

GSM4936S

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM4936S, 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.

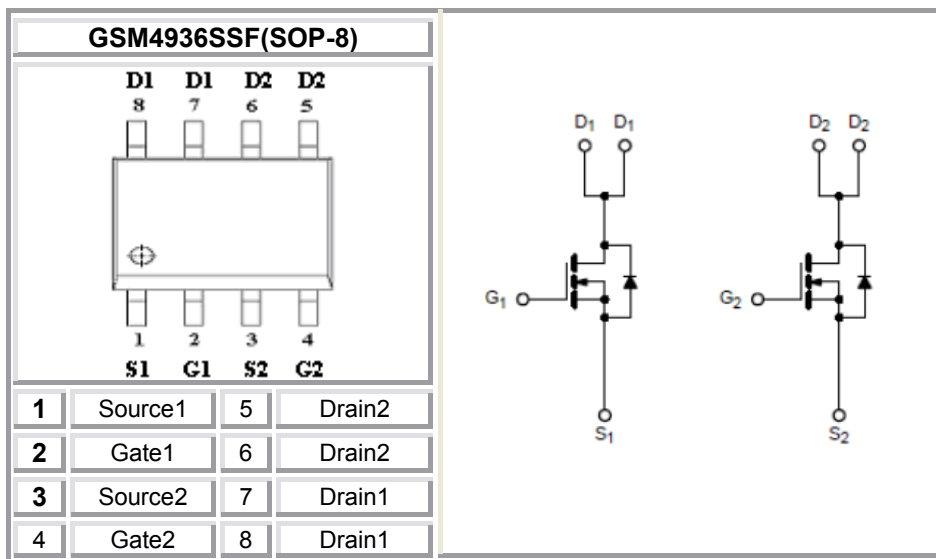
Features

- 30V/5.8A, $R_{DS(ON)}=30m\Omega@V_{GS}=10V$
- 30V/5.5A, $R_{DS(ON)}=42m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOP-8P package design

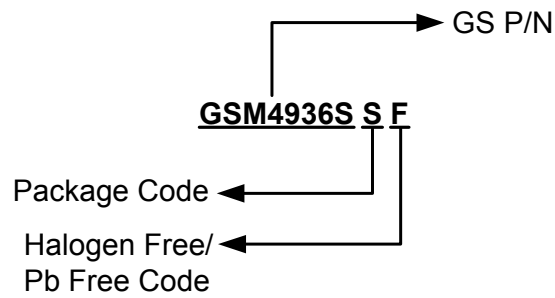
Applications

- Low Current DC/DC Conversion
- Load Switch
- CCFL Inverter
- Power Management in Notebook Computer

Packages & Pin Assignments

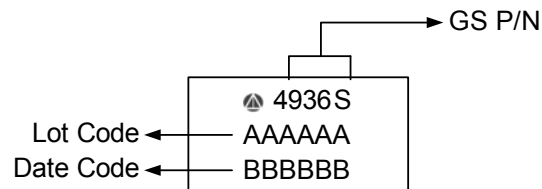


Ordering Information



Part Number	Package	Quantity Reel
GSM4936SSF	SOP-8	3000 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

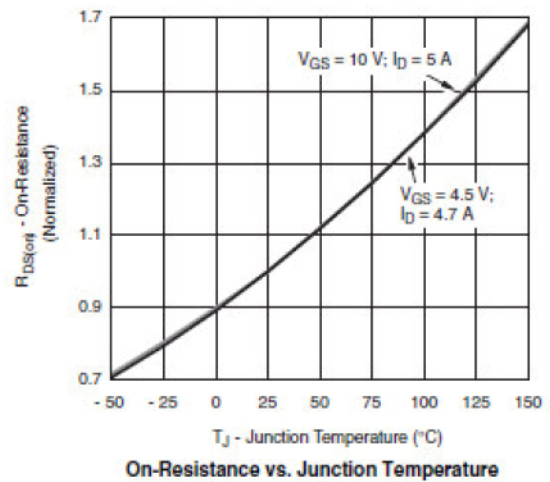
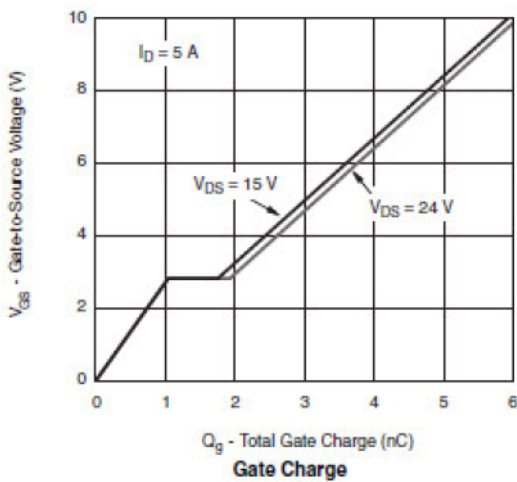
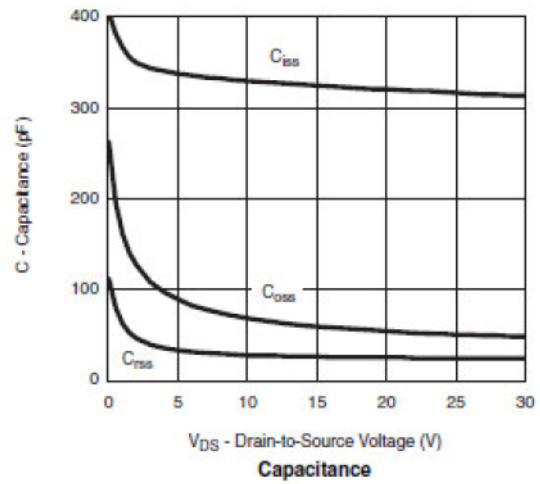
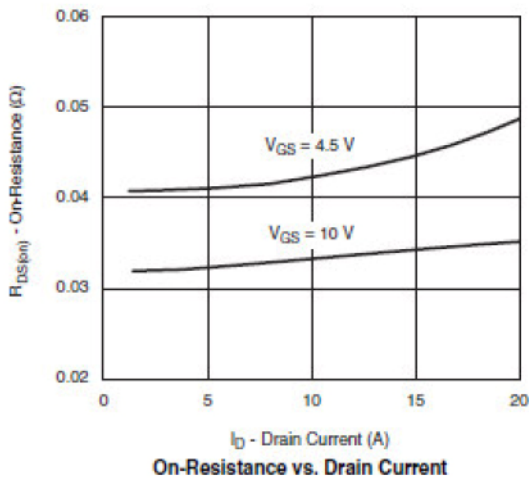
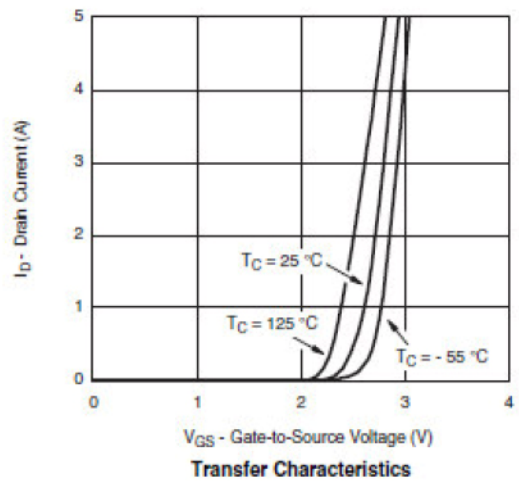
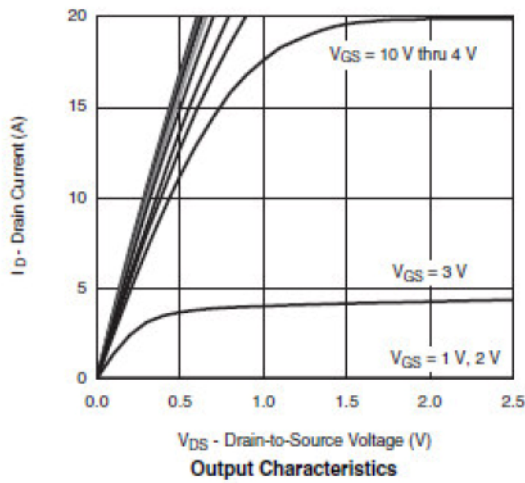
Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate –Source Voltage	±20	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	5.4
		T _A =70°C	4.0
I _{DM}	Pulsed Drain Current	20	A
I _S	Continuous Source Current(Diode Conduction)	1.5	A
P _D	Power Dissipation	T _A =25°C	2.8
		T _A =70°C	1.8
T _J	Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	62.5	°C/ W

Electrical Characteristics

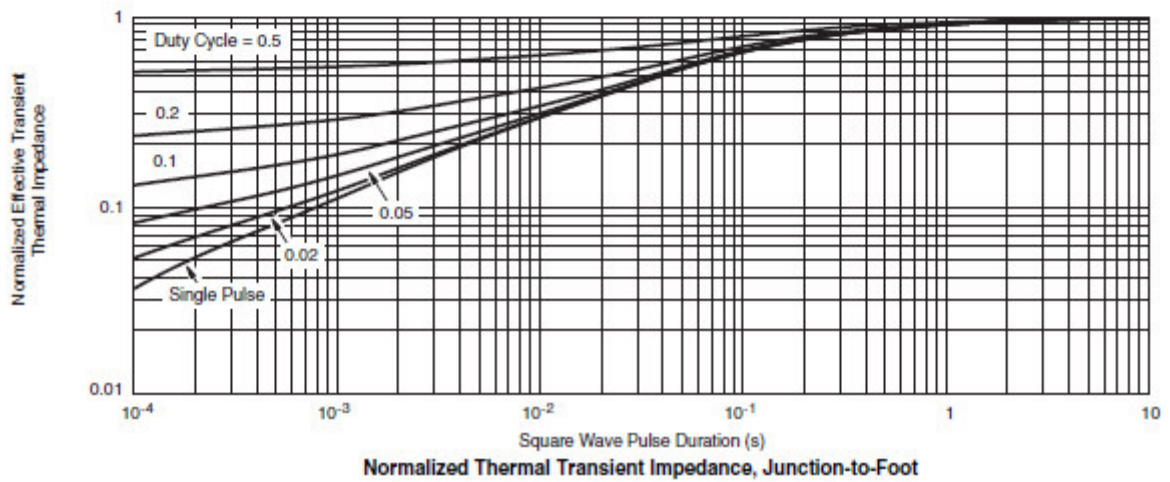
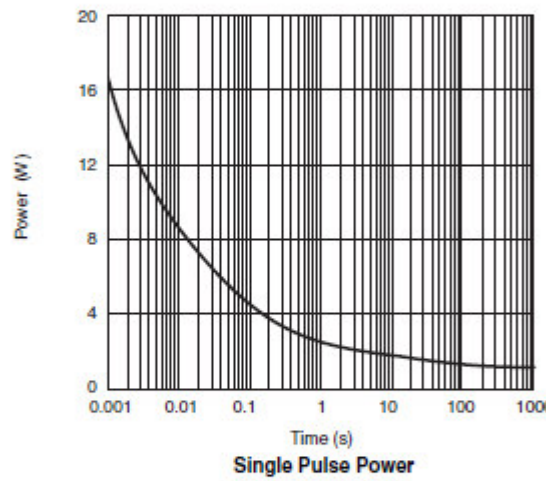
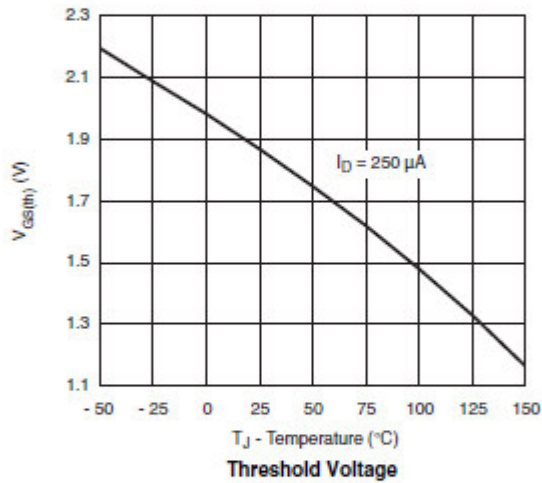
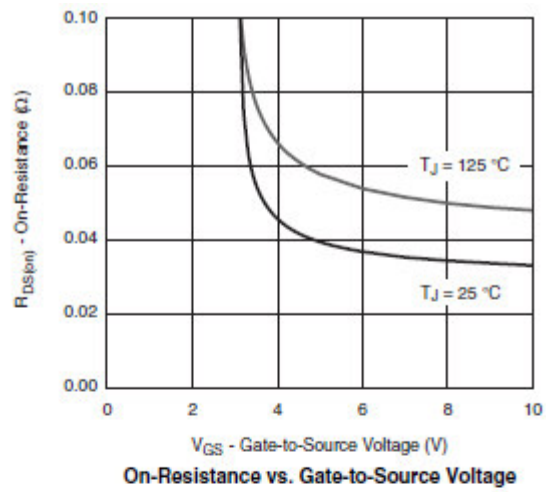
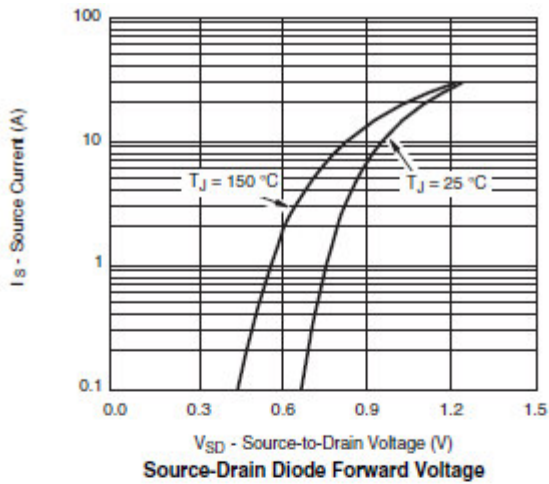
($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ	Max.	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3		2.1	
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V, T_J=85^{\circ}\text{C}$			30	
$I_{D(on)}$	On-State Drain Current	$V_{DS}\geq 5V, V_{GS}=4.5V$	10			A
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=5.0A$		24	30	m Ω
		$V_{GS}=4.5V, I_D=4.7A$		36	42	
g_{fs}	Forward Transconductance	$V_{DS}=15V, I_D=5.2A$		13		S
V_{SD}	Diode Forward Voltage	$I_S=1.6A, V_{GS}=0V$		0.8	1.3	V
Dynamic						
C_{iss}	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1\text{MHz}$		700		pF
C_{oss}	Output Capacitance			75		
C_{riss}	Reverse Transfer Capacitance			45		
Q_g	Total Gate Charge	$V_{DS}=20V, V_{GS}=4.5V, I_D=5.2A$		8	12	nC
Q_{gs}	Gate-Source Charge			1.6		
Q_{gd}	Gate-Drain Charge			2.4		
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, R_L=15\Omega, I_D=1.0A, V_{GEN}=10V, R_G=6\Omega$		8	12	ns
T_r				12	18	
$t_{d(off)}$	Turn-Off Time			28	40	
T_f				10	18	

Typical Performance Characteristics

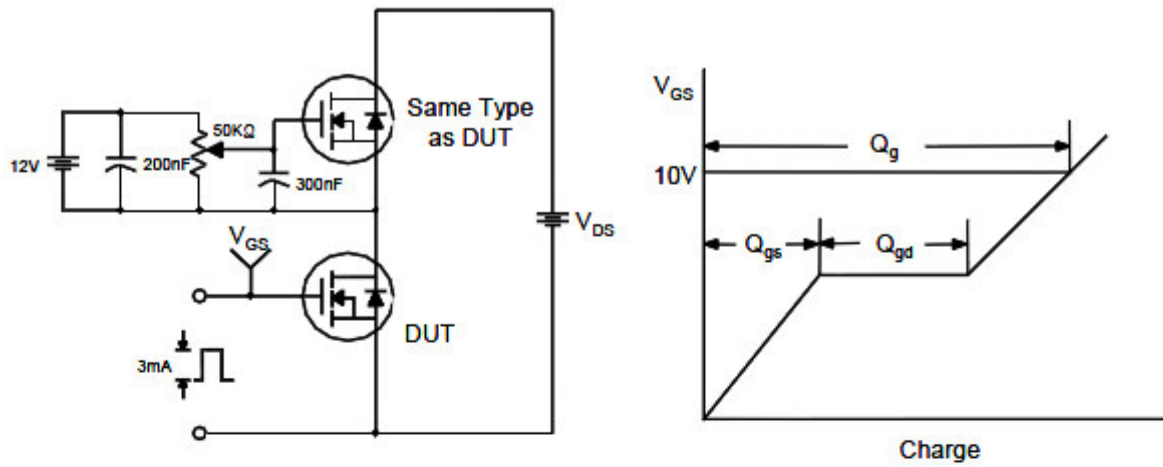


Typical Performance Characteristics (continue)

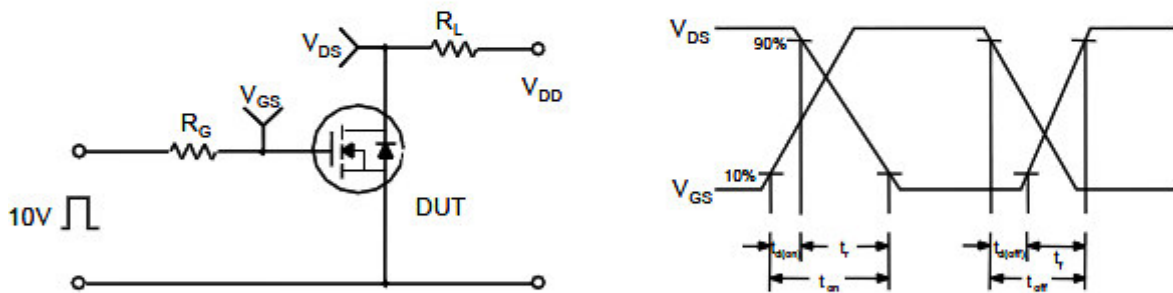


Typical Characteristics

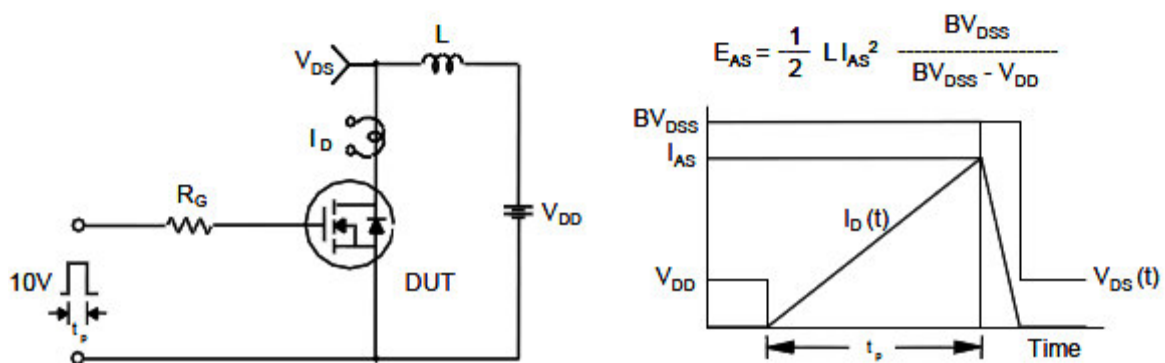
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

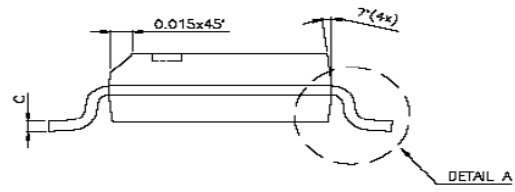
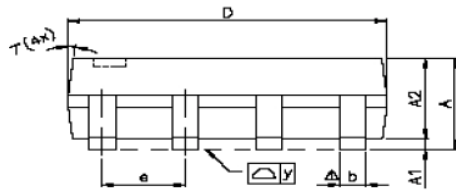
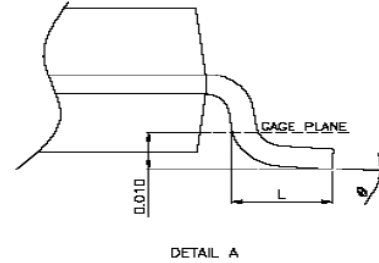
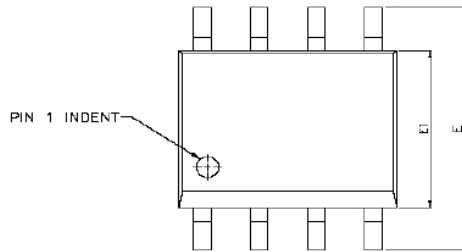


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOP-8P PLASTIC PACKAGE





Dimensions



SYMBOL	Millimeters			Inches		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	-	0.25	0.004	-	0.010
A2	-	1.45	-	-	0.057	-
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	-	1.27	-	-	0.050	-
L	0.38	0.71	1.27	0.015	0.028	0.050
Δy	-	-	0.076	-	-	0.003
θ	0°	-	8°	0°	-	8°


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