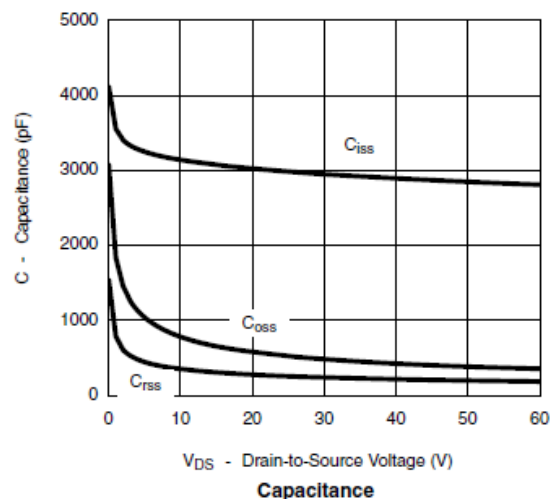
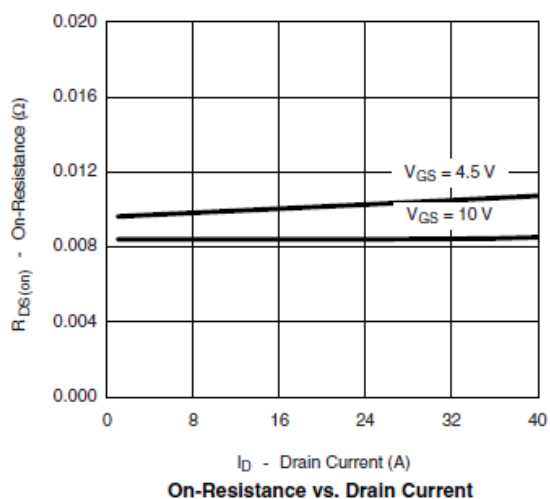
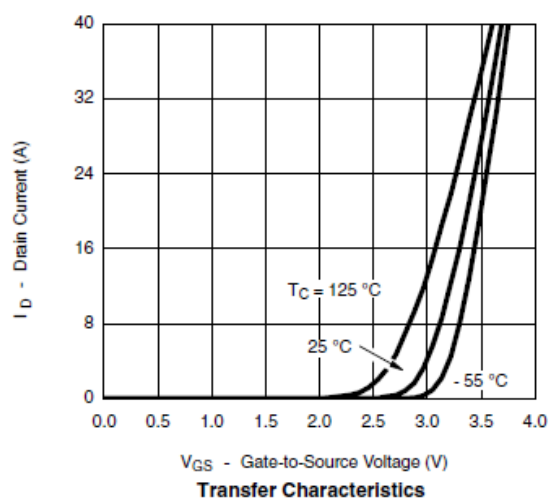
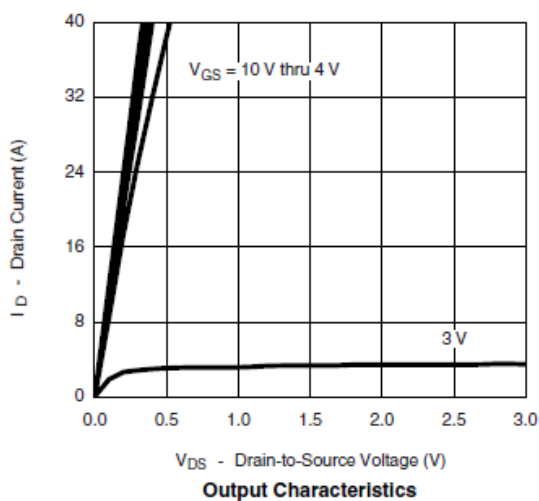
Electrical Characteristics

(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	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2.0		4.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	uA
		V _{DS} =48V, V _{GS} =0V T _J =85°C			30	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 10V, V _{GS} =10V	80			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =18A		6.31	7.5	mΩ
		V _{GS} =6V, I _D =14A		7.69	9.2	
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =15A		38		S
Diode Forward Voltage	V _{SD}	I _S =10A, V _{GS} =0V		0.8	1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V I _D ≅18A		65	90	nC
Gate-Source Charge	Q _{gs}			10		
Gate-Drain Charge	Q _{gd}			15		
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V f=1MHz		3000		pF
Output Capacitance	C _{oss}			600		
Reverse Transfer Capacitance	C _{rss}			300		
Turn-On Time	t _{d(on)}	V _{DD} =30V, R _L =30Ω I _D ≅1A, V _{GEN} =10V		50	30	ns
	t _r			15	25	
Turn-Off Time	t _{d(off)}	R _G =6Ω		60	100	
	t _f			30	45	

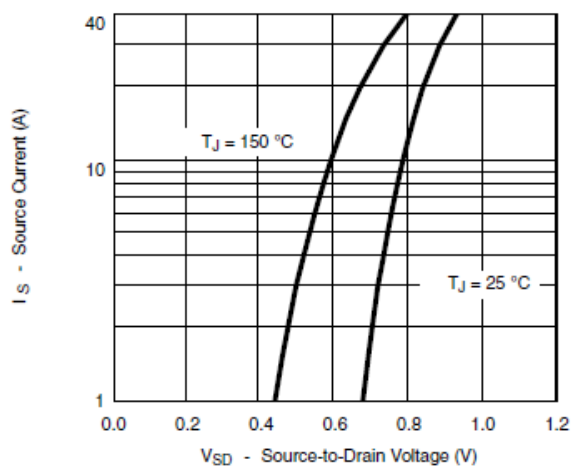


Typical Characteristics

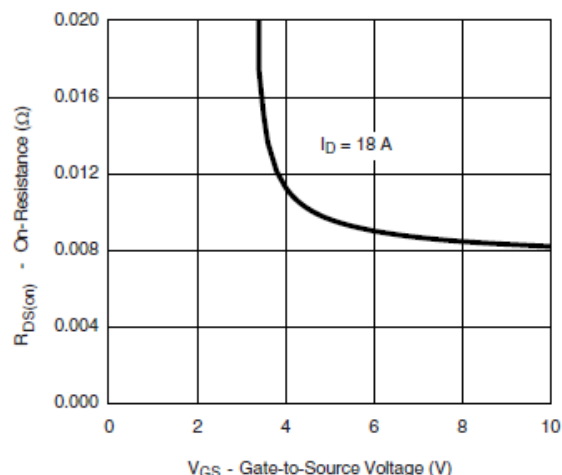




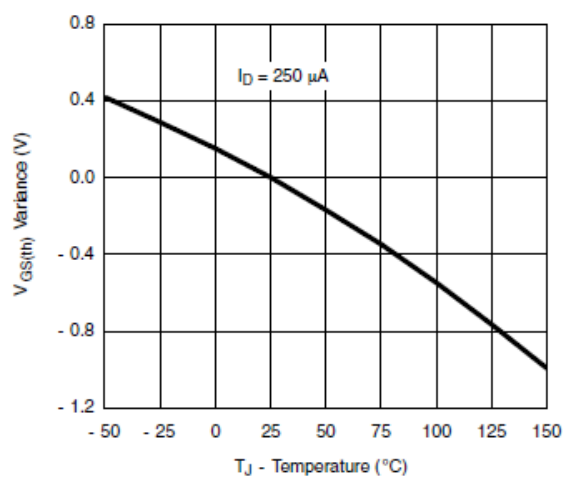
Typical Characteristics



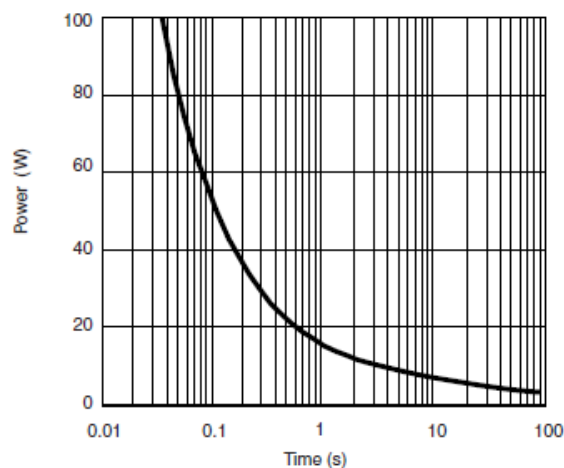
Source-Drain Diode Forward Voltage



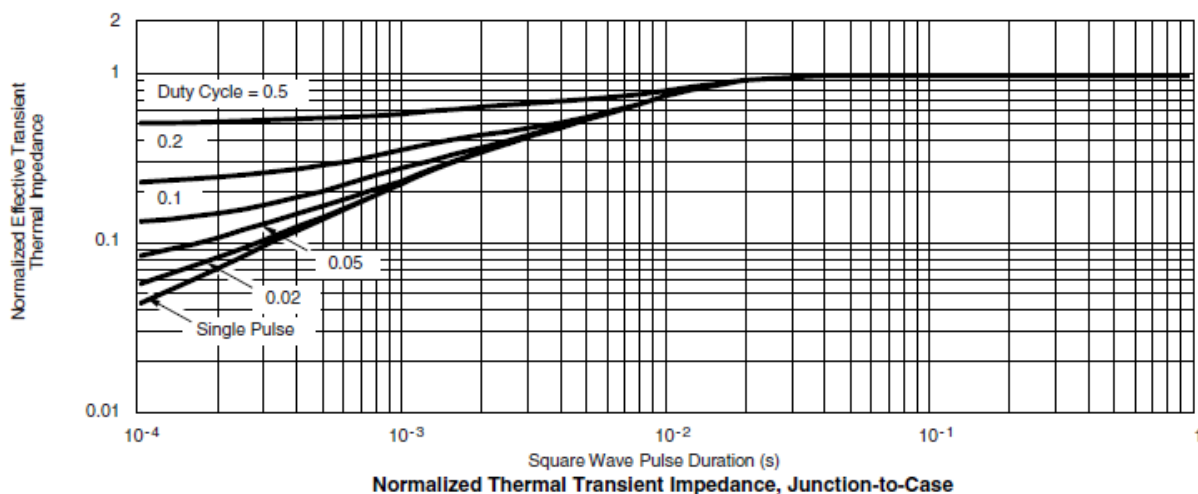
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient

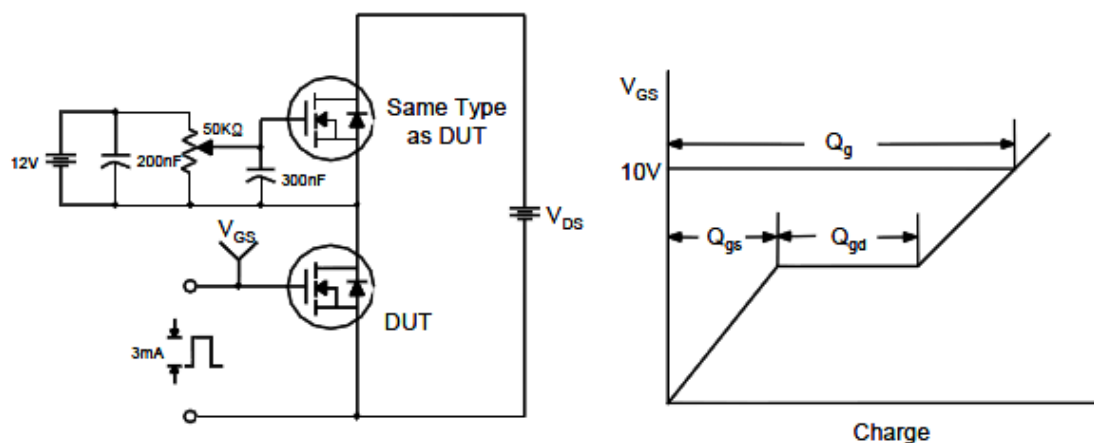


Normalized Thermal Transient Impedance, Junction-to-Case

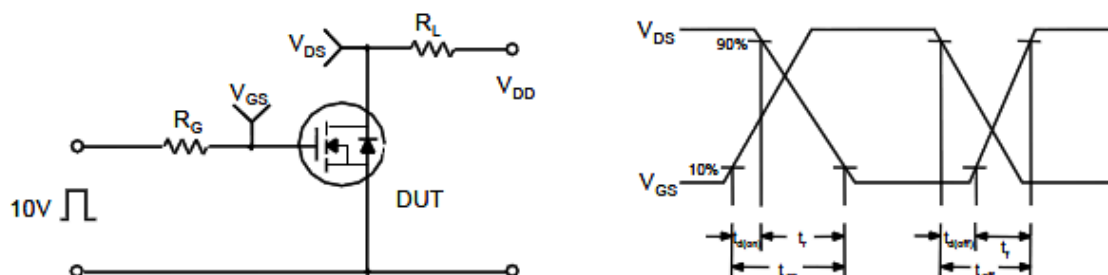


Typical Characteristics

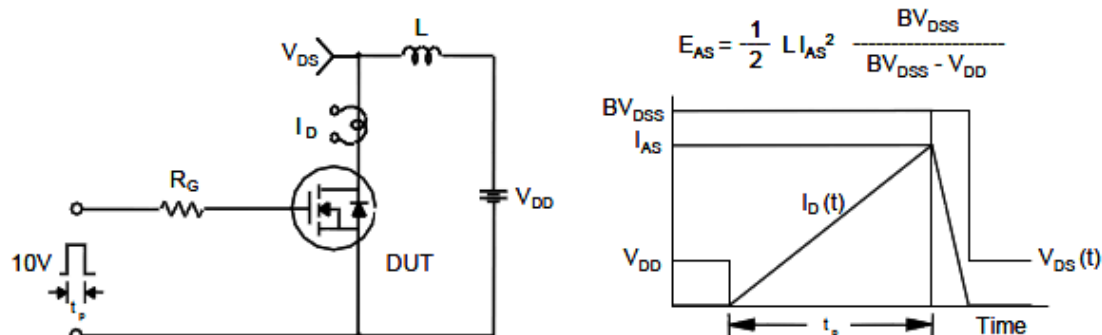
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

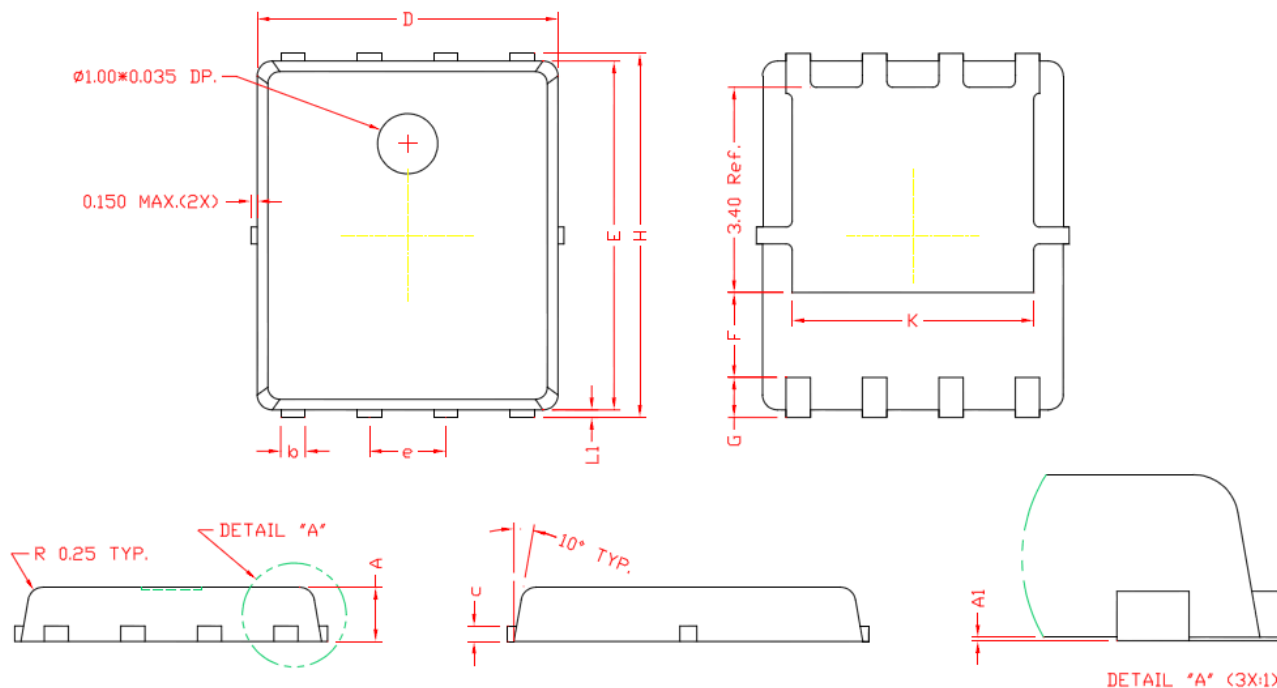


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (DFN5X6-8L)



DIMENSIONS

REF.	Millimeters		REF.	Millimeters	
	Min.	Max.		Min.	Max.
A	0.80	1.00	E	5.70	5.90
A1	0.00	0.05	e	1.27 BSC.	
b	0.35	0.49	H	5.95	6.20
c	0.254 Ref.		L1	0.10	0.18
D	4.90	5.10	G	0.60 Ref.	
F	1.40 Ref.		K	4.00 Ref.	

©2010 Alfa-MOS Technology Corp.
2F, No.80, Sec.1, Cheng Kung Rd., Nan Kang Dist., Taipei City 115, Taiwan (R.O.C.)
Tel : 886 2) 2651 3928
Fax : 886 2) 2786 8483
©<http://www.alfa-mos.com>