



General Description

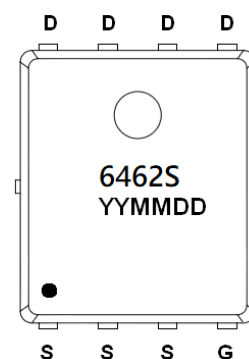
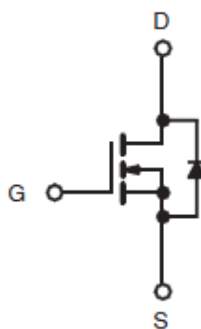
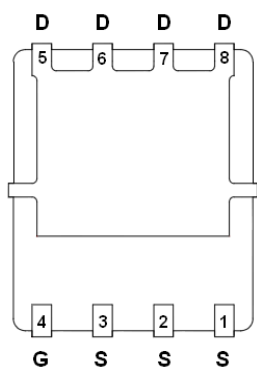
AFN6462S, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- $I_D=20A, R_{DS(ON)}= 8.5m\Omega@V_{GS}=10V$
- $I_D=10A, R_{DS(ON)}=13.5m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN5X6-8L package design

Pin Description (DFN5X6-8L)



Application

- Networking / Telecom / Server
- LED Lighting Applications
- Quick Charger Applications
- DC-DC Primary Side Switch

Pin Define

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

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN6462SFN568RG	6462S	DFN5X6-8L	Tape & Reel	2500 EA

※ 6462S : Parts Code

※ YYMMDD : Date Code

※ AFN6462SFN568RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



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

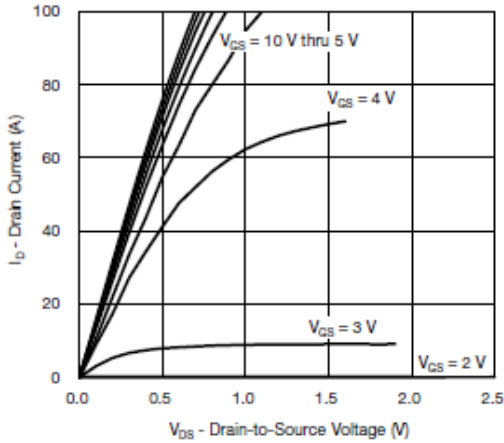
Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate -Source Voltage	V_{GS}	± 20	V
Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_C=25^{\circ}\text{C}$	46	A
	$T_C=70^{\circ}\text{C}$	37	
Pulsed Drain Current ($t=100\mu\text{s}$)	$T_A=25^{\circ}\text{C}$	18	
	$T_A=70^{\circ}\text{C}$	15	
Continuous Source Current(Diode Conduction)	I_S	28	mJ
Single Pulse Avalanche Current	$L=0.1\text{mH}$	4.5	
Power Dissipation	I_{AS}	20	W
	E_{AS}	20	
Operating Junction Temperature	$T_C=25^{\circ}\text{C}$	31	mJ
	$T_C=75^{\circ}\text{C}$	20	
Storage Temperature Range	$T_A=25^{\circ}\text{C}$	5.0	W
	$T_A=75^{\circ}\text{C}$	3.2	
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	23	$^{\circ}\text{C/W}$
Maximum Junction-to-Case (Drain)	Steady-State	1.5	

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

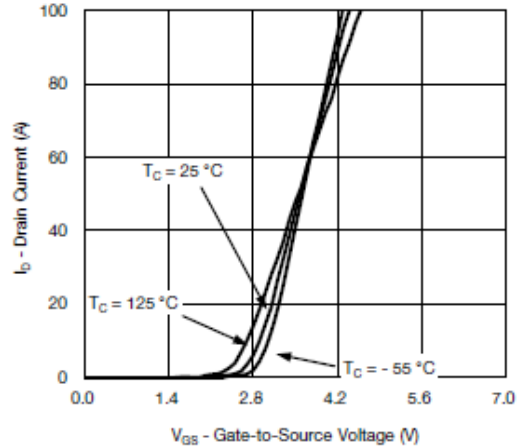
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu\text{A}$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0		2.5	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	uA
		$V_{DS}=48V, V_{GS}=0V$ $T_J=85^{\circ}\text{C}$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=10V$	30			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		7.5	8.5	m Ω
		$V_{GS}=4.5V, I_D=10A$		11	13.5	
Forward Transconductance	g_{FS}	$V_{DS}=15V, I_D=10A$		80		S
Diode Forward Voltage	V_{SD}	$I_S=5A, V_{GS}=0V$		0.78	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=4.5V$ $I_D \equiv 10A$		9.2	15	nC
Gate-Source Charge	Q_{gs}			4.2		
Gate-Drain Charge	Q_{gd}			2.5		
Gate Resistance	R_g	$f=1\text{MHz}$	0.4	2.3	4.0	Ω
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V$ $f=1\text{MHz}$		1450		pF
Output Capacitance	C_{oss}			1525		
Reverse Transfer Capacitance	C_{rss}			45		
Turn-On Time	$t_{d(on)}$	$V_{DD}=30V, R_L=3.0\Omega$ $I_D \equiv 10A, V_{GEN}=10V$ $R_G=1\Omega$		10	20	ns
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$			25	50	
	t_f			10	20	



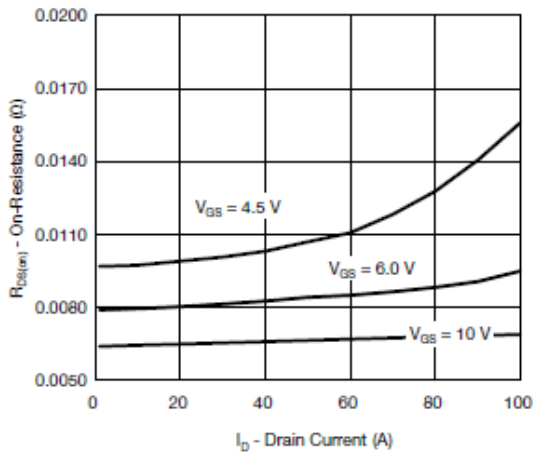
Typical Characteristics



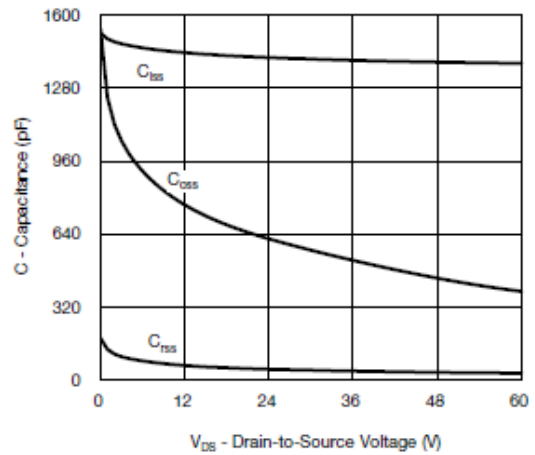
Output Characteristics



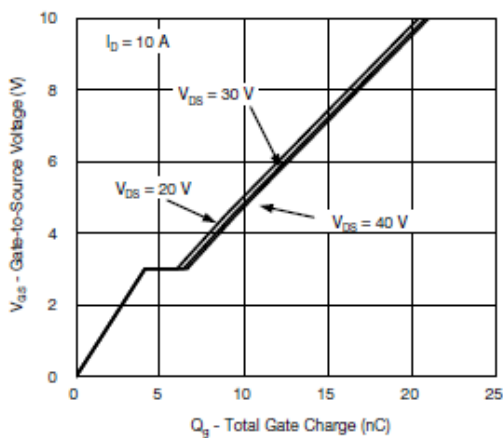
Transfer Characteristics



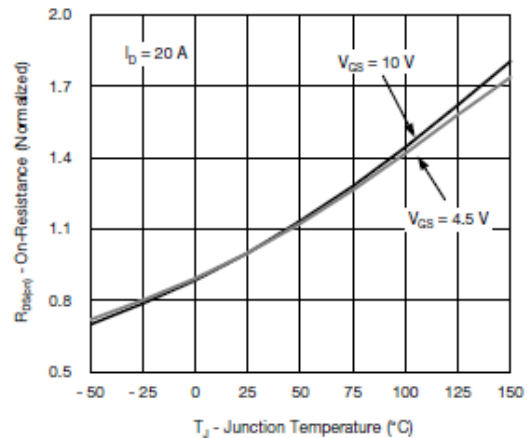
On-Resistance vs. Drain Current



Capacitance



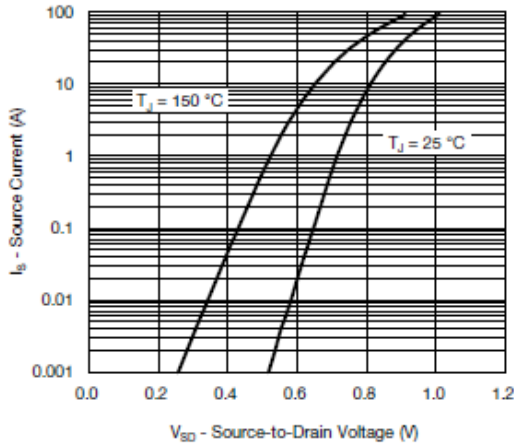
Gate Charge



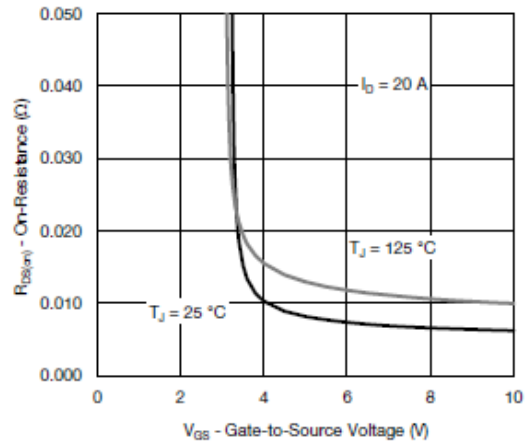
On-Resistance vs. Junction Temperature



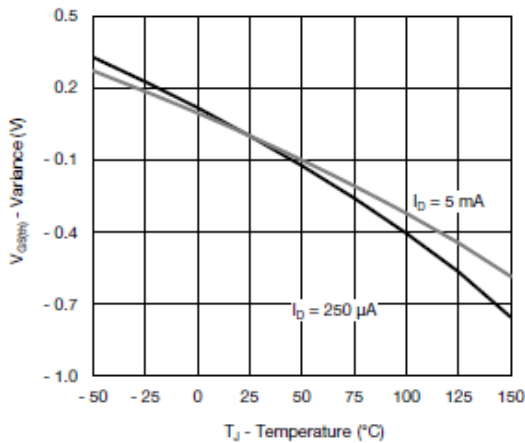
Typical Characteristics



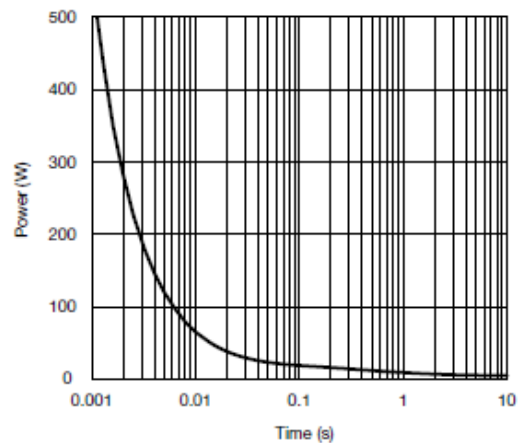
Source-Drain Diode Forward Voltage



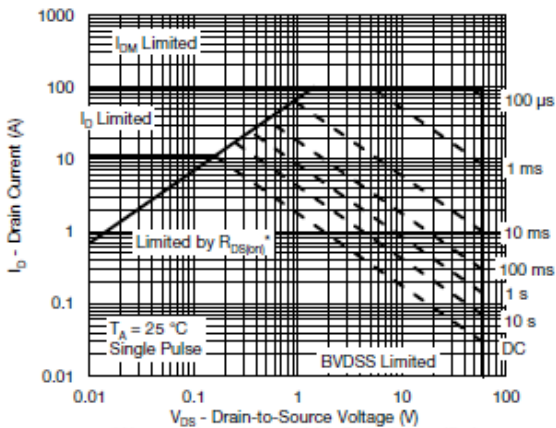
On-Resistance vs. Gate-to-Source Voltage



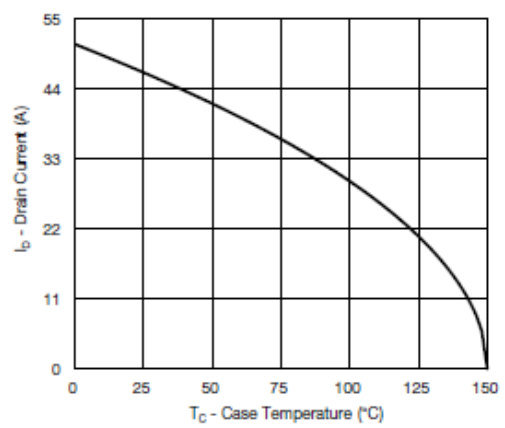
Threshold Voltage



Single Pulse Power, Junction-to-Ambient



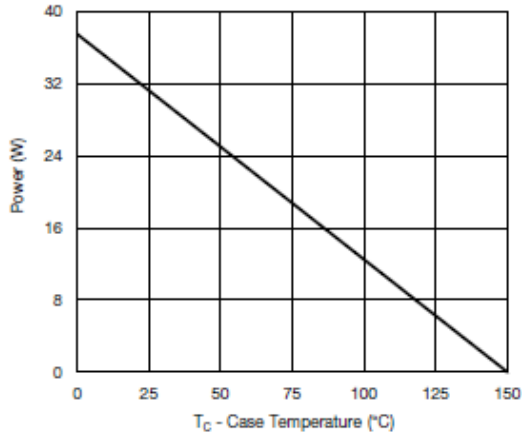
Safe Operating Area, Junction-to-Ambient



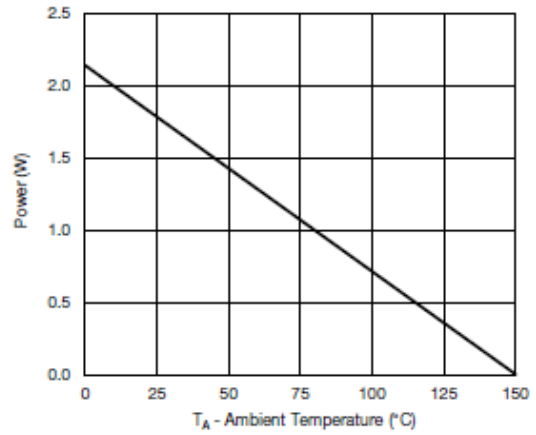
Current Derating ^a



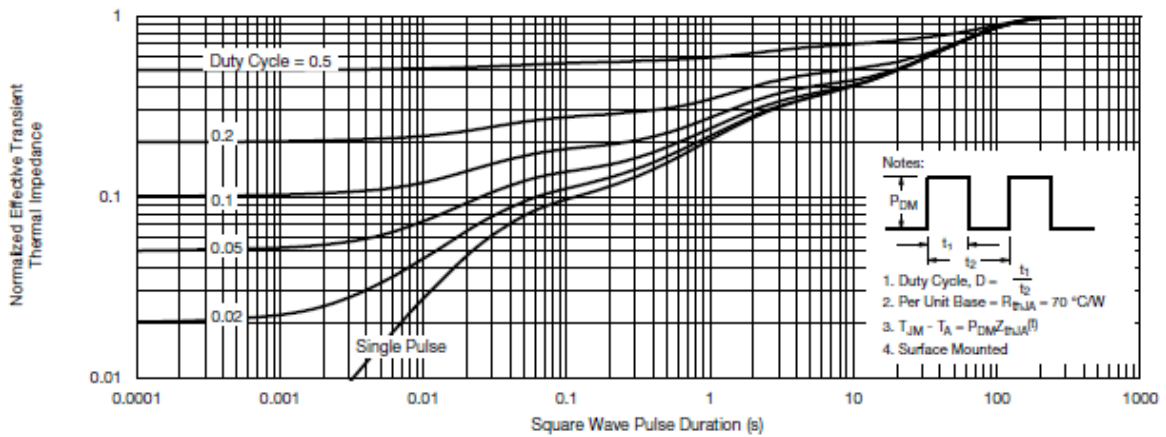
Typical Characteristics



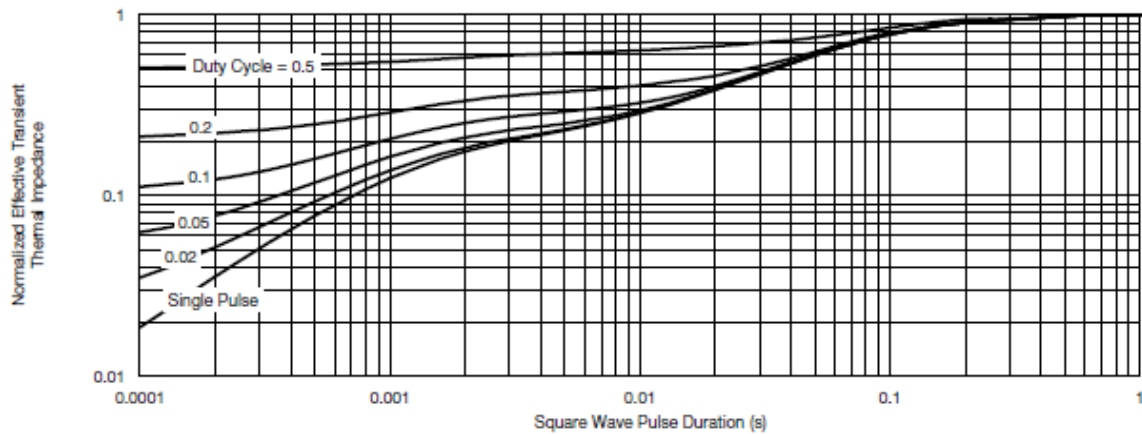
Power, Junction-to-Case



Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case



Typical Characteristics

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

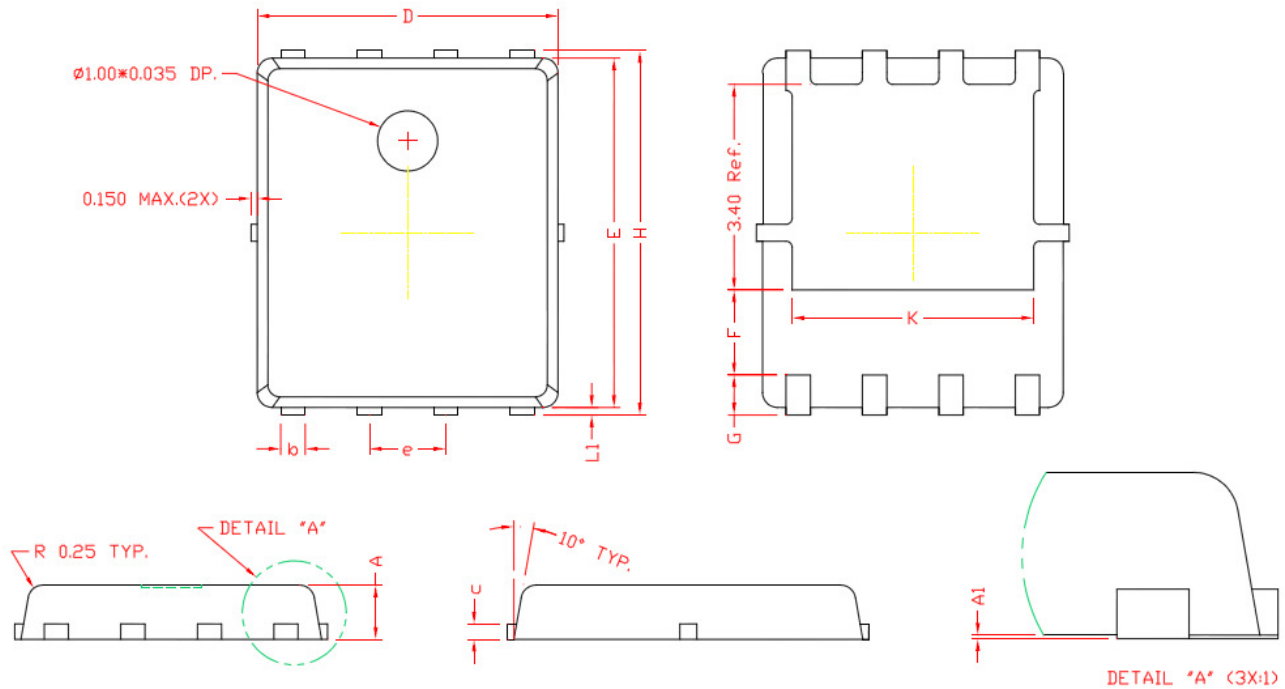


Unclamped Inductive Switching Test Circuit & Waveforms





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.	

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