



## General Description

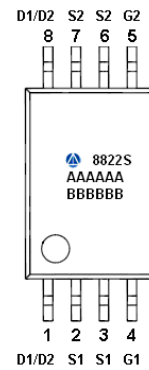
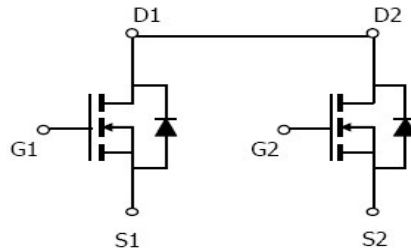
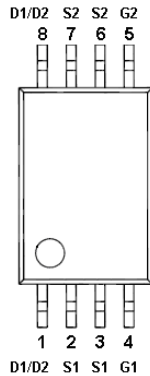
AFN8822S, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge.

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

- 20V/6.5A,  $R_{DS(ON)}=32m\Omega@V_{GS}=4.5V$
- 20V/4.8A,  $R_{DS(ON)}=35m\Omega@V_{GS}=2.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- TSSOP-8P package design

## Pin Description ( TSSOP-8P )



## Application

- Load Switch
- Portable Equipment
- Battery Powered System

## Pin Define

Pin	Symbol	Description
1	D1 / D2	Drain
2	S1	Source
3	S1	Source
4	G1	Gate
5	G2	Gate
6	S2	Source
7	S2	Source
8	D1 / D2	Drain

## Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN8822STS8RG	8822S	TSSOP-8P	Tape & Reel	3000 EA

※ A Lot code

※ B Date code

※ AFN8822STS8RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



### Absolute Maximum Ratings

(T<sub>A</sub>=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	20	V
Gate –Source Voltage	V <sub>GSS</sub>	±12	V
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	T <sub>A</sub> =25°C	6.5
		T <sub>A</sub> =70°C	4.8
Pulsed Drain Current	I <sub>DM</sub>	20	A
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	1.5	A
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25°C	2.8
		T <sub>A</sub> =70°C	1.8
Operating Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	62.5	°C/W

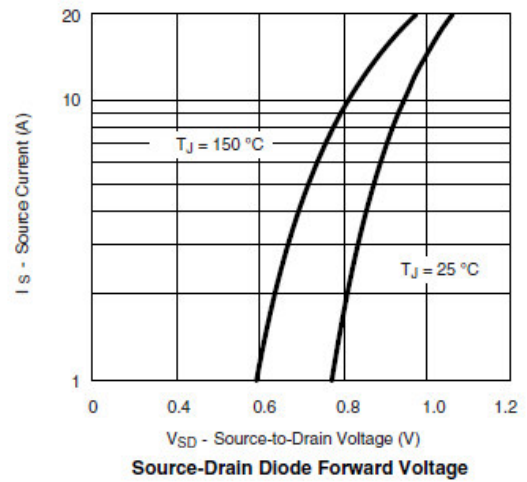
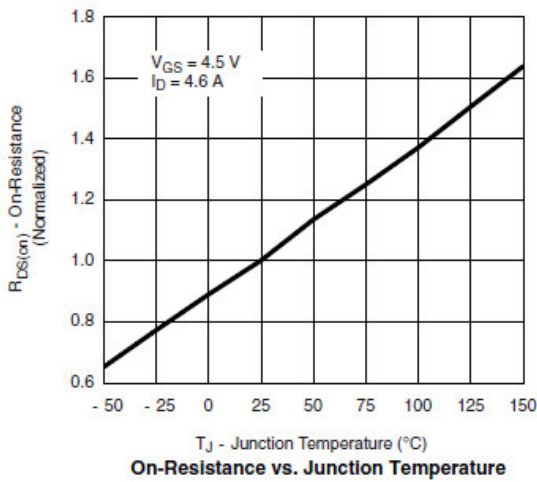
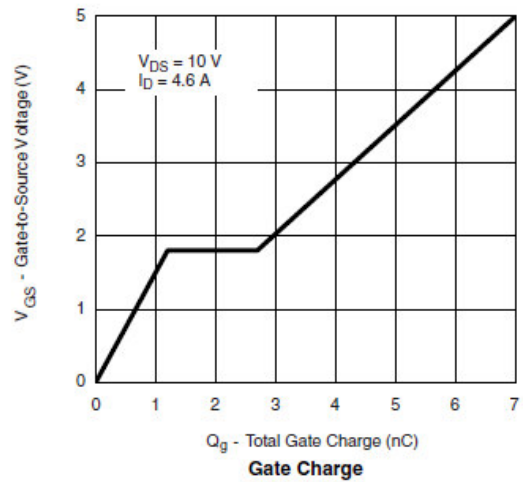
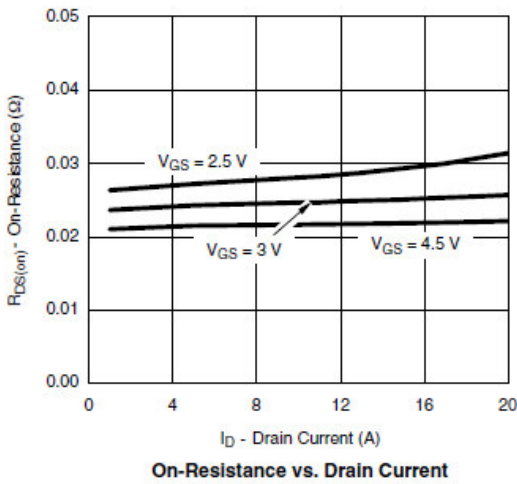
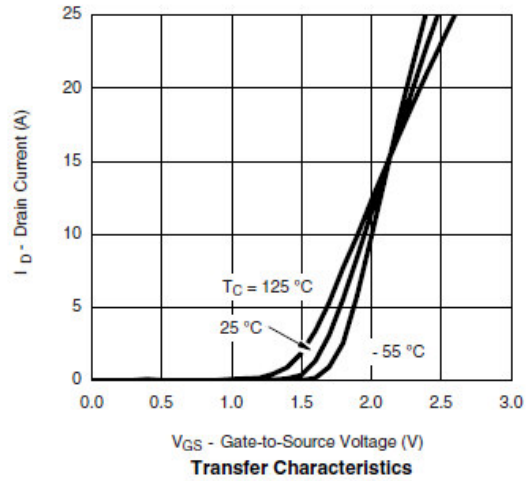
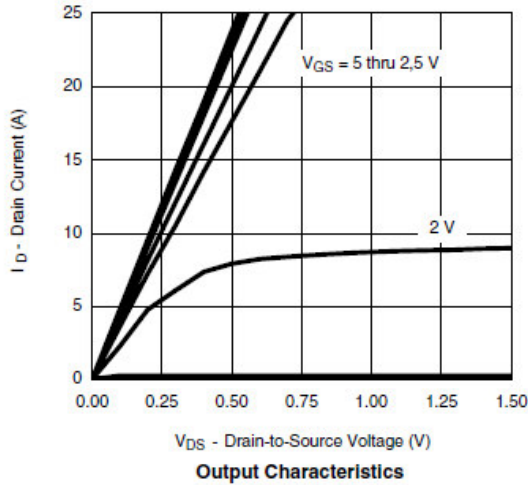
### Electrical Characteristics

(T<sub>A</sub>=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.5		1.0	V
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±8V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V			1	uA
		V <sub>DS</sub> =16V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C			30	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5V, V <sub>GS</sub> =4.5V	10			A
Drain-Source On-Resistance	R <sub>Ds(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> =6.5A		28	32	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> =4.8A		32	35	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =7A		25		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.7A, V <sub>GS</sub> =0V			1.3	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V I <sub>D</sub> ≧7.0A		650		pC
Gate-Source Charge	Q <sub>gs</sub>			200		
Gate-Drain Charge	Q <sub>gd</sub>			180		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V f=1MHz		700		pF
Output Capacitance	C <sub>oss</sub>			75		
Reverse Transfer Capacitance	C <sub>rss</sub>			45		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, R <sub>L</sub> =1.4Ω I <sub>D</sub> ≧1.0A, V <sub>GEN</sub> =4.5V R <sub>G</sub> =3Ω		8	12	ns
	t <sub>r</sub>			12	20	
Turn-Off Time	t <sub>d(off)</sub>			32	40	
	t <sub>f</sub>			10	15	

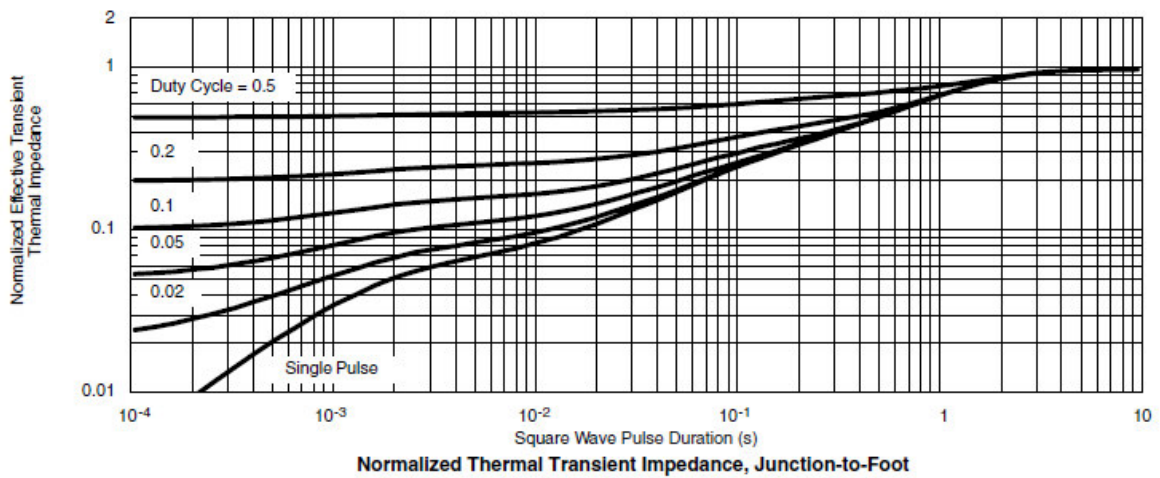
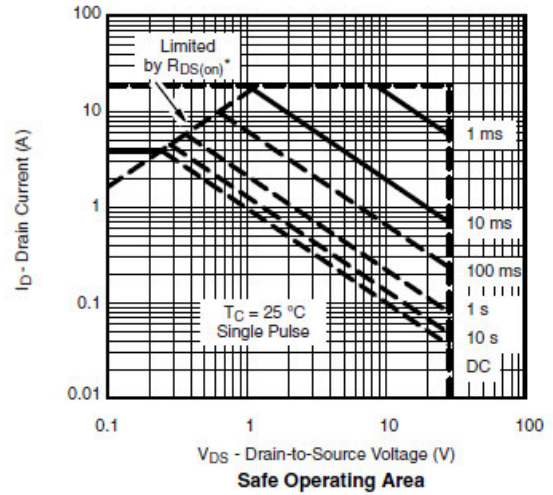
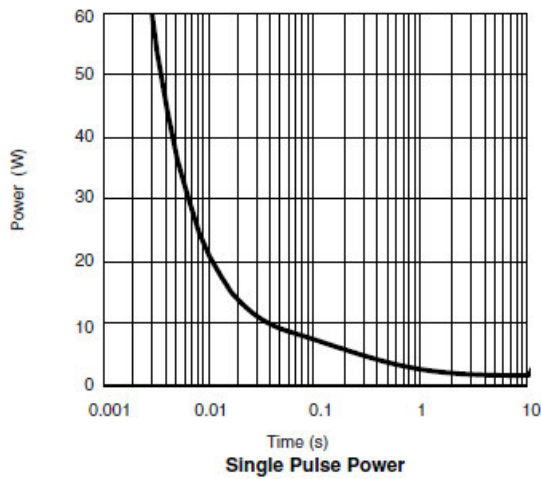
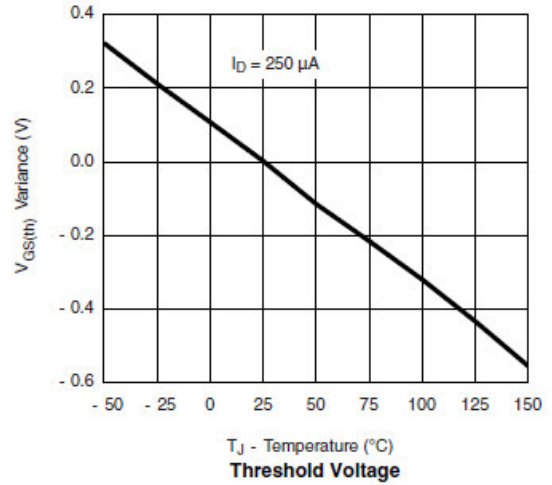
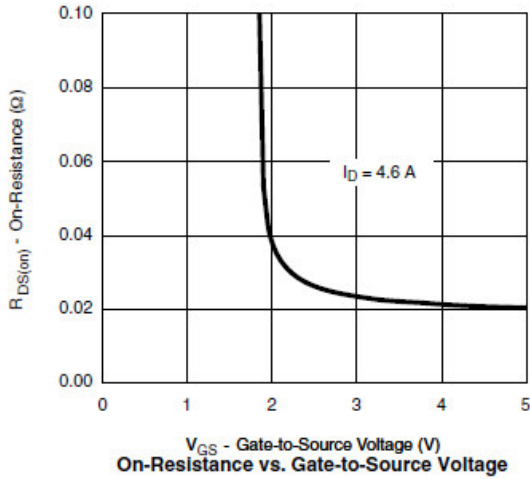


### Typical Characteristics





## Typical Characteristics



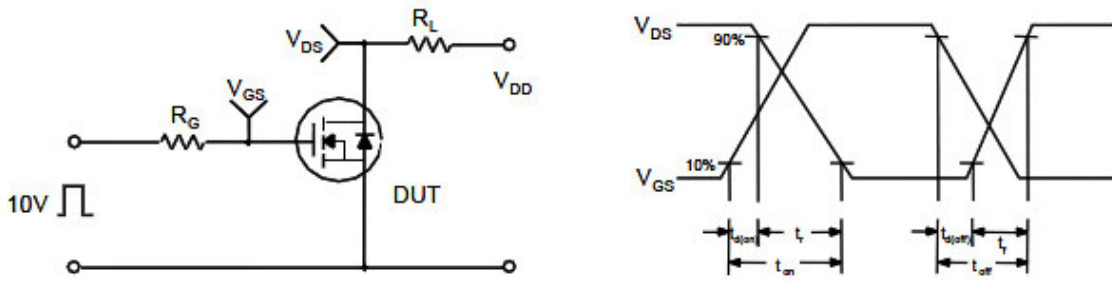


**Typical Characteristics**

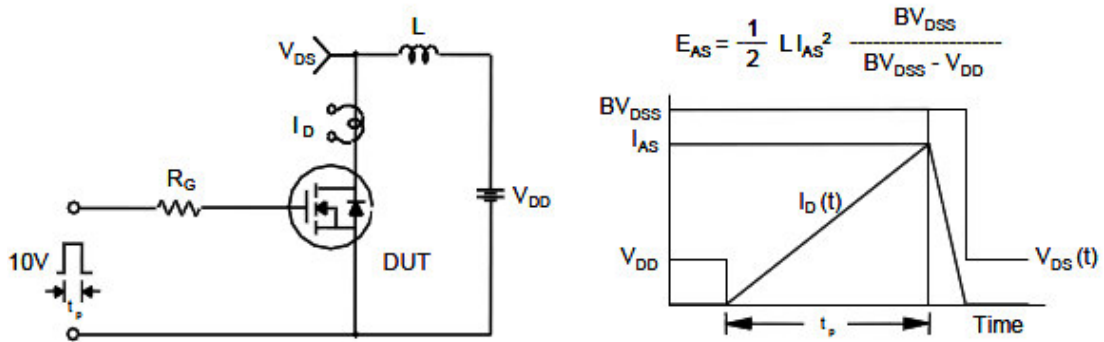
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

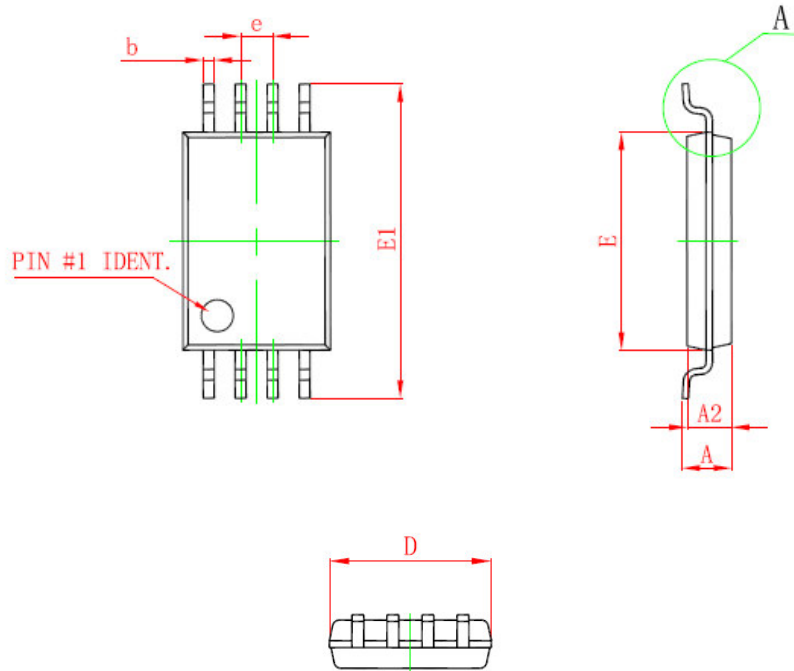


Unclamped Inductive Switching Test Circuit & Waveforms





**Package Information ( TSSOP-8P )**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25 (TYP)		0.01 (TYP)	
θ	1°	7°	1°	7°

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