Alfa-MOS Technology

AFN3400S
30V N-Channel Enhancement Mode MOSFET

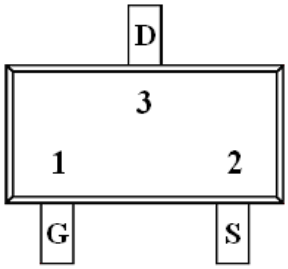
General Description

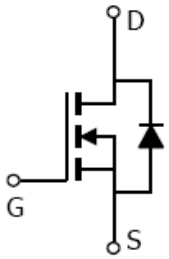
AFN3400S, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.
These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

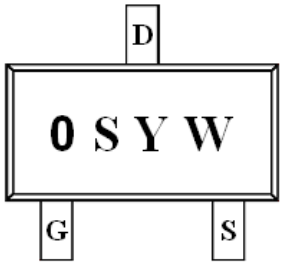
Features

- 30V/4.0A,$R_{DS(ON)}$=42mΩ@V_{GS}=10V
- 30V/3.0A,$R_{DS(ON)}$=44mΩ@V_{GS}=4.5V
- 30V/2.6A,$R_{DS(ON)}$=50mΩ@V_{GS}=2.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- SOT-23-3L package design

Pin Description (SOT-23-3L)







Application

- Power Management in Note book
- LED Display
- DC-DC System
- LCD Panel

Pin Define

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN3400SS23RG	0SYW	SOT-23-3L	Tape & Reel	3000 EA

※ 0S parts code
※ Y year code (0 ~ 9)
※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
※ AFN3400SS23RG : 7” Tape & Reel ; Pb- Free ; Halogen- Free

Absolute Maximum Ratings

(T_A=25℃ Unless otherwise noted)

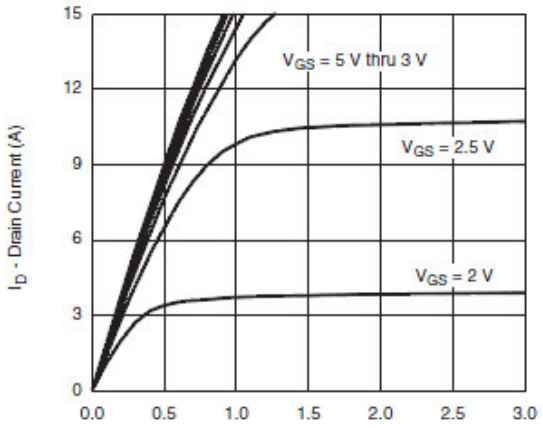
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate –Source Voltage		V_{GSS}	±16	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	4.0	A
	T_A=70℃		3.0	
Pulsed Drain Current		I_{DM}	15	A
Continuous Source Current(Diode Conduction)		I_S	1.7	A
Power Dissipation	T_A=25℃	P_D	2.0	W
	T_A=70℃		1.3	
Operating Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	120	℃/W

Electrical Characteristics

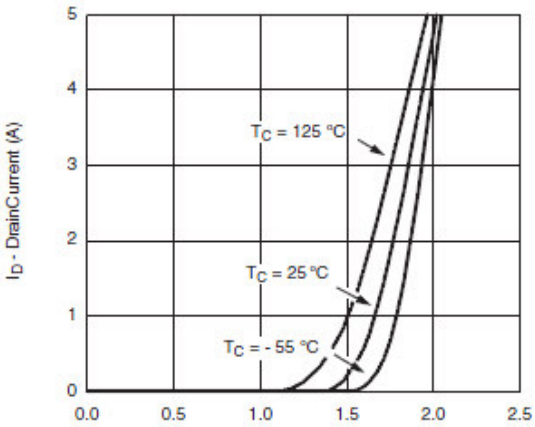
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	0.6		1.1	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±16V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	uA
		V_{DS}=24V,V_{GS}=0V T_J=85℃			30	
On-State Drain Current	$I_{D(on)}$	V_{DS}≧5V,V_{GS}=4.5V	30			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V ,I_D=4.0A		26	42	mΩ
		V_{GS}=4.5V,I_D=3.0A		28	44	
		V_{GS}=2.5V,I_D=2.6A		34	50	
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=6.1A		20		S
Diode Forward Voltage	V_{SD}	I_S=1.7A,V_{GS}=0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V I_D≡2.6A		3.0	4.5	nC
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			0.6		
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V f=1MHz		320		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			30		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=15Ω I_D≡1.0A,V_{GEN}=10V R_G=6Ω		8	12	ns
	t_r			12	18	
Turn-Off Time	$t_{d(off)}$			15	30	
	t_f			8	15	

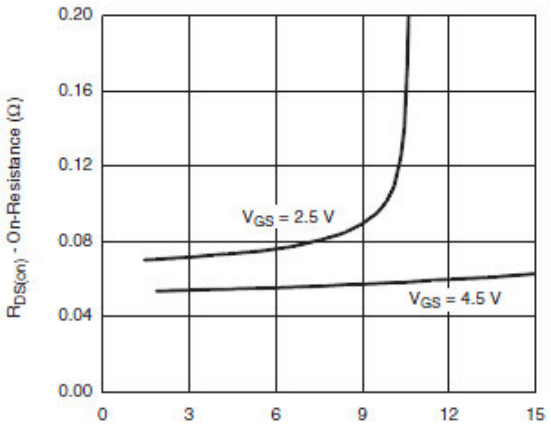
Typical Characteristics



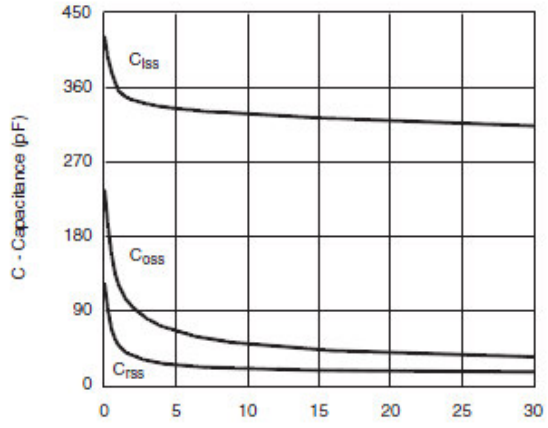
Output Characteristics



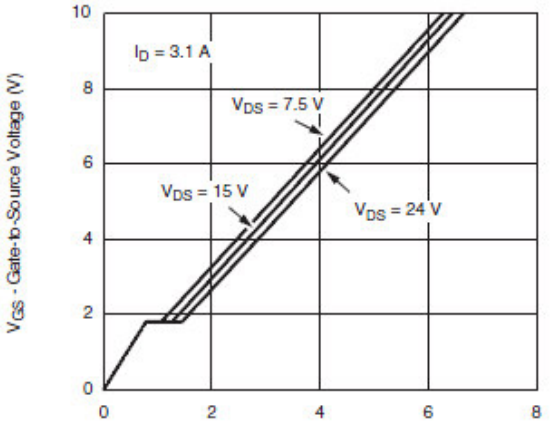
Transfer Characteristics



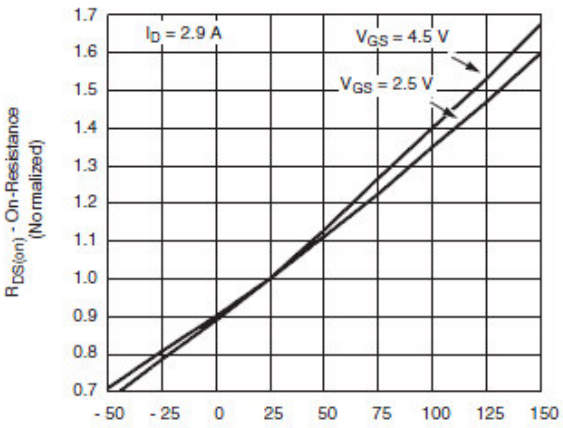
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

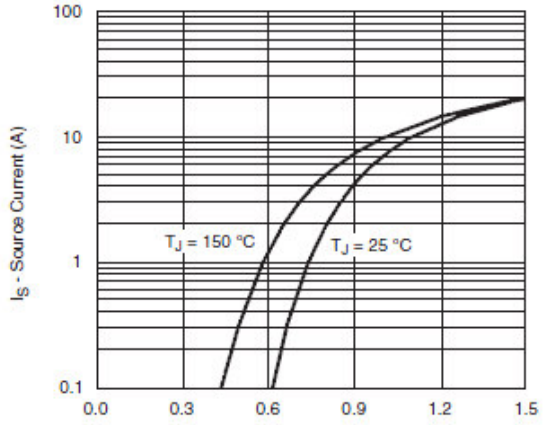


Gate Charge

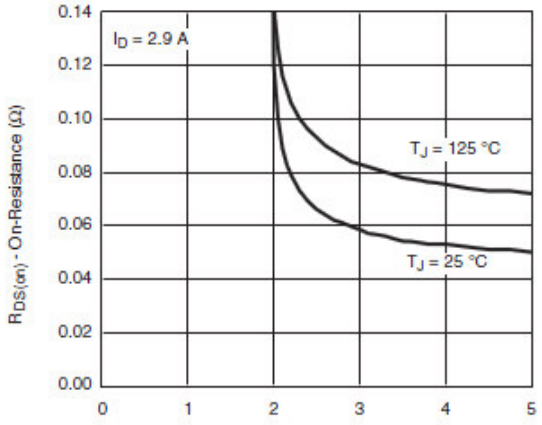


On-Resistance vs. Junction Temperature

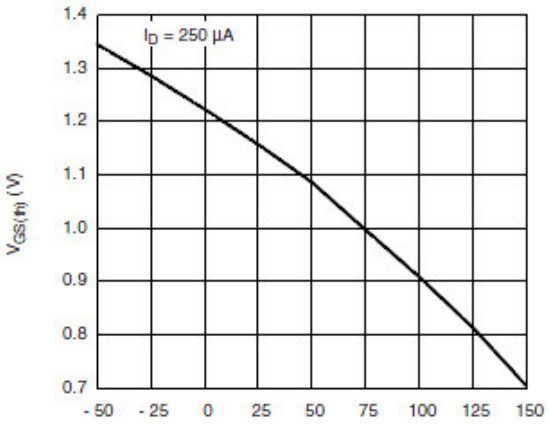
Typical Characteristics



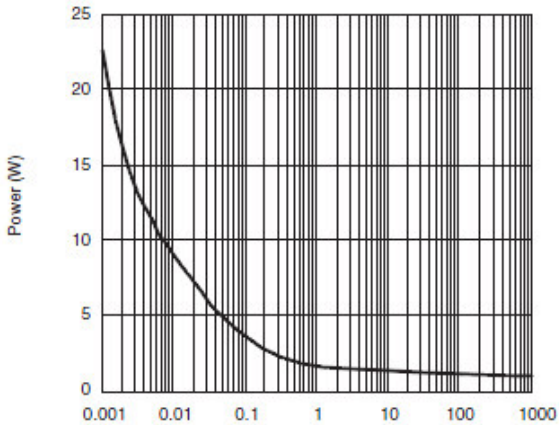
Source-Drain Diode Forward Voltage



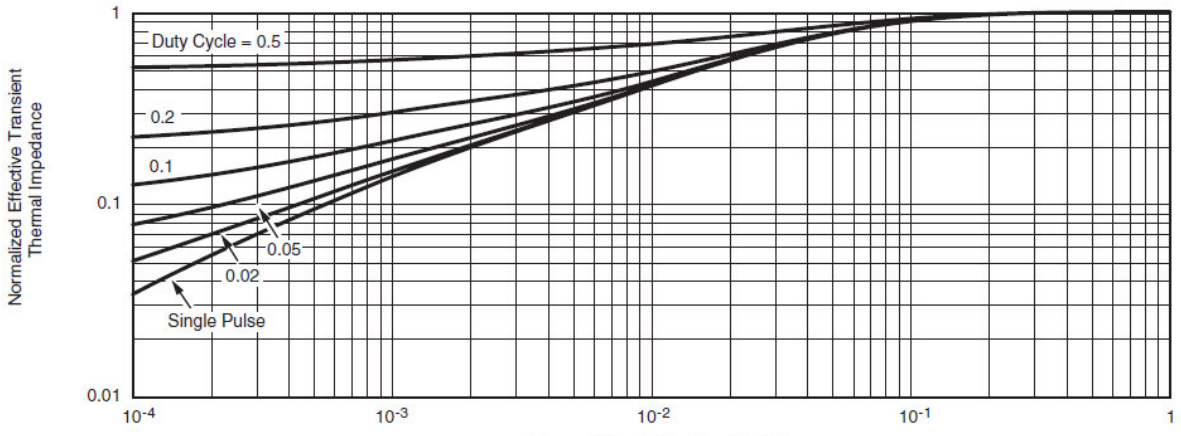
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



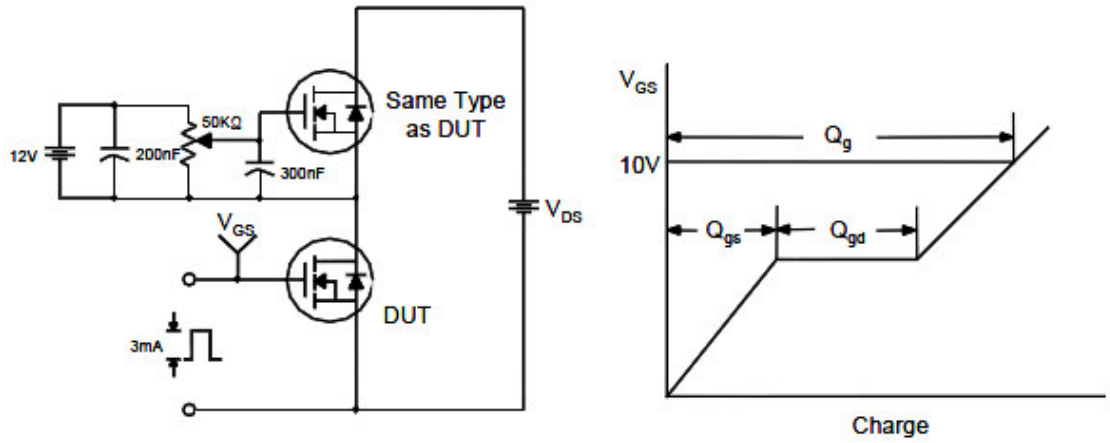
Single Pulse Power



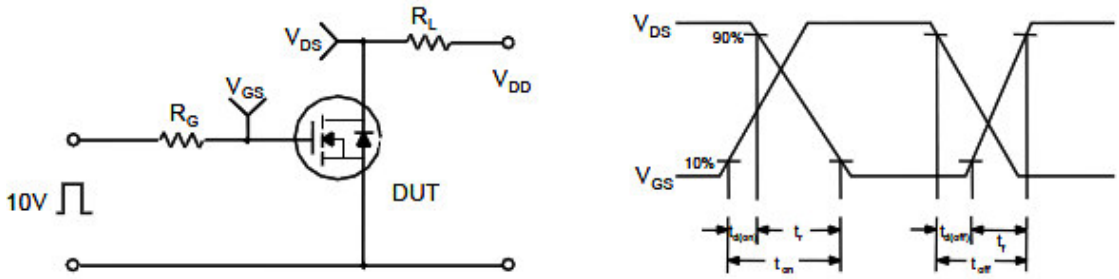
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Characteristics

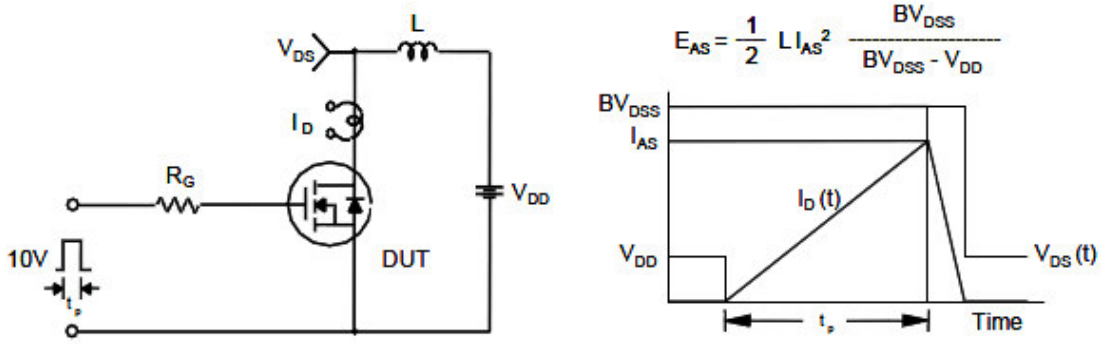
Gate Charge Test Circuit & Waveform



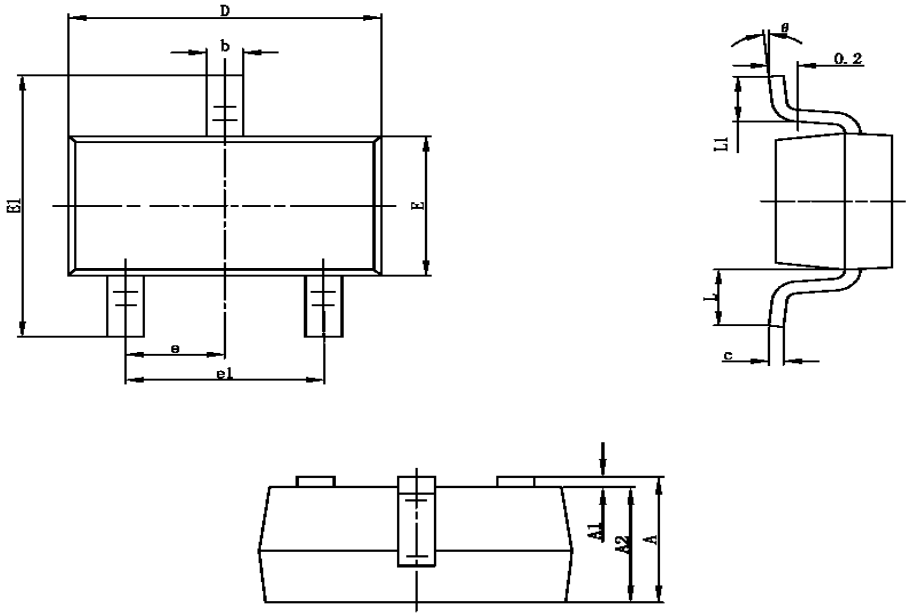
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



Package Information (SOT-23-3L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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