



General Description

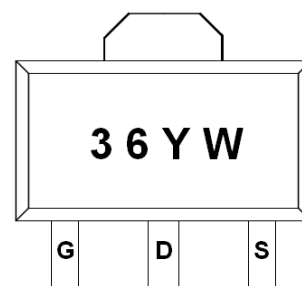
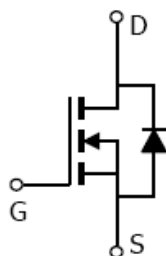
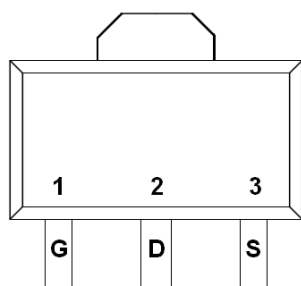
AFN8936, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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/4.6A, $R_{DS(ON)}=48m\Omega@V_{GS}=10V$
- 60V/3.6A, $R_{DS(ON)}=54m\Omega@V_{GS}=4.5V$
- 60V/2.0A, $R_{DS(ON)}=95m\Omega@V_{GS}=3.3V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-89-3L package design

Pin Description (SOT-89-3L)



Application

- Motor and Load Control
- Power Management in White LED System
- Push Pull Converter
- LCD TV Inverter & AD/DC Inverter Systems.

Pin Define

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

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN8936S89RG	36YW	SOT-89-3L	Tape & Reel	1000 EA

- ※ 36 parts code
- ※ Y year code (0 ~ 9)
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFN8936S89RG : 7" 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 _D	T _A =25°C	4.6
		T _A =70°C	3.6
Pulsed Drain Current	I _{DM}	10	A
Continuous Source Current(Diode Conduction)	I _S	1.6	A
Power Dissipation	P _D	T _A =25°C	1.45
		T _A =70°C	0.6
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	120	°C/W

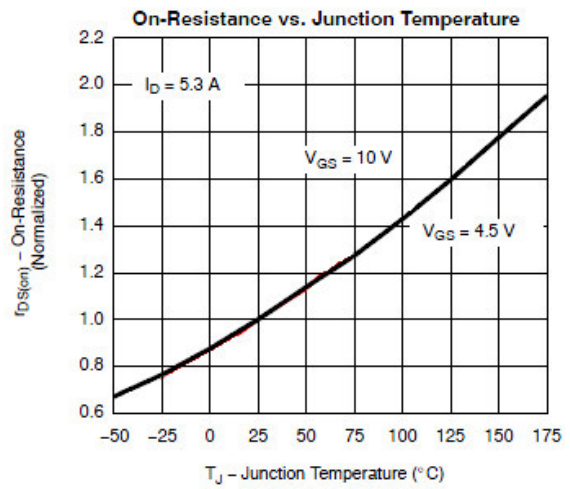
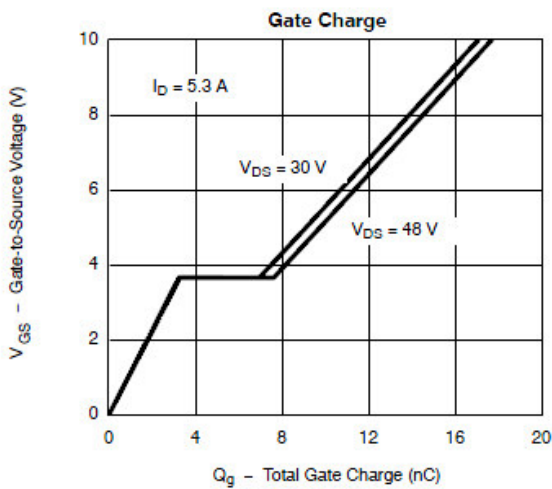
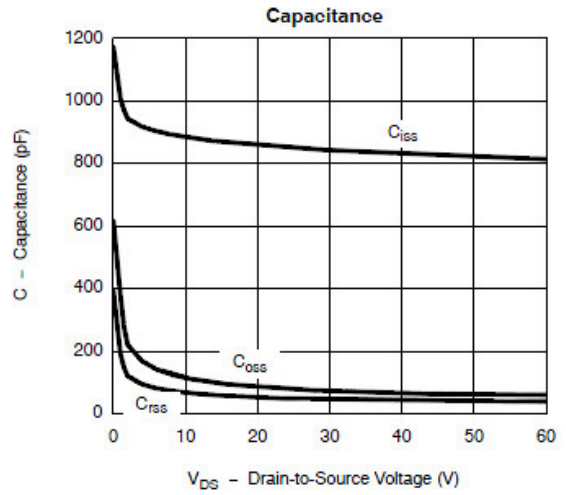
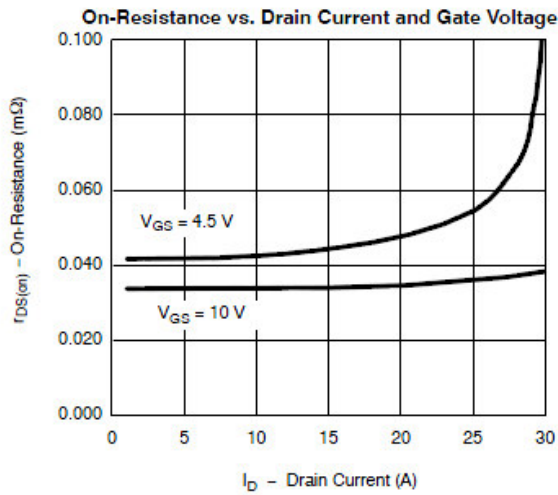
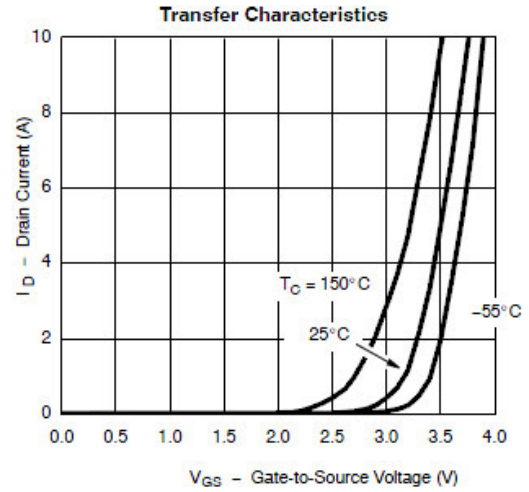
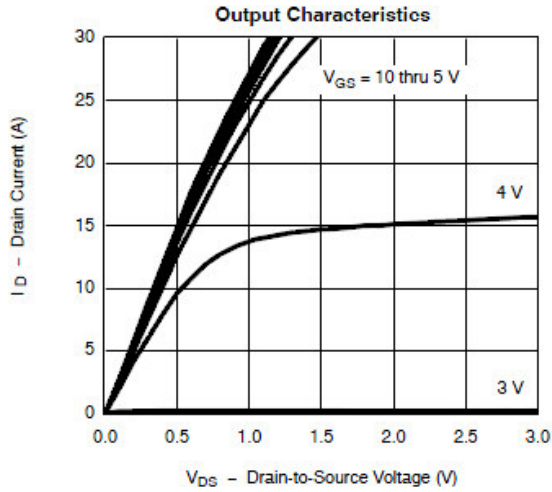
Electrical Characteristics

(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	1.0		2.5	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	uA
		V _{DS} =60V, V _{GS} =0V T _J =85°C			5	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =4.5V	10			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.6A		40	48	mΩ
		V _{GS} =4.5V, I _D =3.6A		48	54	
		V _{GS} =3.3V, I _D =2.0A		72	95	
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =2.4A		24		S
Diode Forward Voltage	V _{SD}	I _S =1.6A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =5V I _D ≅3.0A		10	15	nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			3.6		
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V f=1MHz		890		pF
Output Capacitance	C _{oss}			85		
Reverse Transfer Capacitance	C _{rss}			48		
Turn-On Time	t _{d(on)}	V _{DD} =30V, R _L =6.8Ω I _D ≅3.0A, V _{GEN} =4.5V R _G =6Ω		10	15	ns
	t _r			12	20	
Turn-Off Time	t _{d(off)}			25	35	
	t _f			10	15	

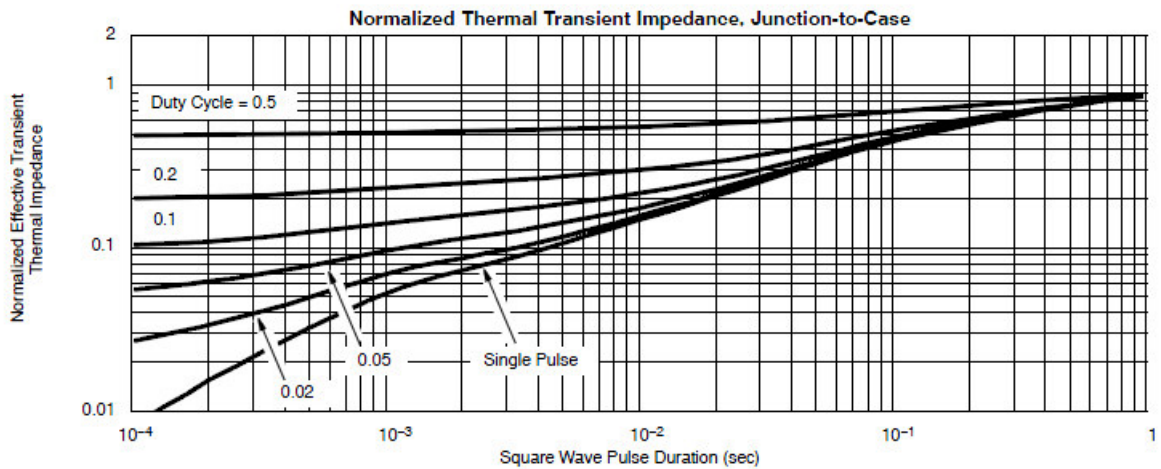
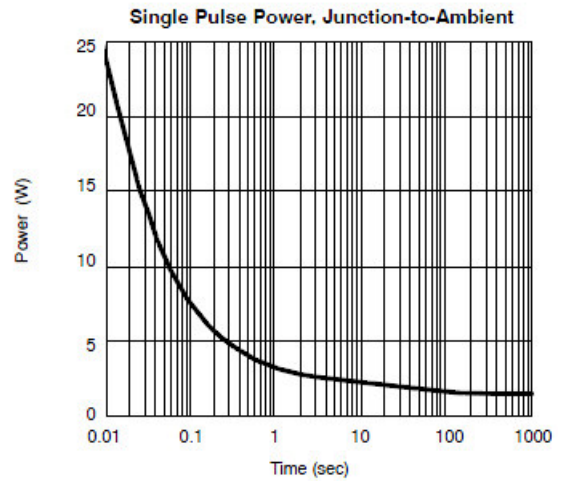
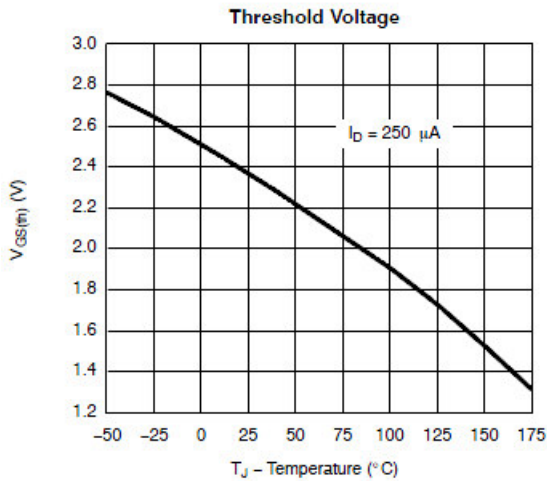
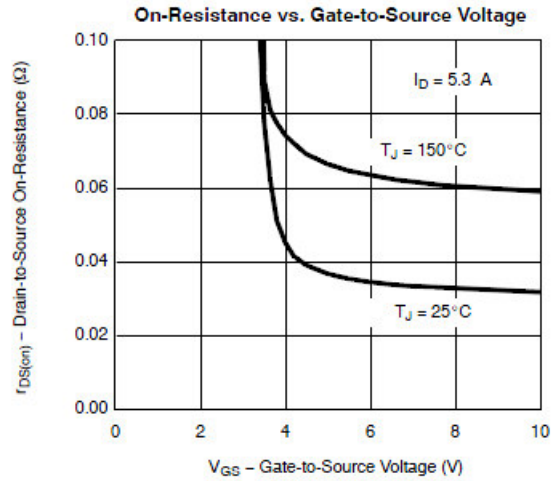
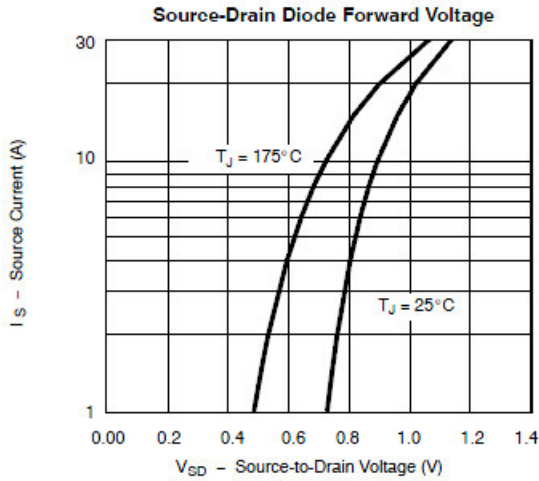


Typical Characteristics





Typical Characteristics



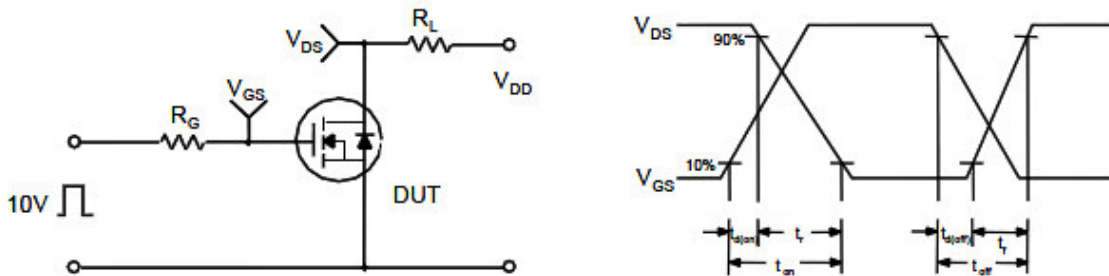


Typical Characteristics

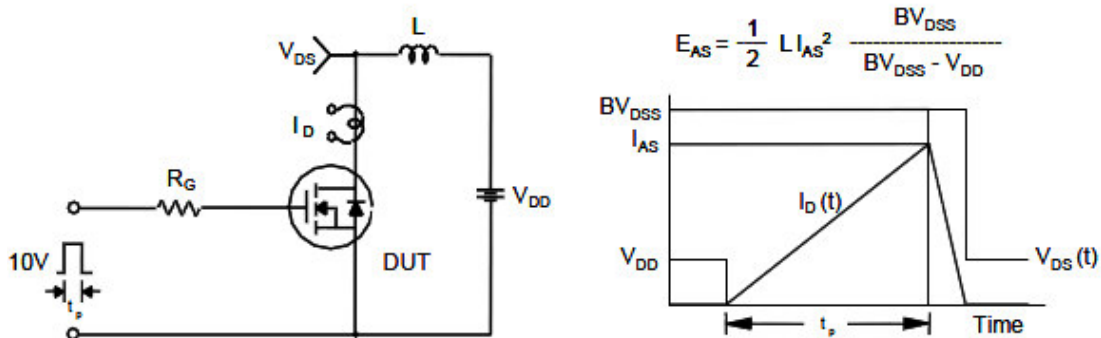
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

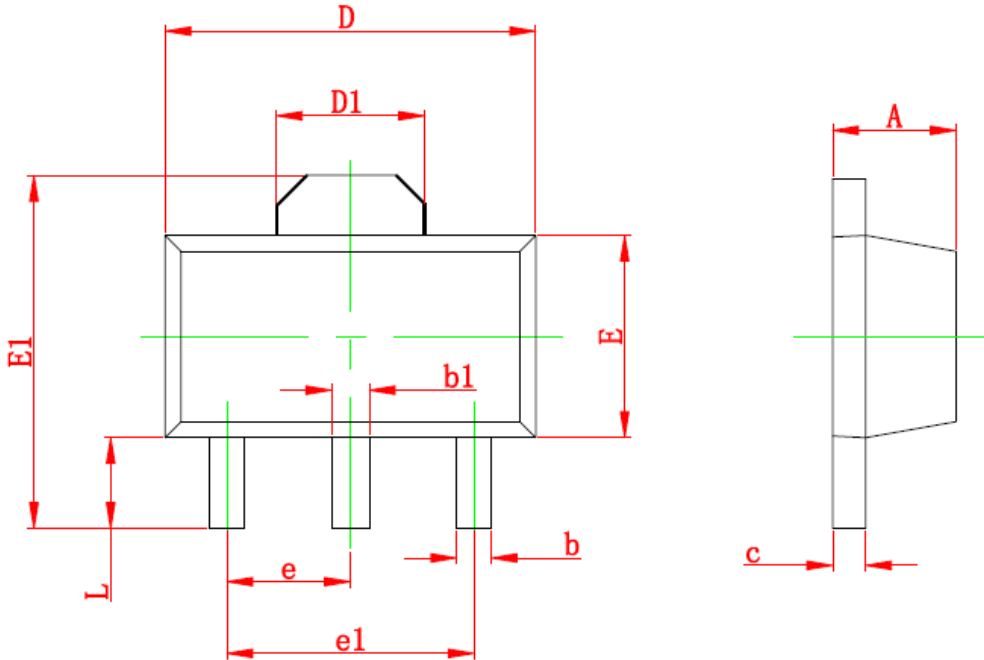


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (SOT-89-3L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

©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