



General Description

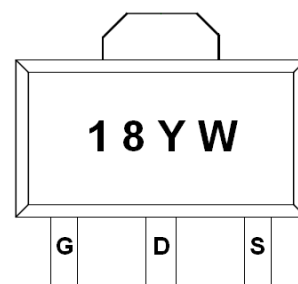
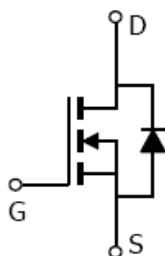
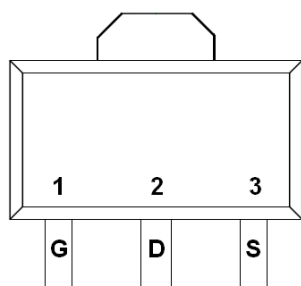
AFN8918, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- 40V/4.6A, $R_{DS(ON)}=30m\Omega@V_{GS}=10V$
- 40V/3.6A, $R_{DS(ON)}=54m\Omega@V_{GS}=4.5V$
- 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
AFN8918S89RG	18YW	SOT-89-3L	Tape & Reel	1000 EA

- ※ 18 parts code
- ※ Y year code (0 ~ 9)
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFN8918S89RG : 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}	40	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C 5.8	A
		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	W
		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

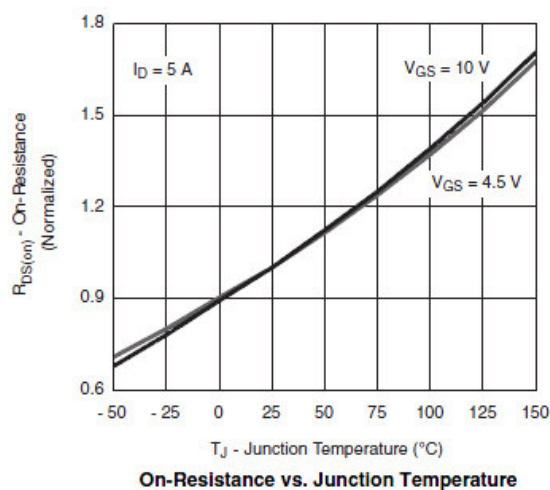
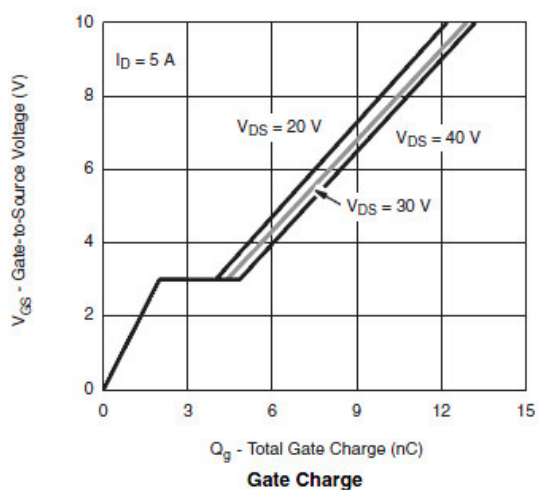
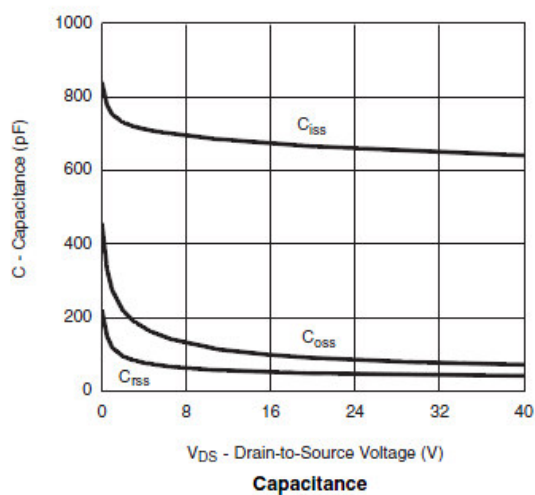
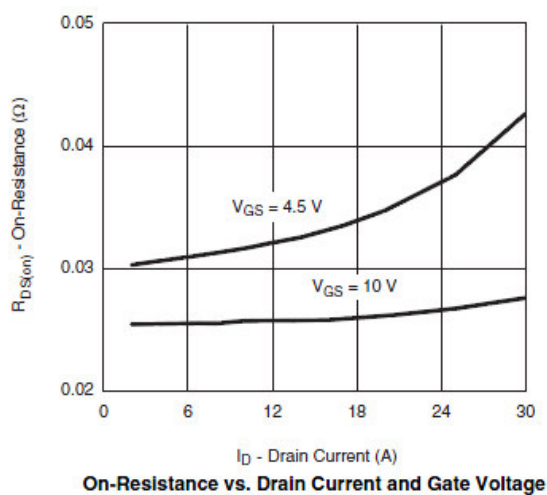
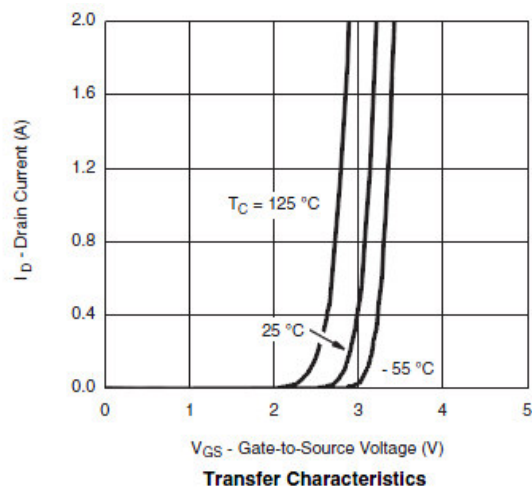
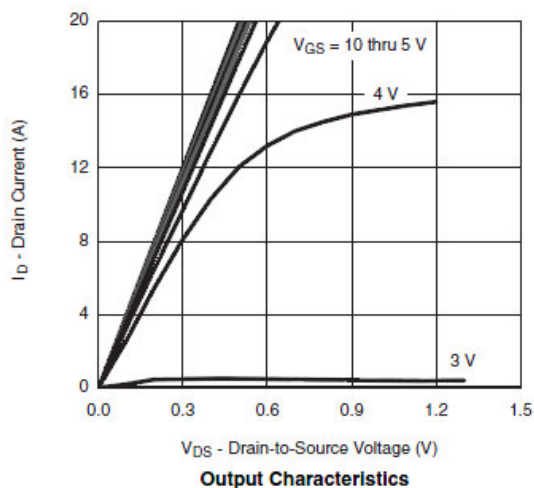
Electrical Characteristics

(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	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.5		3.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	uA
		V _{DS} =40V, V _{GS} =0V T _J =85°C			10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =10V	20			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.6A		24	30	mΩ
		V _{GS} =4.5V, I _D =3.6A		42	54	
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =5.0A		25		S
Diode Forward Voltage	V _{SD}	I _S =2A, V _{GS} =0V		0.85	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =20V, V _{GS} =4.5V I _D = 3A		10	14	nC
Gate-Source Charge	Q _{gs}			2.8		
Gate-Drain Charge	Q _{gd}			3.2		
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V f=1MHz		850		pF
Output Capacitance	C _{oss}			110		
Reverse Transfer Capacitance	C _{rss}			75		
Turn-On Time	t _{d(on)}	V _{DD} =20V, R _L =4Ω I _D ≒3.0A, V _{GEN} =10V R _G =1Ω		6	12	ns
	t _r			10	20	
Turn-Off Time	t _{d(off)}			20	36	
	t _f			6	12	

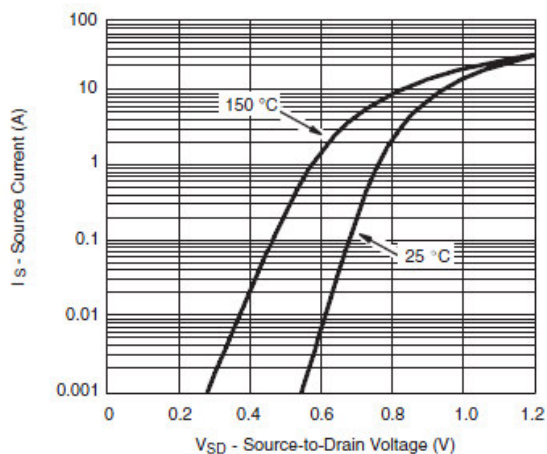


Typical Characteristics

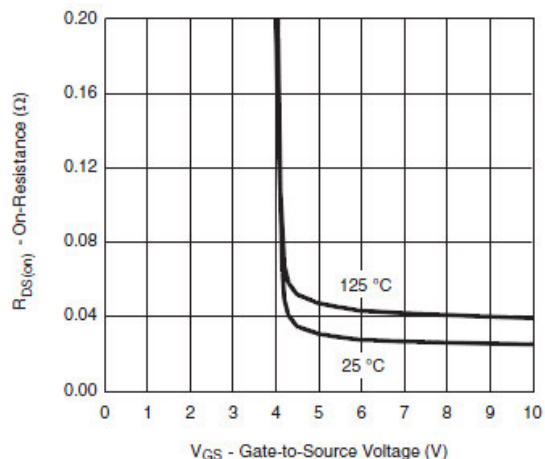




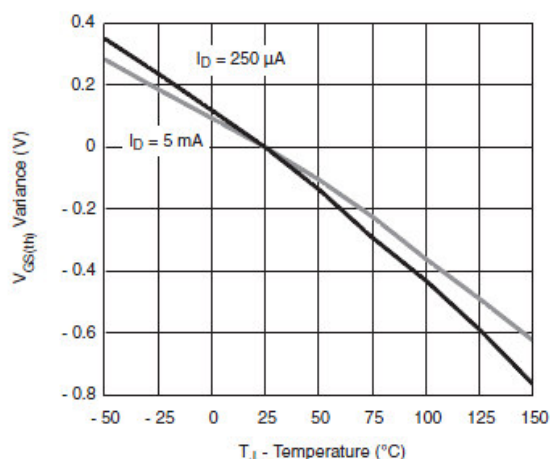
Typical Characteristics



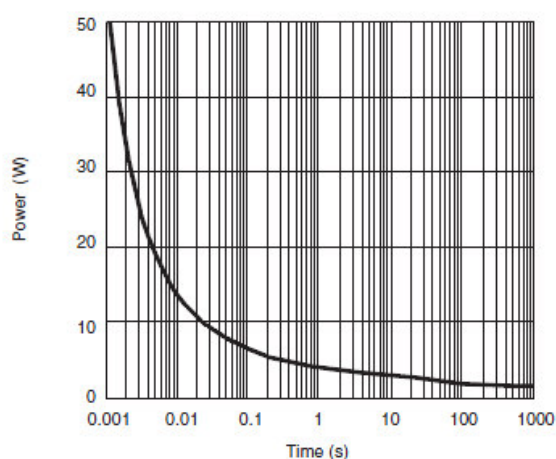
Source-Drain Diode Forward Voltage



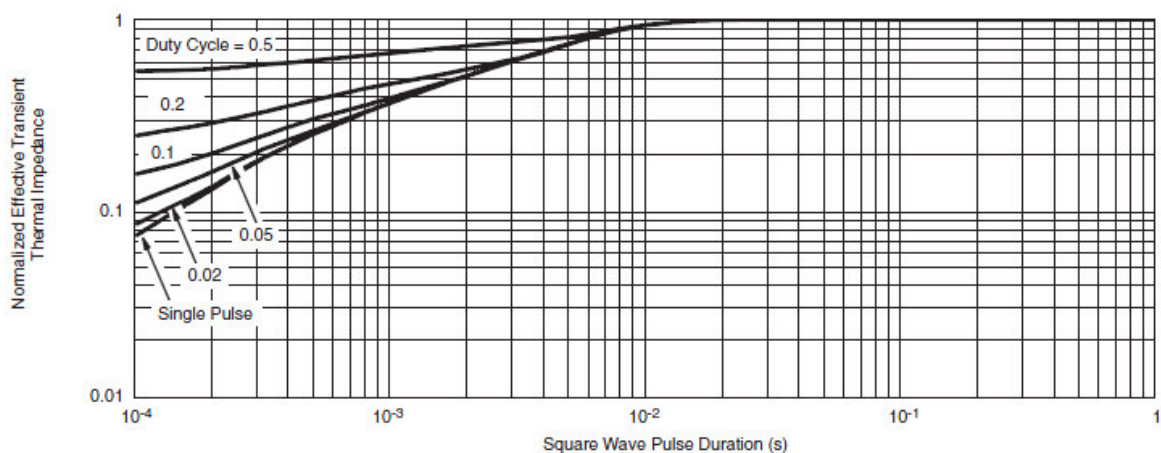
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case



Typical Characteristics

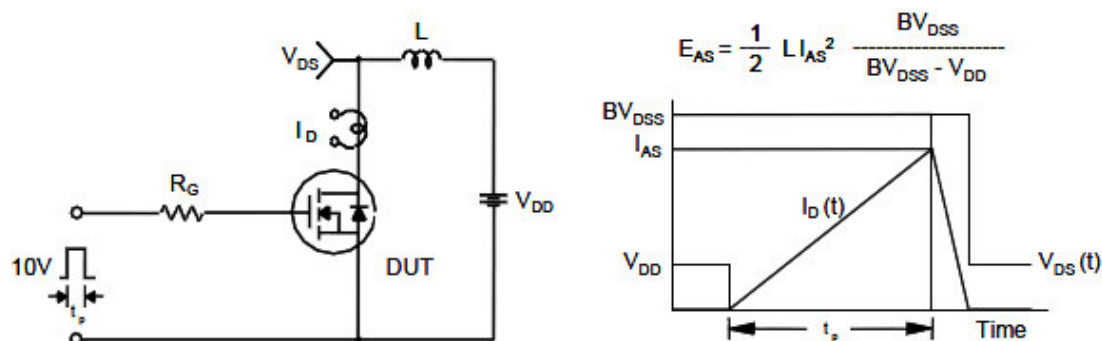
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

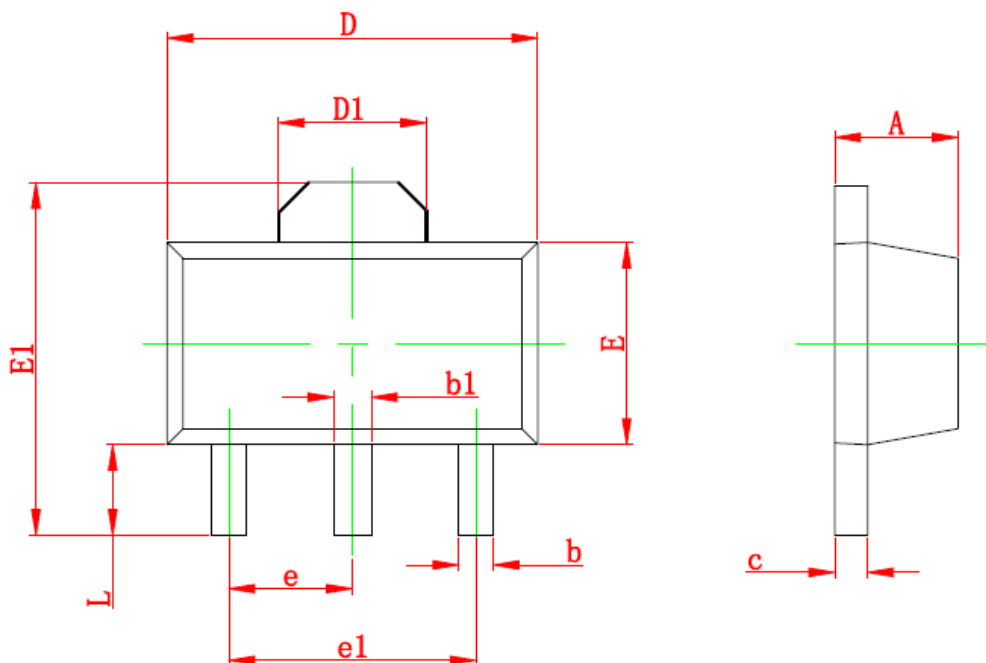


Unclamped Inductive Switching Test Circuit & Waveforms





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

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