

GSM3406A

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM3406A, 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.

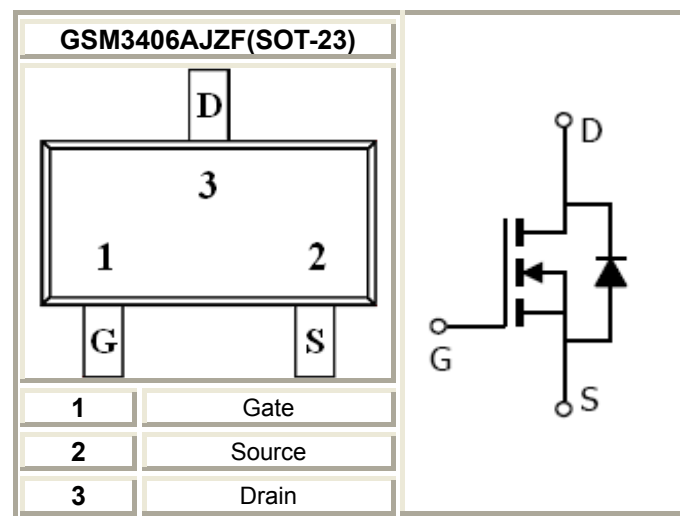
Features

- 30V/2.4A, $R_{DS(ON)}=48m\Omega@V_{GS}=10V$
- 30V/1.8A, $R_{DS(ON)}=58m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-23 package design

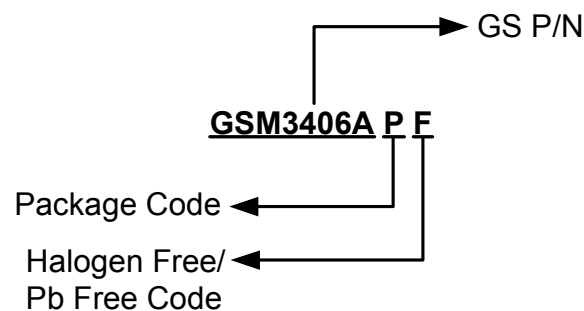
Applications

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

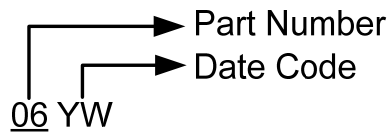
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM3406AJZF	SOT-23	<u>06</u> YW

Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

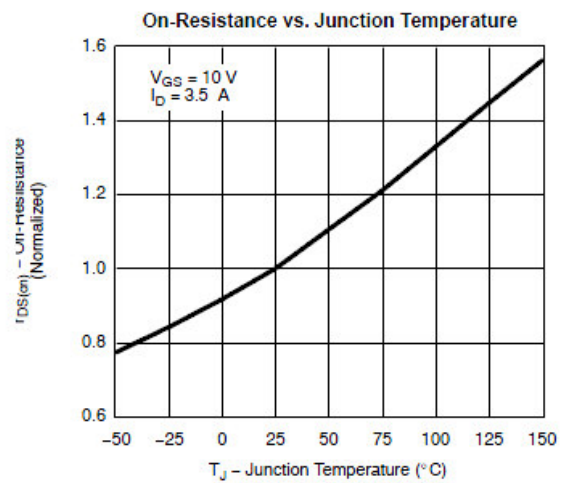
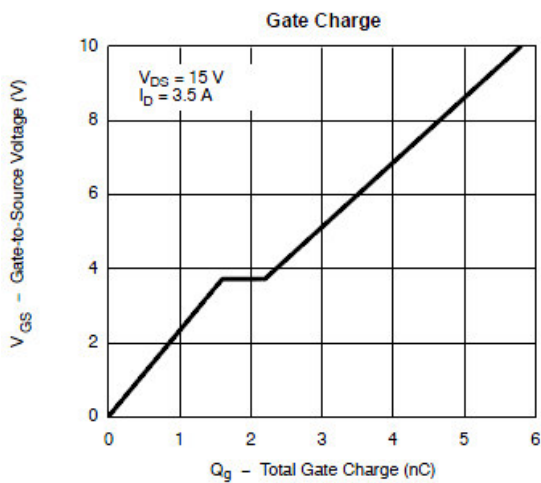
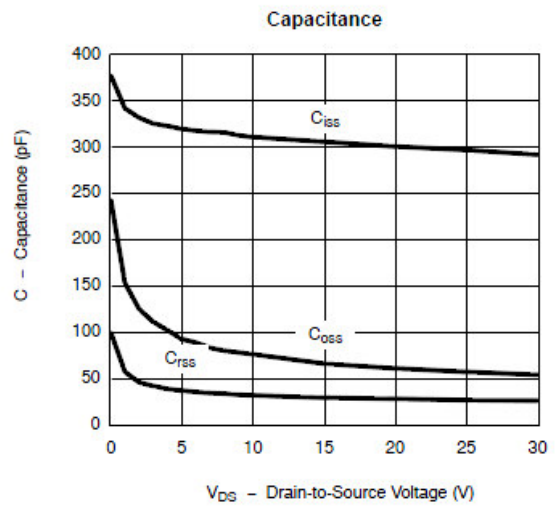
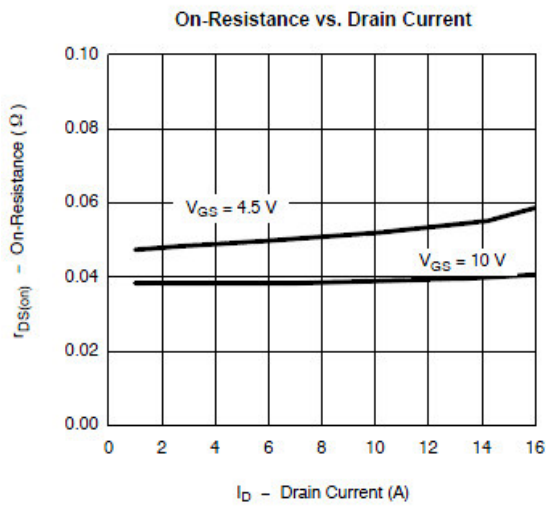
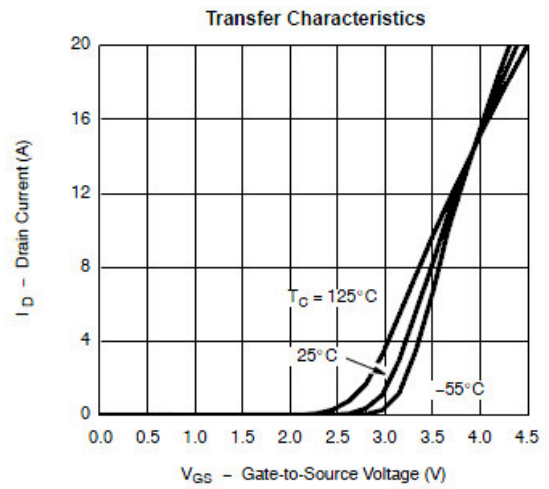
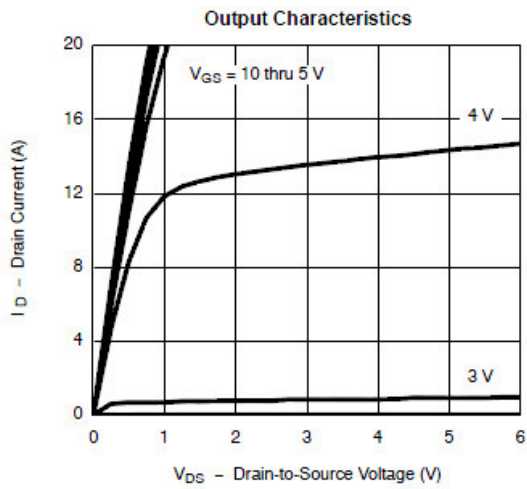
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	30	V	
V _{GSS}	Gate –Source Voltage	±20	V	
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	2.4	A
		T _A =70°C	1.8	
I _{DM}	Pulsed Drain Current	20	A	
I _S	Continuous Source Current(Diode Conduction)	1.5	A	
P _D	Power Dissipation	T _A =25°C	1.25	W
		T _A =70°C	0.8	
T _J	Operating Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55/150	°C	
R _{θJA}	Thermal Resistance-Junction to Ambient	120	°C/ W	

Electrical Characteristics

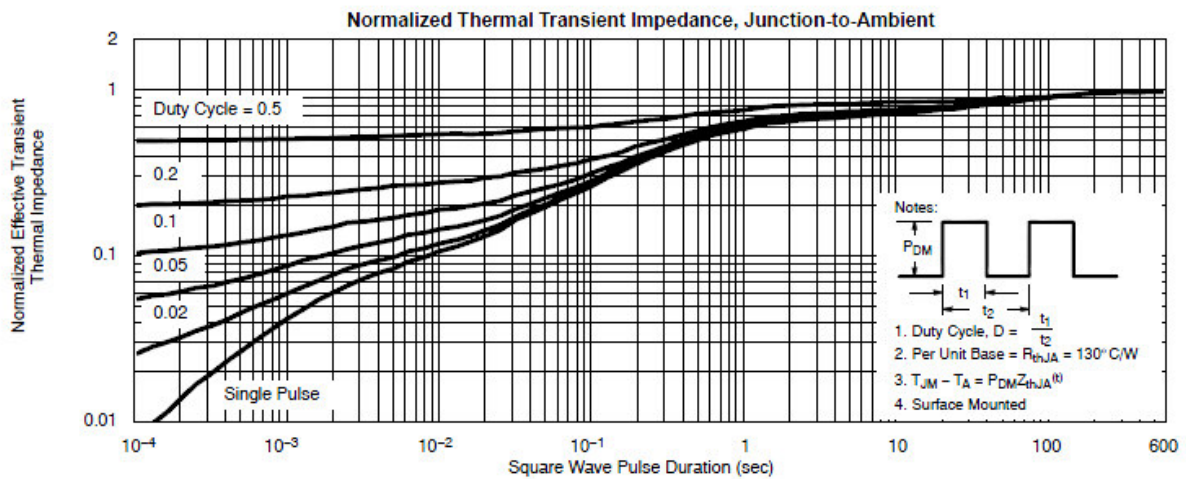
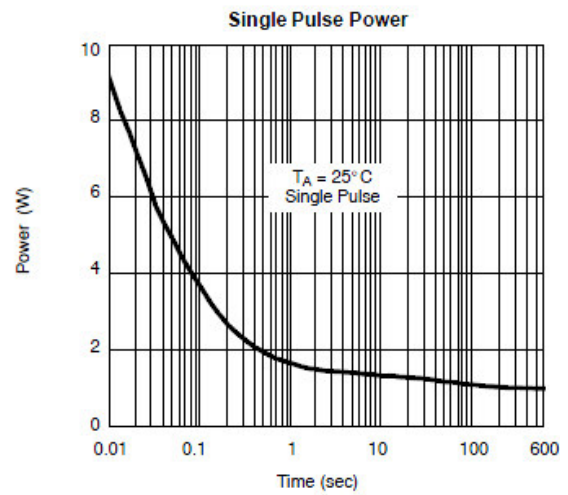
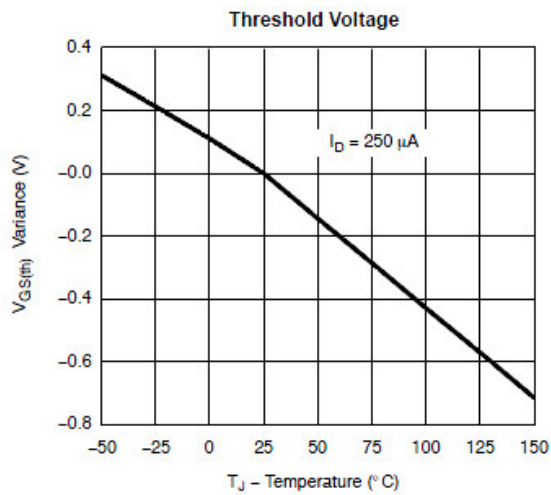
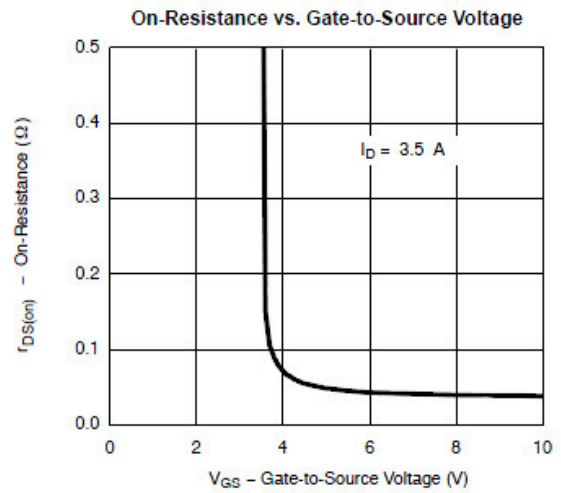
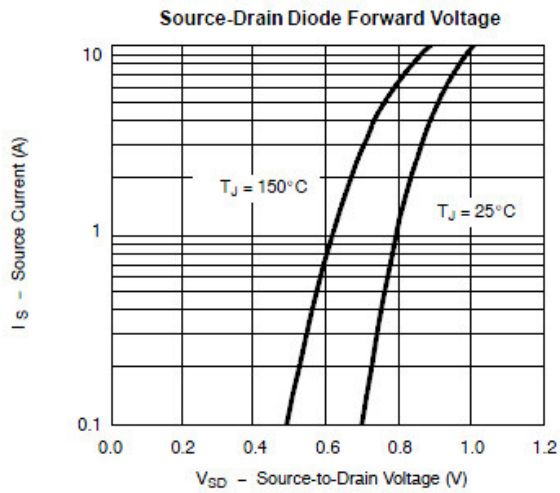
($T_A=25^\circ\text{C}$ unless otherwise noted)

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	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		2.0		
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	$V_{DS}\geq 4.5V, V_{GS}=10V$	6			A	
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=4.0A$		38	48	m Ω	
		$V_{GS}=4.5V, I_D=3.5A$		48	58		
g_{fs}	Forward Transconductance	$V_{DS}=4.5V, I_D=2.5A$		8		S	
V_{SD}	Diode Forward Voltage	$I_S=1.6A, V_{GS}=0V$		0.8	1.2	V	
Dynamic							
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$		320		pF	
C_{oss}	Output Capacitance			70			
C_{rss}	Reverse Transfer Capacitance			30			
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D\cong 2.6A$		3.0	4.5	nC	
Q_{gs}	Gate-Source Charge			1.6			
Q_{gd}	Gate-Drain Charge			0.6			
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, R_L=15\Omega, I_D\cong 1.0A, V_{GEN}=10V, R_G=6\Omega$		8	12	ns	
T_r				12	18		
$t_{d(off)}$			Turn-Off Time		15		30
T_f					8		15

Typical Performance Characteristics

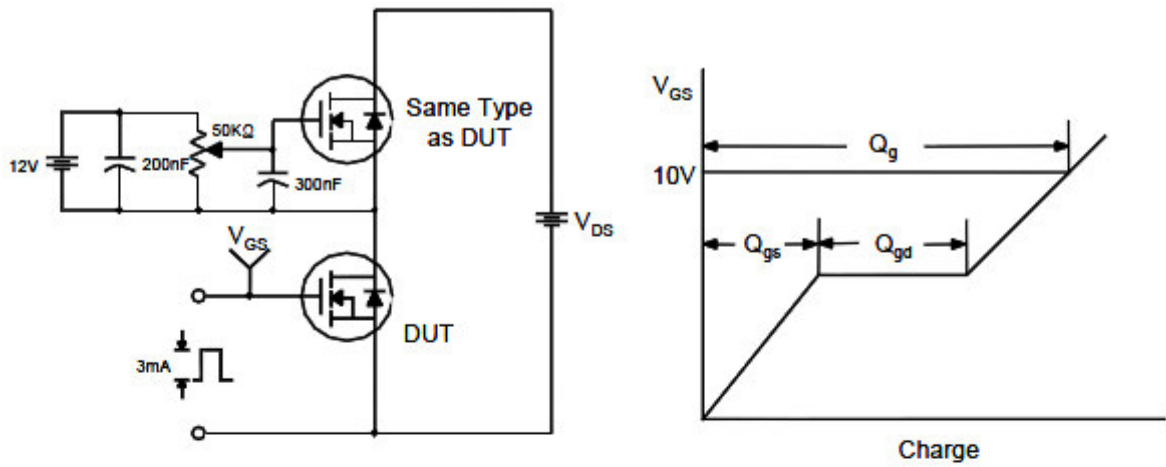


Typical Performance Characteristics (continue)

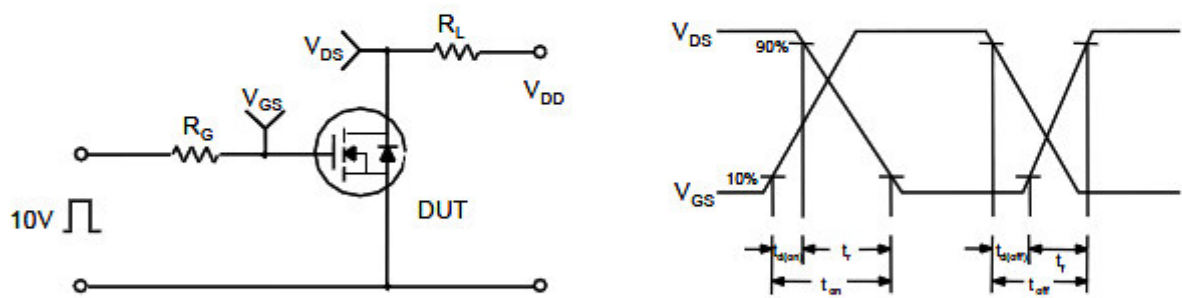


Typical Characteristics

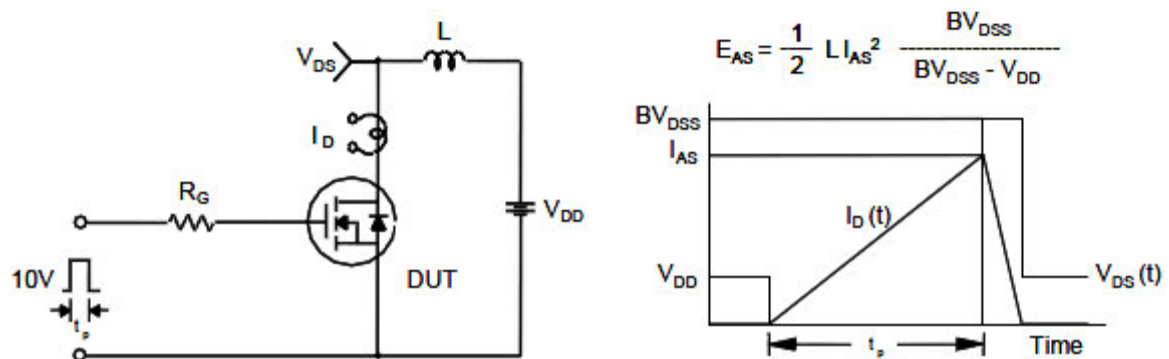
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

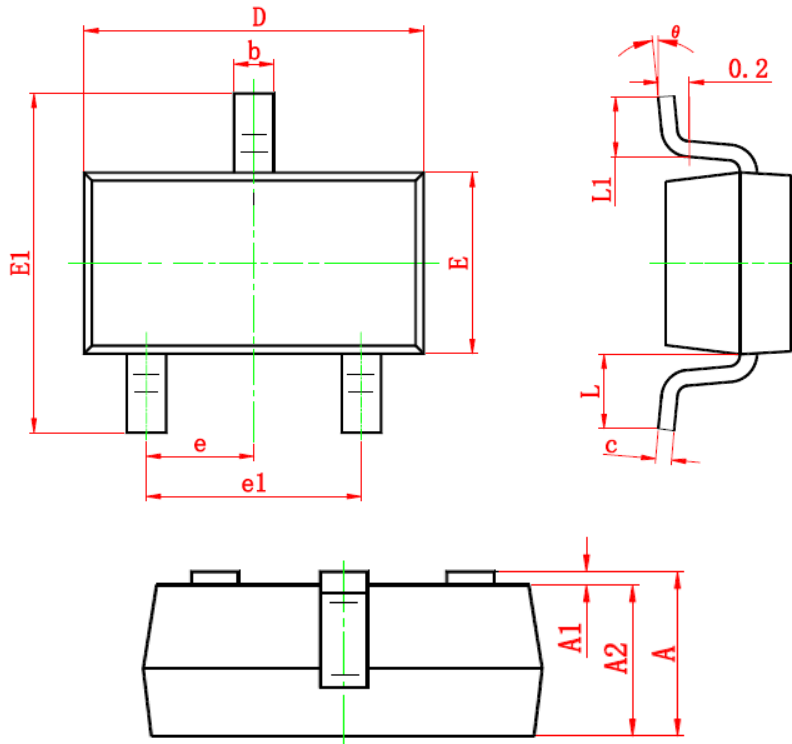


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOT-23











Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°



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