



General Description

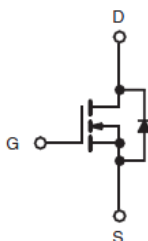
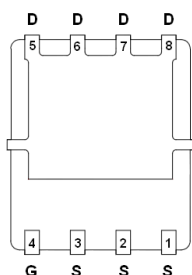
AFN6452S, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- 100V/20A, $R_{DS(ON)}=20m\Omega@V_{GS}=10V$
- 100V/15A, $R_{DS(ON)}=24m\Omega@V_{GS}=7V$
- 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
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
AFN6452SFN568RG	6452S	DFN5X6-8L	Tape & Reel	2500 EA

- ※ 6452S : Parts Code
- ※ YYMMDD : Date Code
- ※ AFN6452SFN568RG : 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}	100	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _{DSM}	T _A =25°C	6.5
		T _A =70°C	5.0
Pulsed Drain Current	I _{DM}	60	A
Continuous Source Current(Diode Conduction)	I _S	5.6	
Single Pulse Avalanche Current	I _{AS}	30	
Power Dissipation	P _{DSM}	T _A =25°C	2
		T _A =75°C	1.25
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	t ≤ 10 s	15
		Steady-State	45

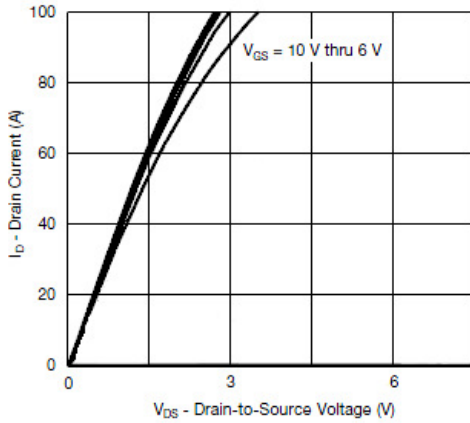
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

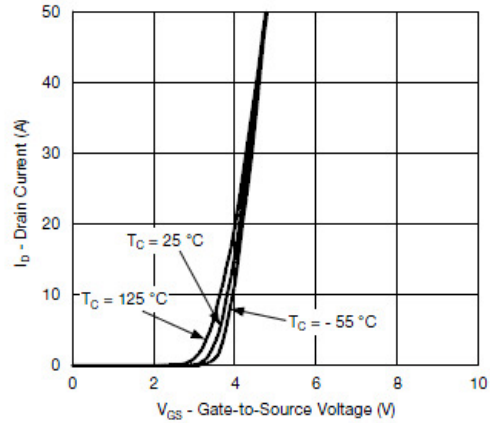
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5		4.5	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
		V _{DS} =80V, 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 =20A		15	20	mΩ
		V _{GS} =7V, I _D =15A		17	24	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A		38		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} =75V, V _{GS} =7V I _D ≅20A		30	60	nC
Gate-Source Charge	Q _{GS}			8		
Gate-Drain Charge	Q _{GD}			9		
Input Capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V f=1MHz		2100		pF
Output Capacitance	C _{oss}			280		
Reverse Transfer Capacitance	C _{rss}			25		
Turn-On Time	t _{d(on)}	V _{DD} =75V, R _L =3.75Ω I _D ≅20A, V _{GEN} =10V R _G =1Ω		15	30	ns
	t _r			10	20	
Turn-Off Time	t _{d(off)}			30	60	
	t _f			10	20	



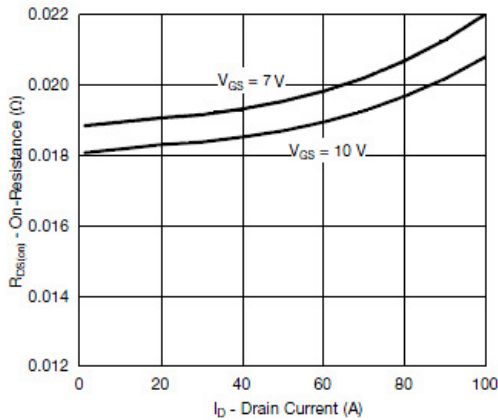
Typical Characteristics



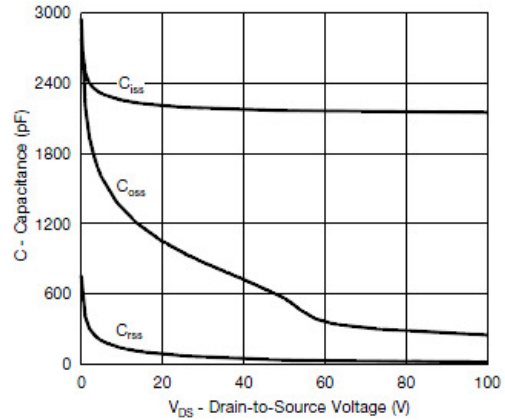
Output Characteristics



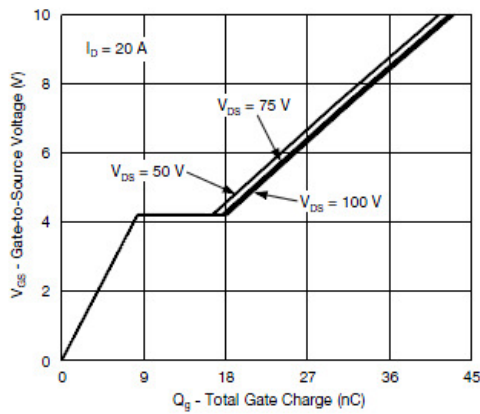
Transfer Characteristics



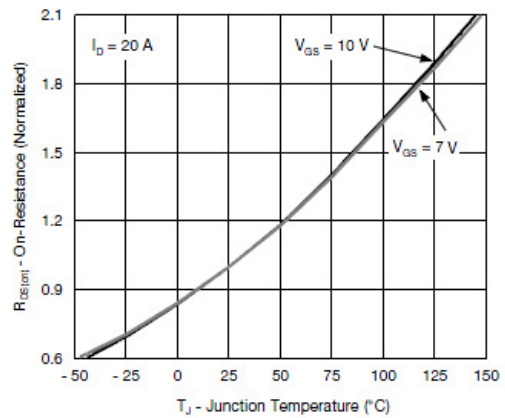
On-Resistance vs. Drain Current



Capacitance



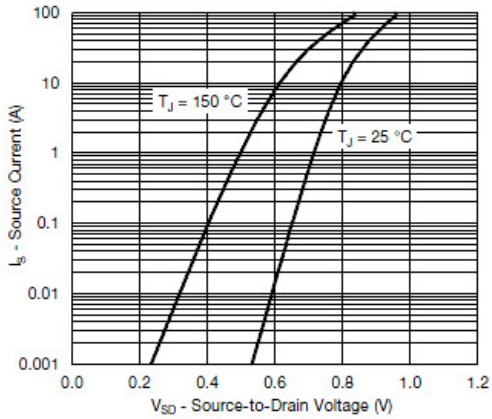
Gate Charge



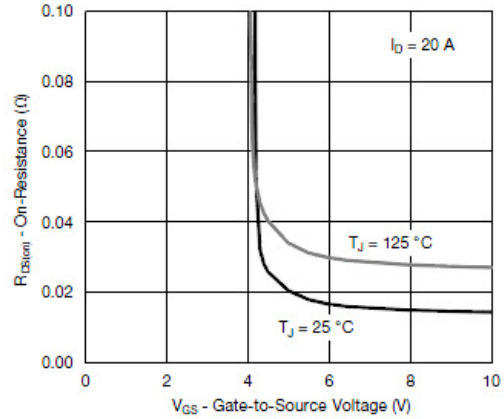
On-Resistance vs. Junction Temperature



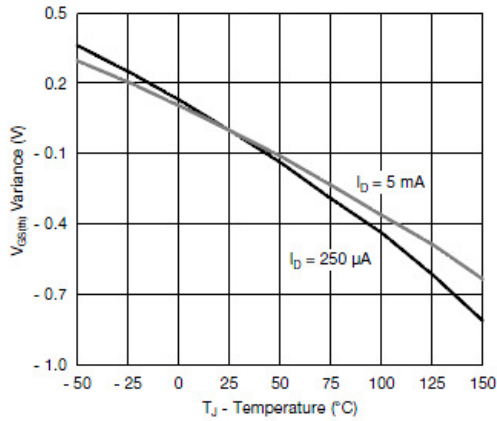
Typical Characteristics



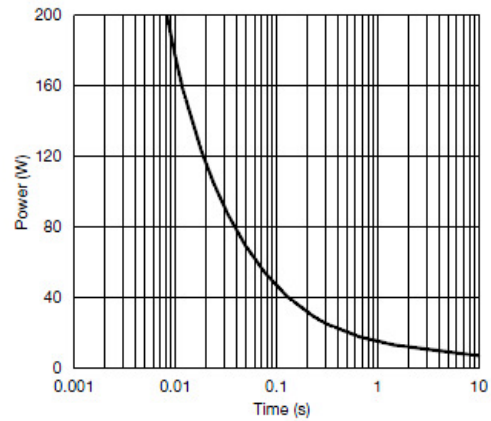
Source-Drain Diode Forward Voltage



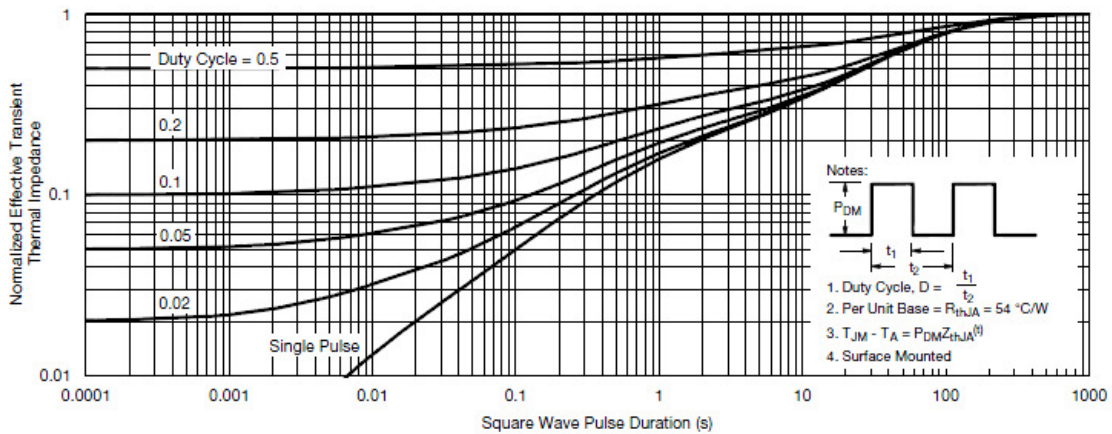
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

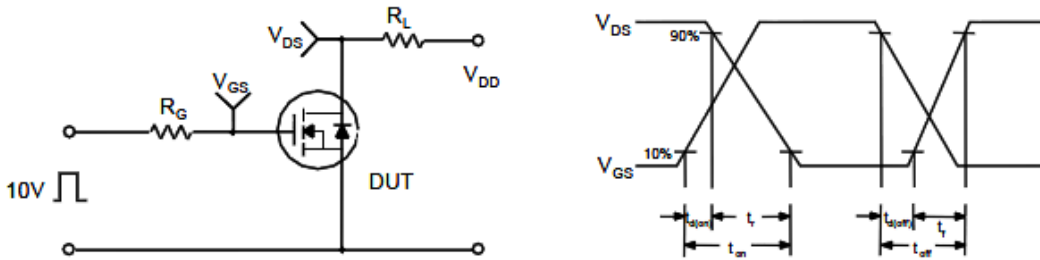


Typical Characteristics

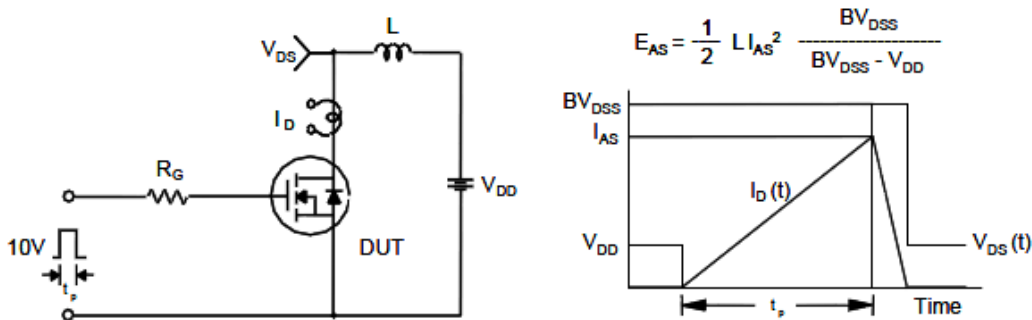
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

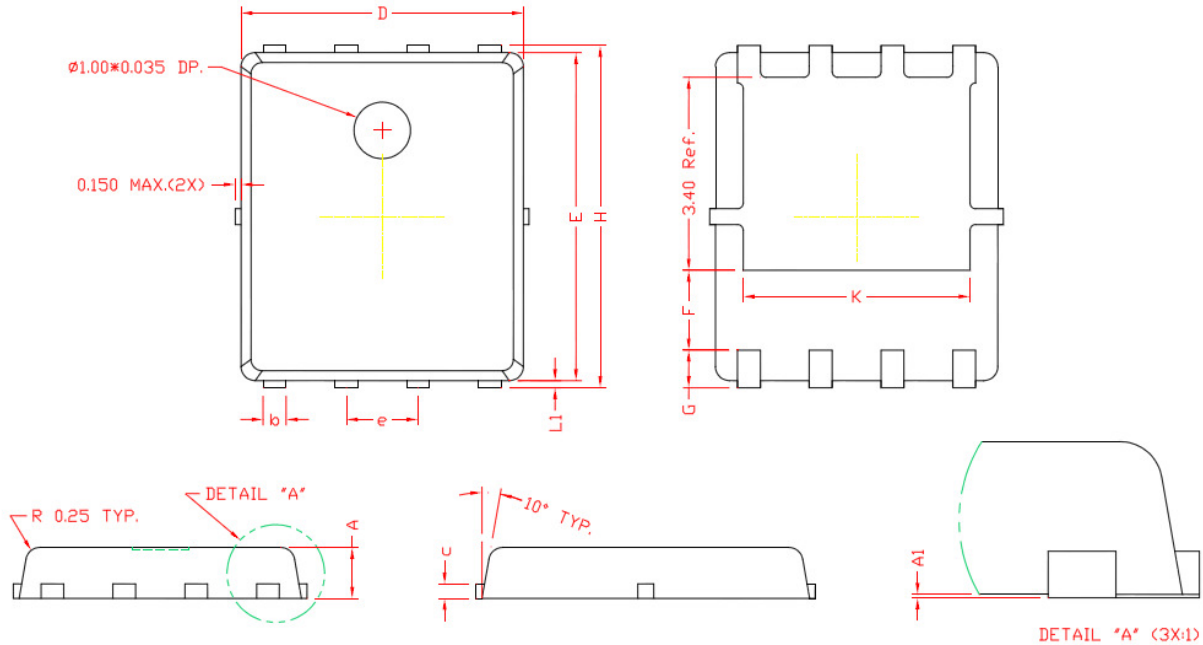


Unclamped Inductive Switching Test Circuit & Waveforms





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.	

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