

# GSM9108

## N-Channel Enhancement Mode MOSFET

### Product Description

The GSM9108 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

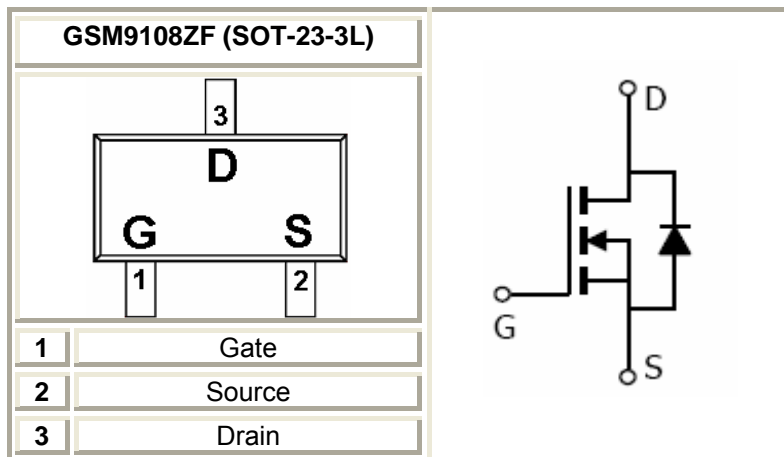
### Features

- 30V/5.4A,  $R_{DS(ON)} = 38m\Omega @ V_{GS} = 10V$
- 30V/4.6A,  $R_{DS(ON)} = 42m\Omega @ V_{GS} = 4.5V$
- 30V/3.8A,  $R_{DS(ON)} = 55m\Omega @ V_{GS} = 2.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

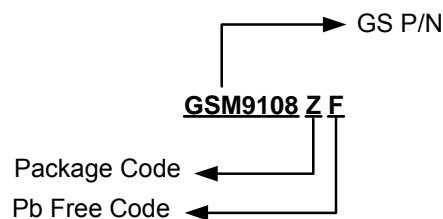
### Applications

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

### Packages & Pin Assignments



### Ordering Information



## Marking Information



Part Number	Package	Part Marking
GSM9108ZF	SOT-23-3L	A0YW

## Absolute Maximum Ratings

TA=25°C Unless otherwise noted

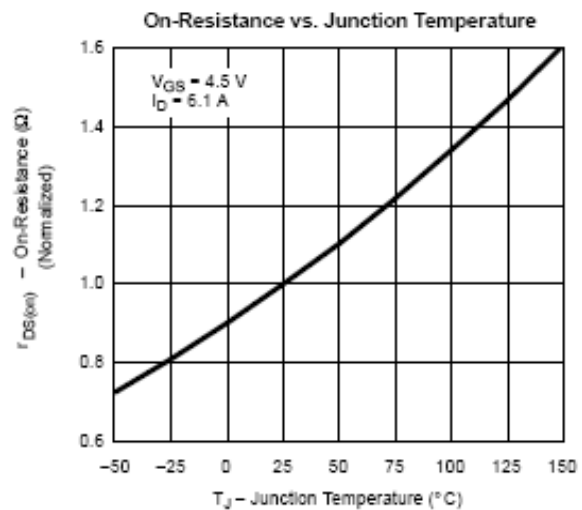
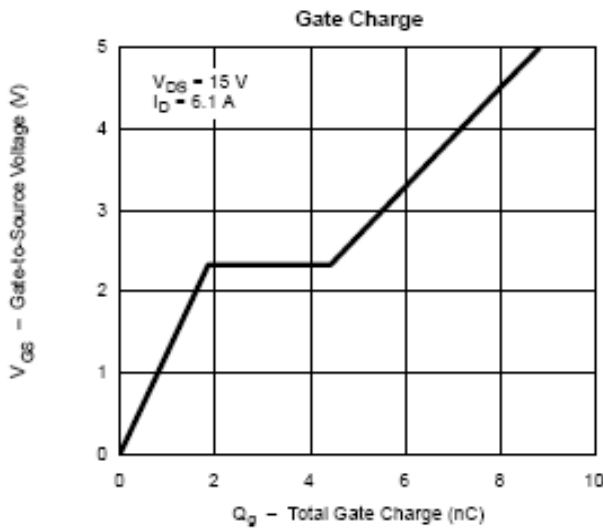
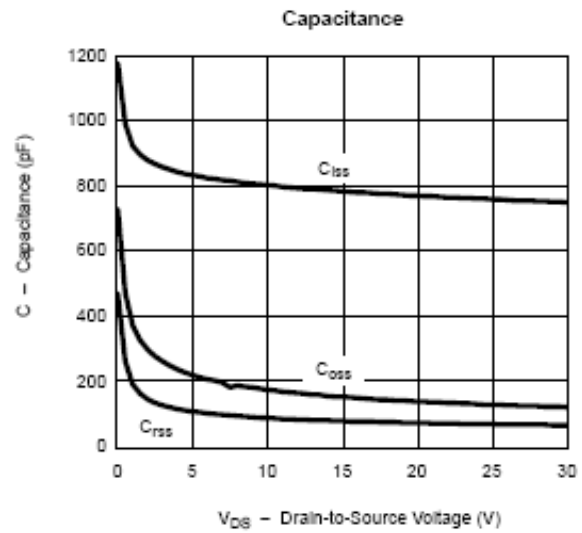
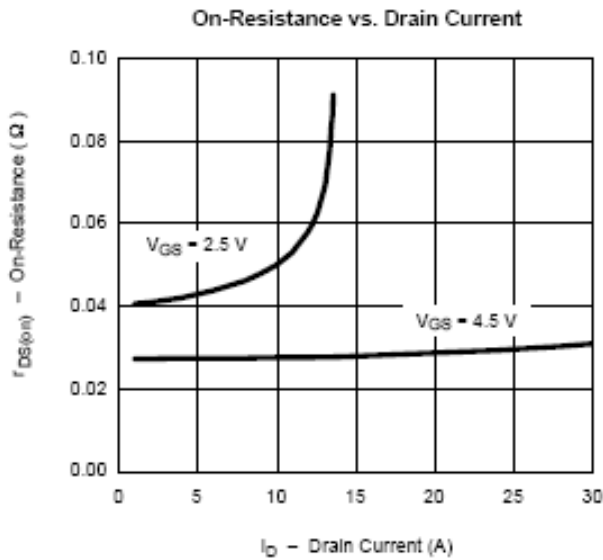
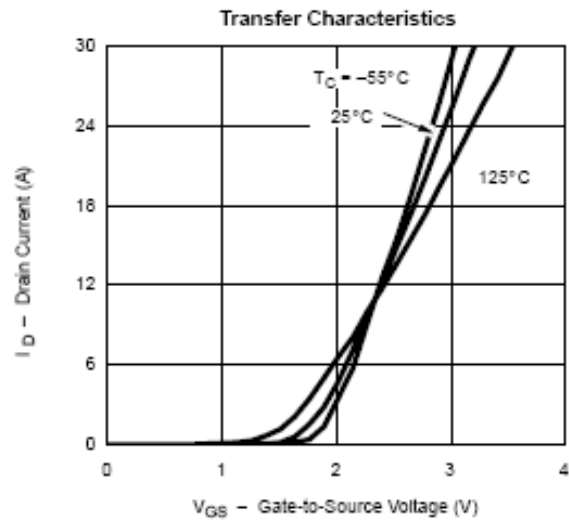
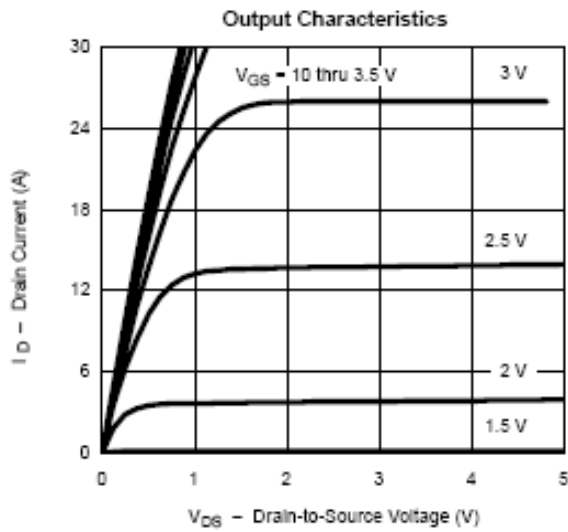
Symbol	Parameter	Typical	Unit	
V <sub>DSS</sub>	Drain-Source Voltage	30	V	
V <sub>GSS</sub>	Gate –Source Voltage	±12	V	
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	TA=25 °C	4.5	A
		TA=70 °C	3.5	
I <sub>DM</sub>	Pulsed Drain Current	25	A	
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	1.7	A	
P <sub>D</sub>	Power Dissipation	TA=25 °C	2.0	W
		TA=70 °C	1.3	
T <sub>J</sub>	Operating Junction Temperature	150	°C	
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C	
R <sub>θJA</sub>	Thermal Resistance-Junction to Ambient	90	°C/W	

## Electrical Characteristics

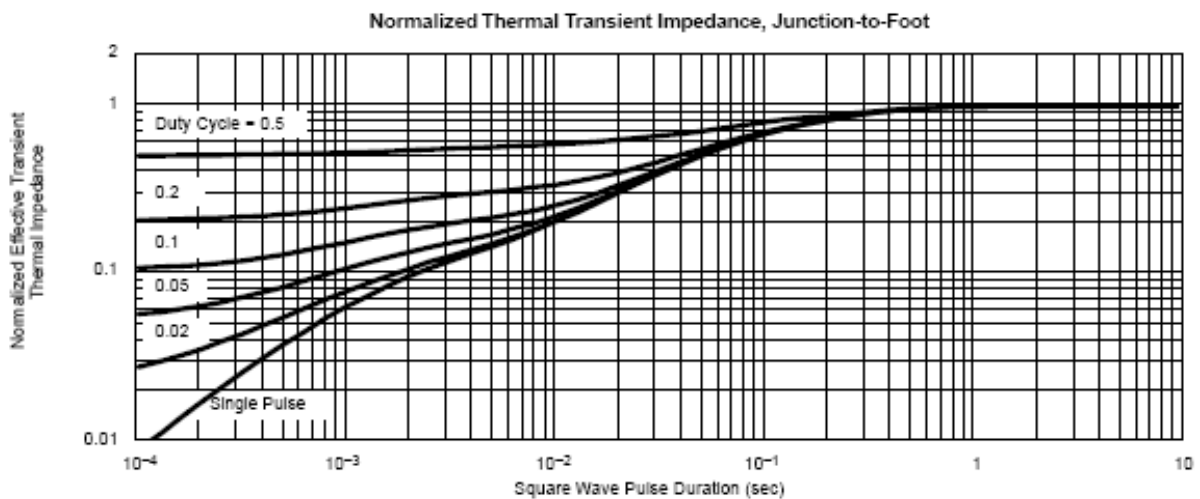
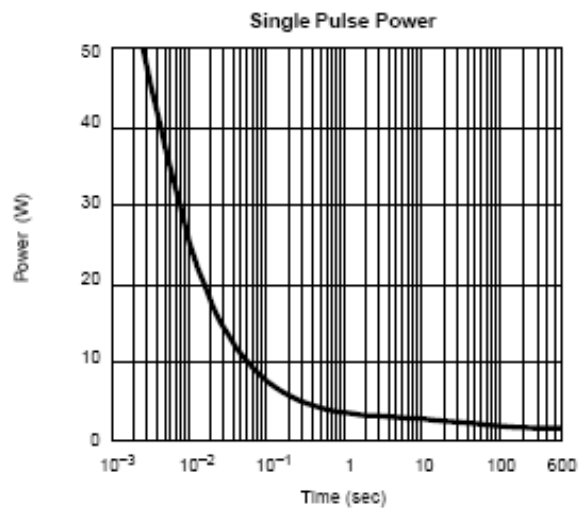
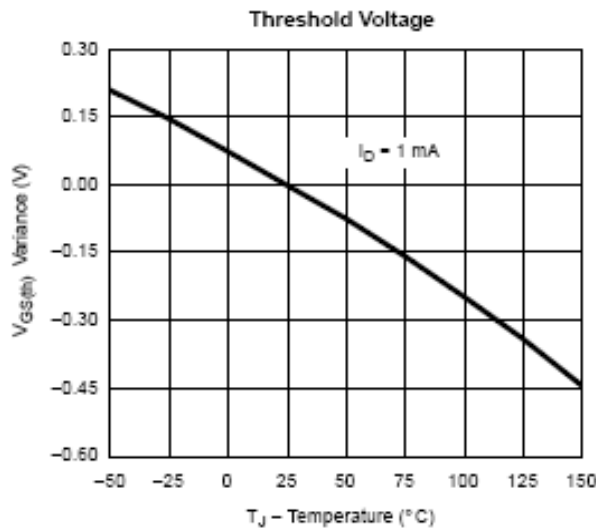
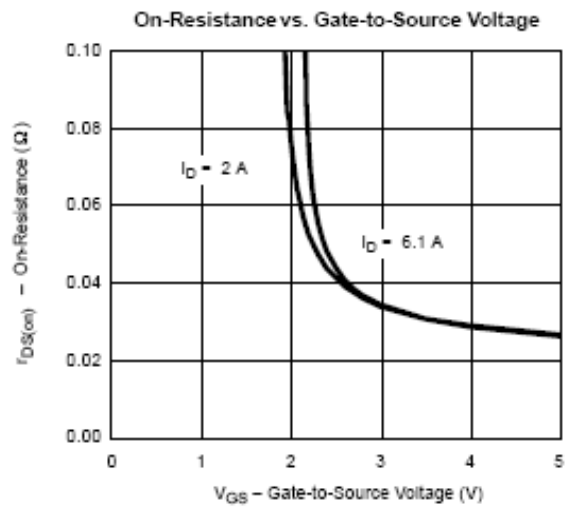
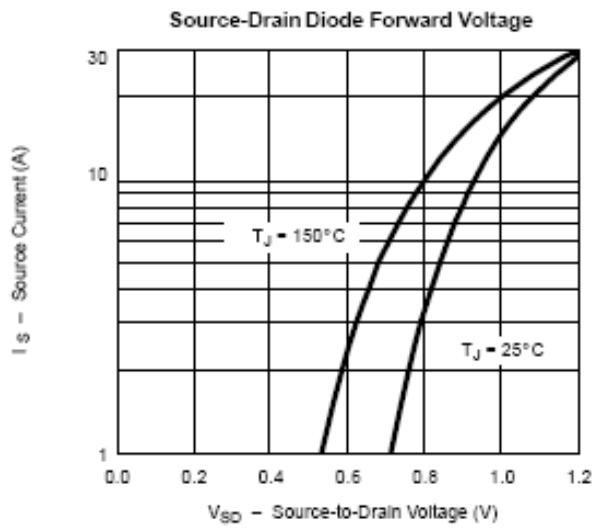
TA=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.8		1.6	
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =1.0V			1	uA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0.0V T <sub>J</sub> =55°C			10	
I <sub>D(on)</sub>	On-State Drain Current	V <sub>DS</sub> ≥ 4.5V, V <sub>GS</sub> =4.5V	10			A
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 10V, I <sub>D</sub> =5.4A		30	38	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> =4.6A		34	42	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> =3.8A		40	55	
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =4.5V, I <sub>D</sub> =5.4A		12		S
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =1.7A, V <sub>GS</sub> =0V		0.8	1.2	V
<b>Dynamic</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V I <sub>D</sub> =6.7A		10	18	nC
Q <sub>gs</sub>	Gate-Source Charge			1.6		
Q <sub>gd</sub>	Gate-Drain Charge			3.2		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		450		pF
C <sub>oss</sub>	Output Capacitance			240		
C <sub>rss</sub>	Reverse Transfer Capacitance			38		
t <sub>d(on)</sub>	Turn-On Time	V <sub>DD</sub> =15V, R <sub>L</sub> =15Ω I <sub>D</sub> ≧1.0A, V <sub>GEN</sub> =10 R <sub>G</sub> =6Ω		7	15	ns
t <sub>r</sub>				10	20	
t <sub>d(off)</sub>	Turn-Off Time			20	40	
t <sub>f</sub>				11	20	

## Typical Performance Characteristics

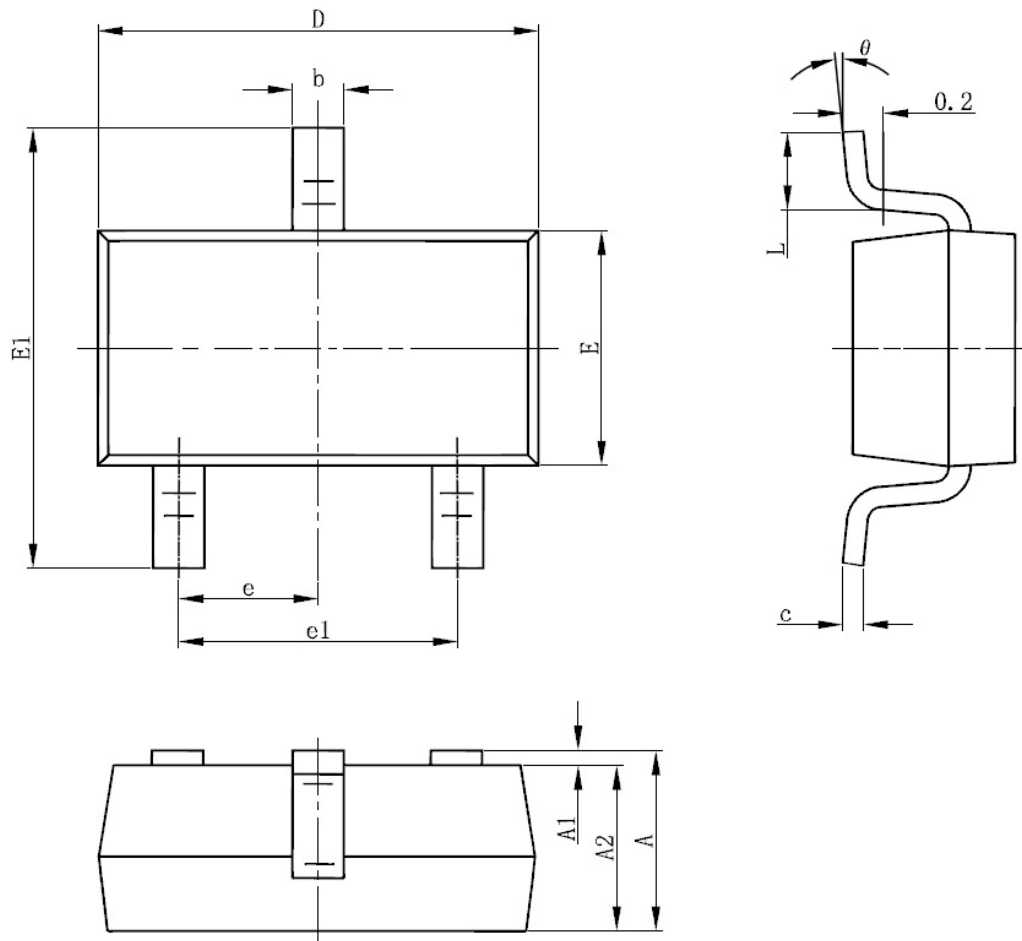


## Typical Performance Characteristics(continue)



## Package Dimension

### SOT-23-3L PLASTIC PACKAGE







Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.05	1.25	0.041	0.049
A1	0	0.1	0	0.004
A2	1.05	1.15	0.041	0.045
b	0.3	0.5	0.012	0.020
c	0.1	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.950 (TYP)		0.037 (TYP)	
e1	1.8	2	0.071	0.079
L	0.3	0.6	0.012	0.024
Q	0°	8°	0°	8°





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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