

GSM3406AS

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM3406AS, 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.

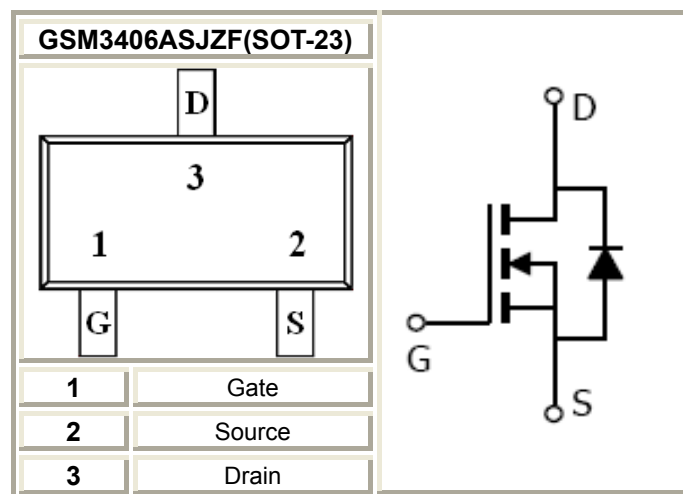
Features

- 30V/2.8A, $R_{DS(ON)}=45m\Omega@V_{GS}=10V$
- 30V/2.4A, $R_{DS(ON)}=55m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-23 package design

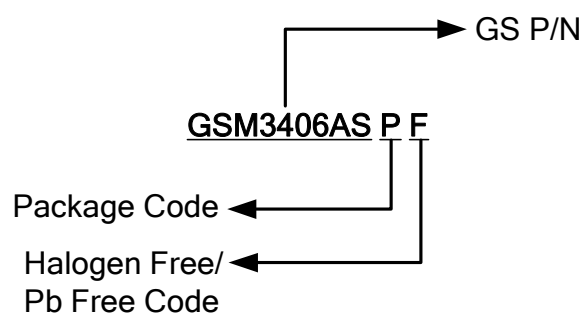
Applications

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

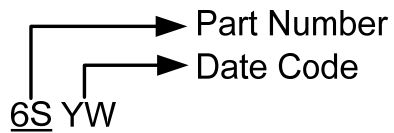
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM3406ASJZF	SOT-23	<u>6S</u> YW

Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

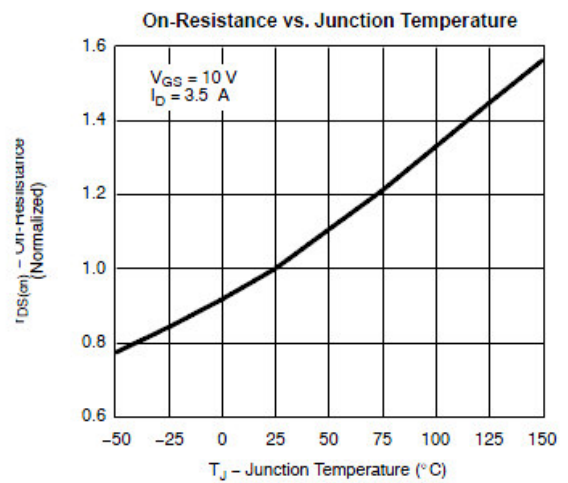
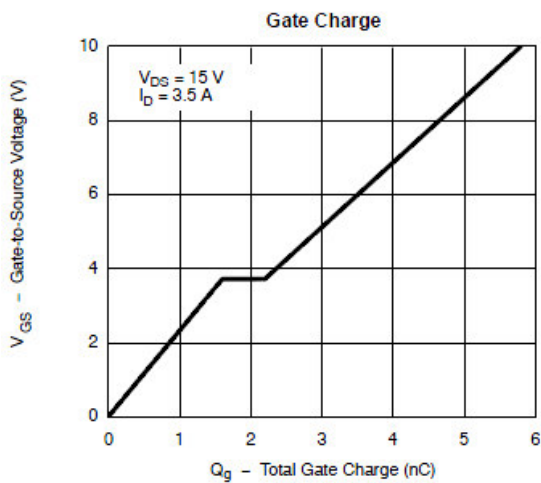
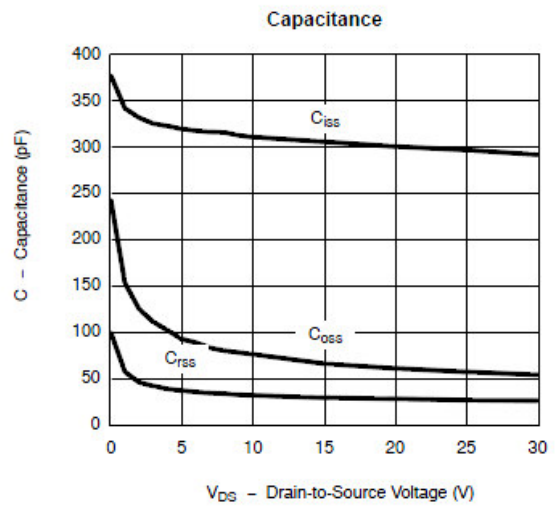
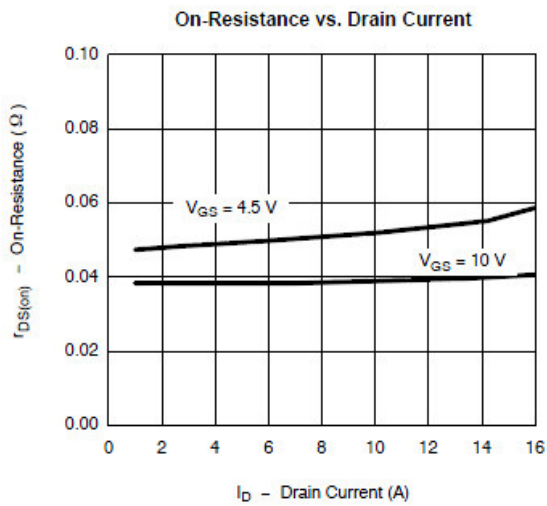
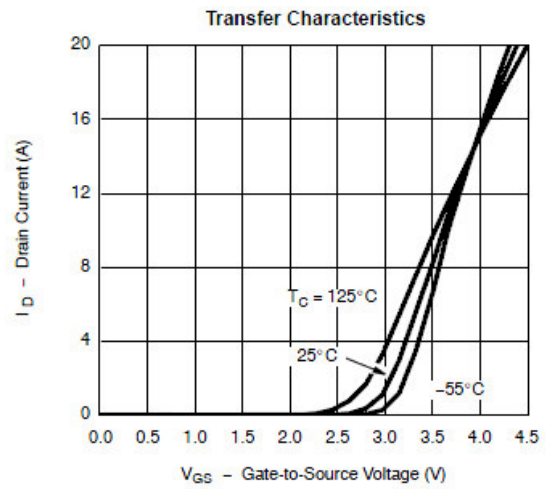
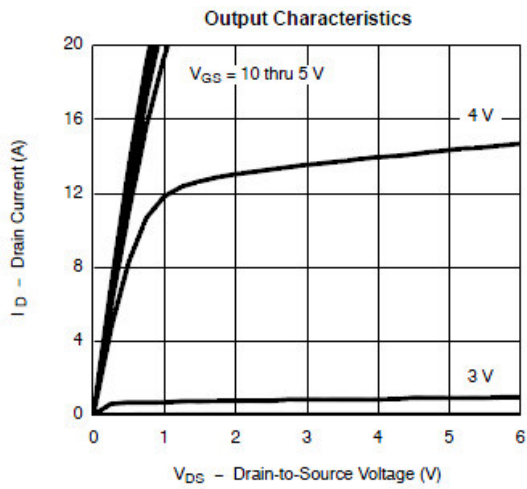
Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate –Source Voltage	±20	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	2.8
		T _A =70°C	2.4
I _{DM}	Pulsed Drain Current	20	A
I _S	Continuous Source Current(Diode Conduction)	1.5	A
P _D	Power Dissipation	T _A =25°C	1.25
		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

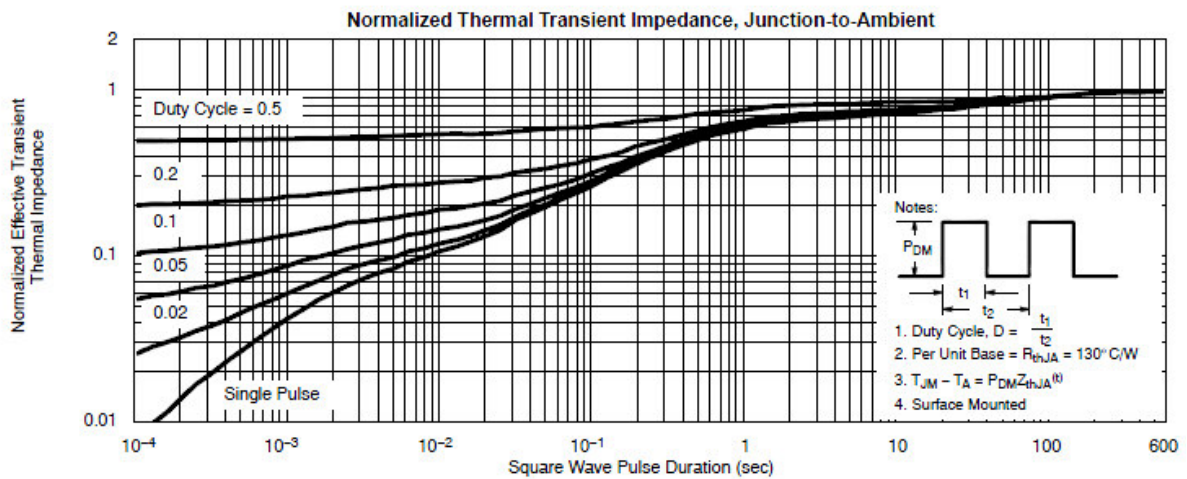
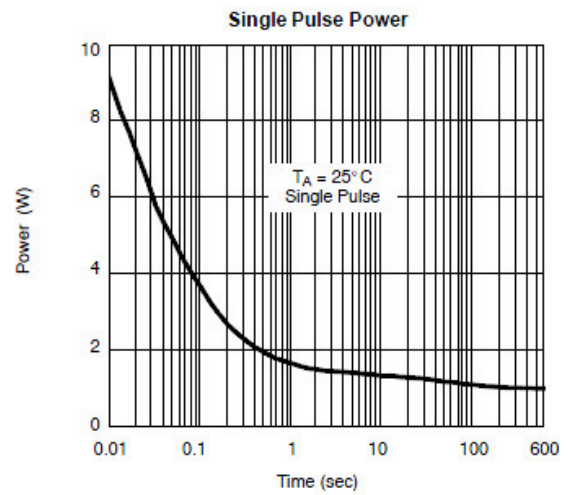
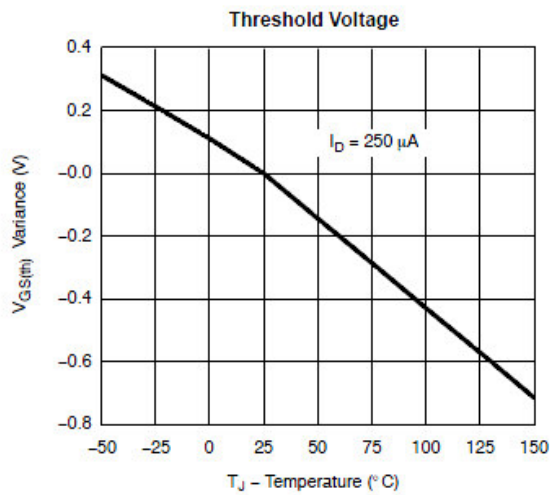
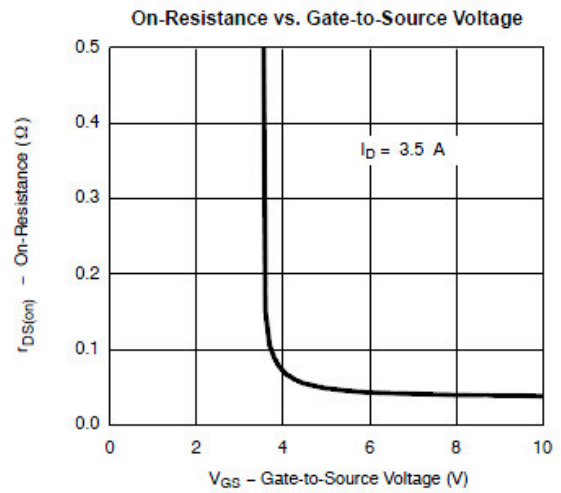
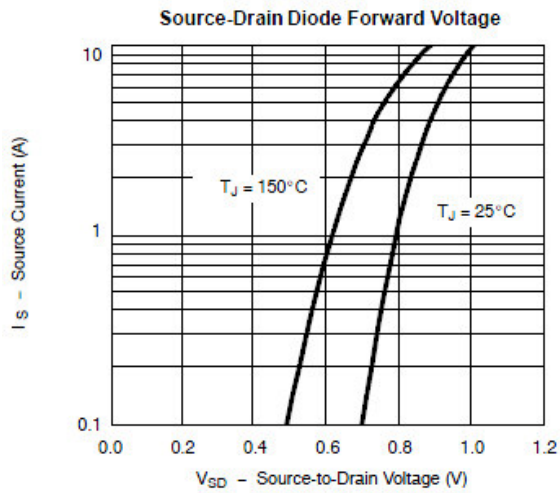
($T_A=25^\circ\text{C}$ unless otherwise noted)

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	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3		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	$V_{DS}\geq 4.5V, V_{GS}=10V$	6			A
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=2.8A$		32	45	m Ω
		$V_{GS}=4.5V, I_D=2.4A$		42	55	
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

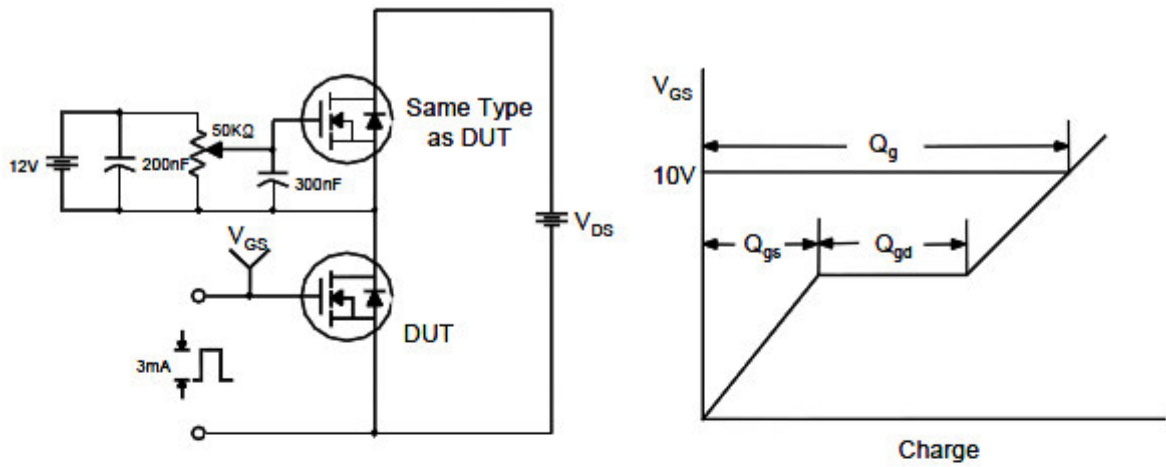


Typical Performance Characteristics (continue)

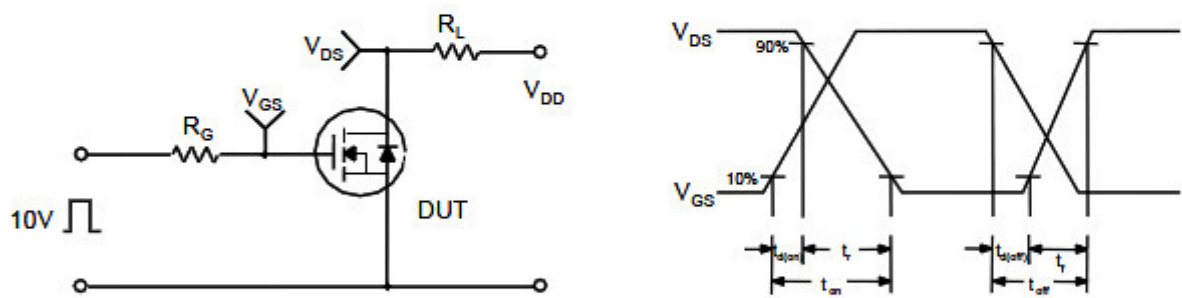


Typical Characteristics

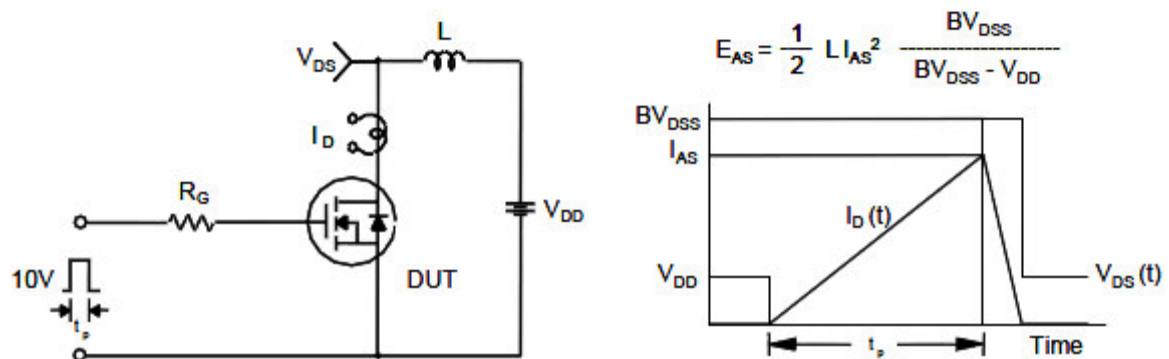
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

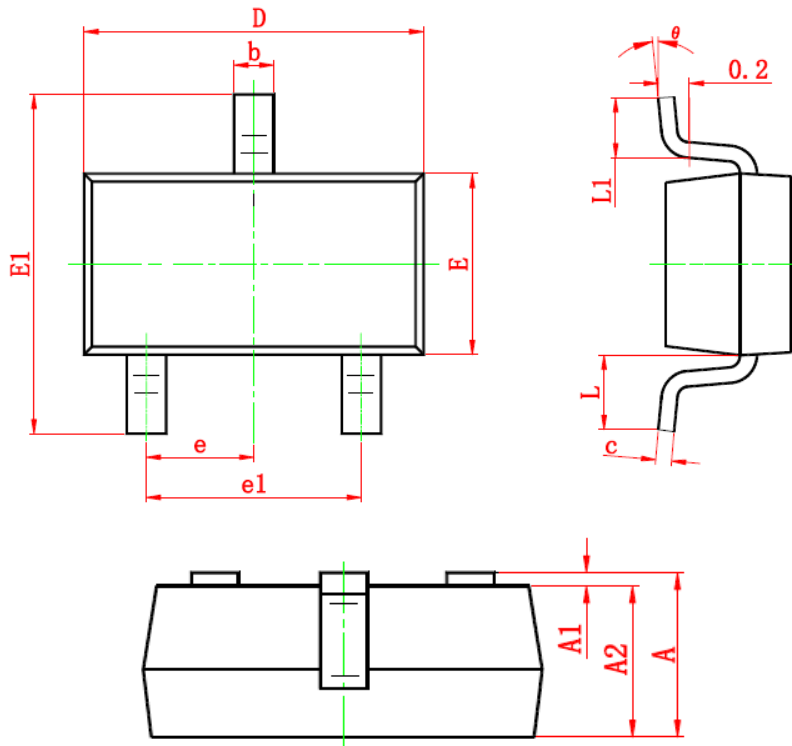


Unclamped Inductive Switching Test Circuit & Waveforms



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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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Wu-Xi Branch	
	No.21 Changjiang Rd., WND, Wuxi, Jiangsu, China (INFO. &. TECH. Science Park Building A 210 Room)
	86-510-85217051
	86-510-85211238
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587