

GSM9104

30V N-Channel Enhancement Mode MOSFET

JAN. 2010

Product Description

The GSM9104 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.

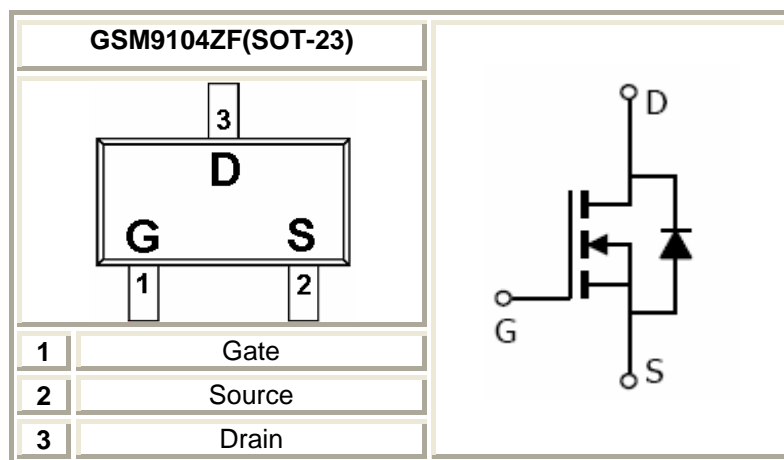
Features

- 30V / 3.2A, $R_{DS(ON)}=65m\Omega@V_{GS}=10V$
- 30V / 2.0A, $R_{DS(ON)}=90m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

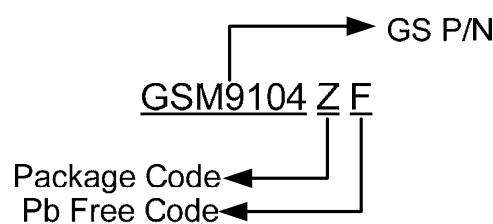
Applications

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

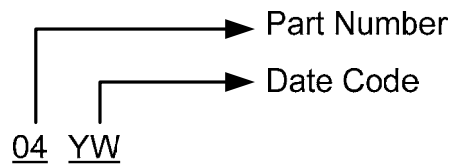
Packages & Pin Assignments & Block Diagram



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM9104ZF	SOT-23-3L	04YW

Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

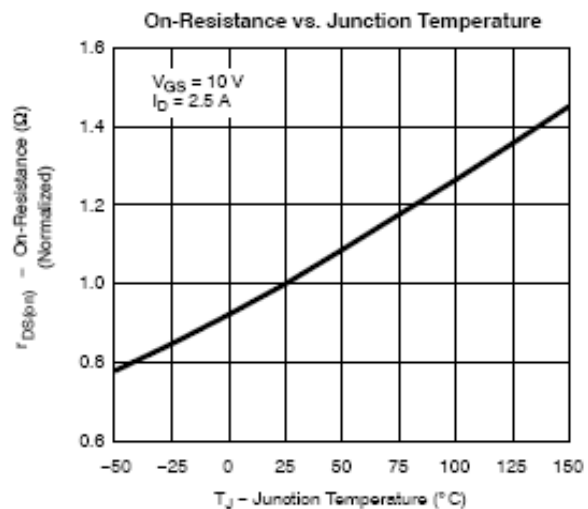
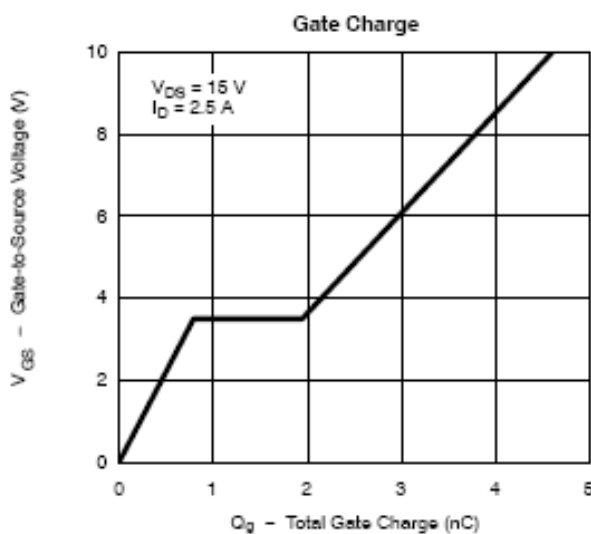
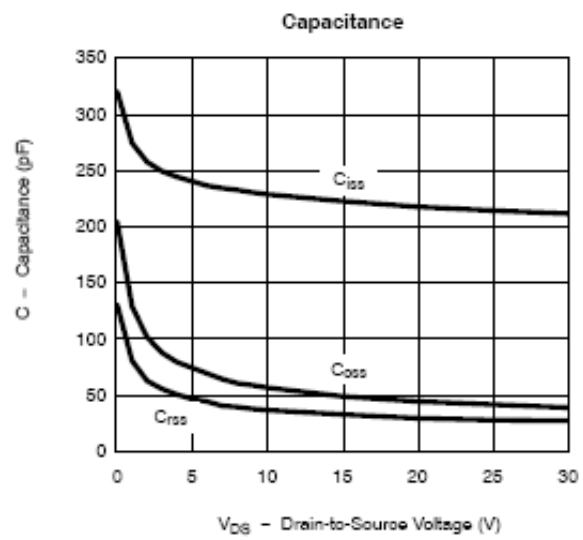
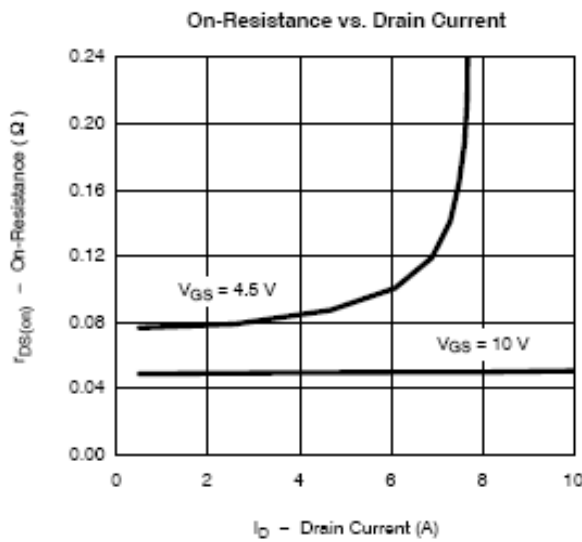
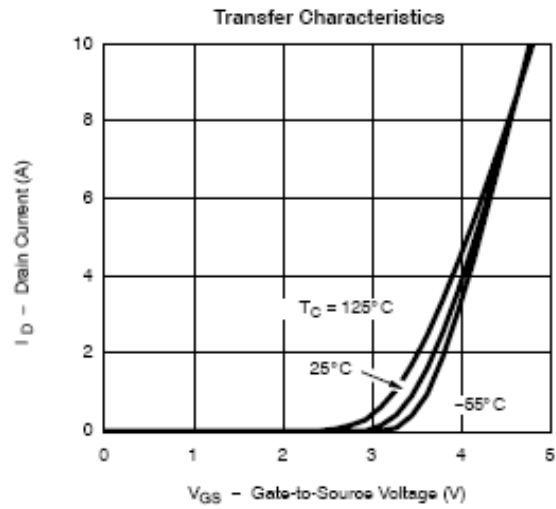
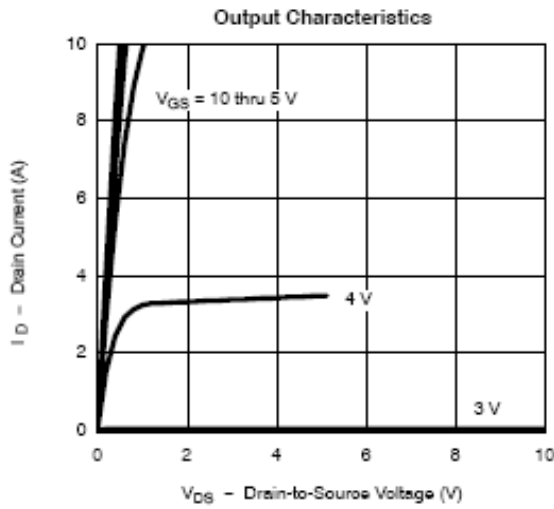
Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate –Source Voltage	±20	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	3.2
		T _A =70°C	2.6
I _{DM}	Pulsed Drain Current	10	A
I _S	Continuous Source Current(Diode Conduction)	1.25	A
P _D	Power Dissipation	T _A =25°C	1.25
		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	100	°C/W

Electrical Characteristics

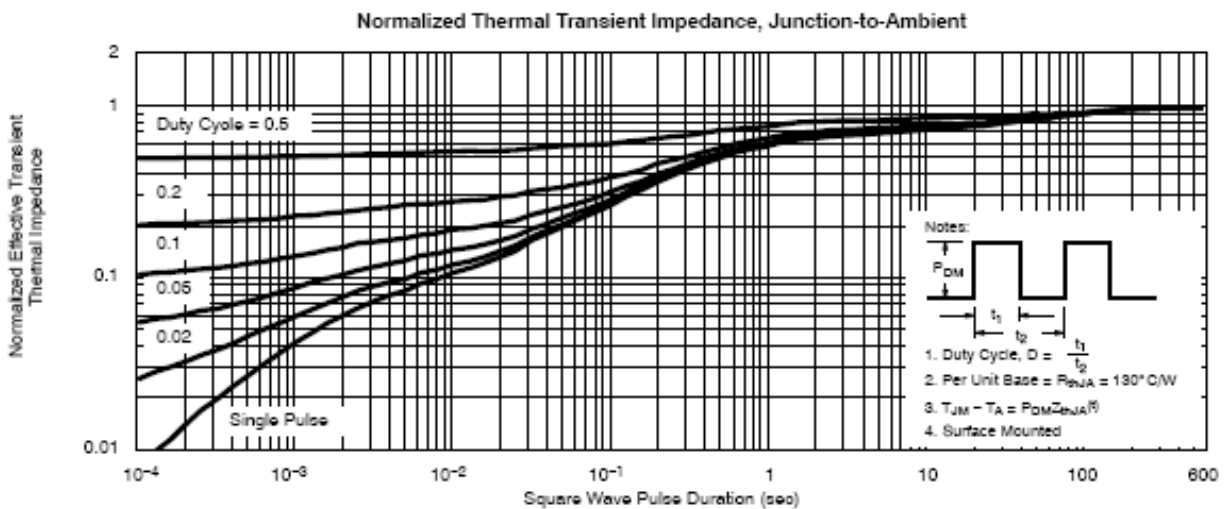
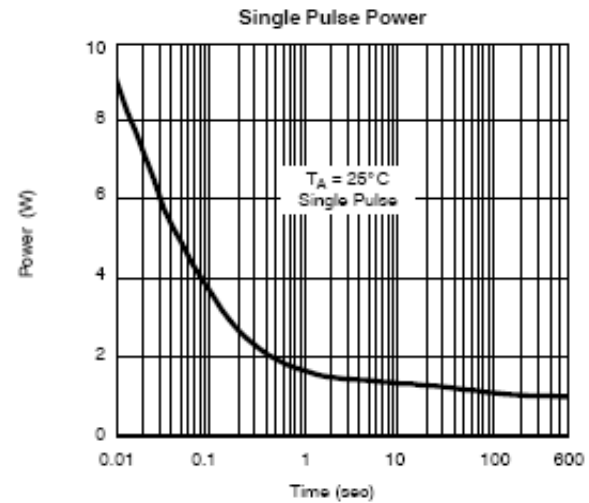
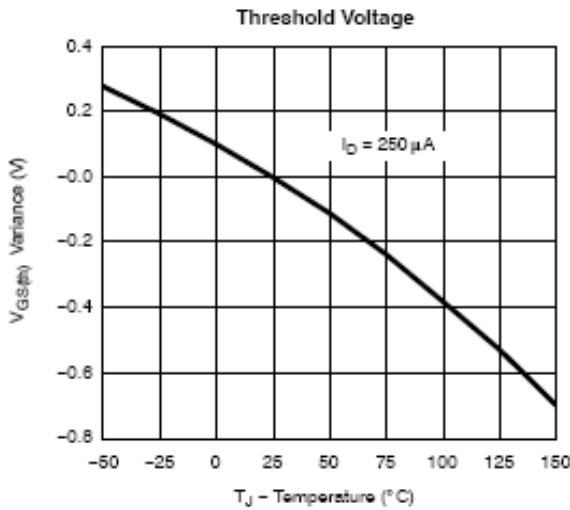
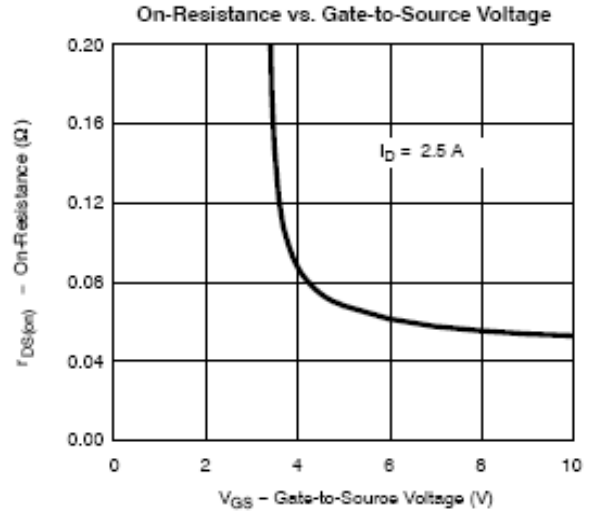
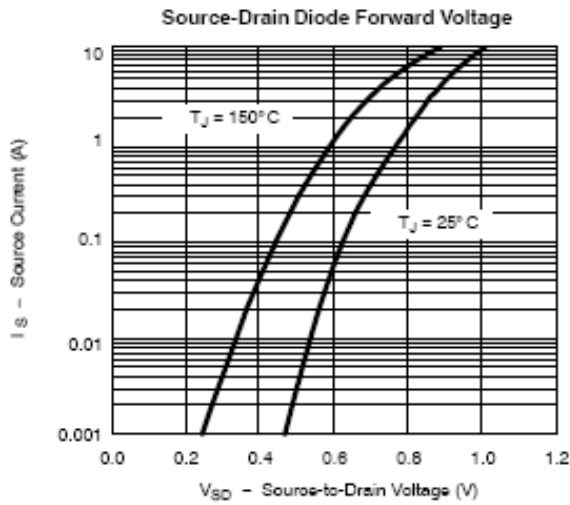
TA=25°C Unless otherwise noted

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	$V_{DS}=V_{GS}, I_D=250\mu A$	1.5	1.7	3.0	
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=1.0V$			1	uA
		$V_{DS}=30V, V_{GS}=0.0V$ $T_J=55^\circ C$			10	
$I_{D(on)}$	On-State Drain Current	$V_{DS} \geq 4.5V, V_{GS}=10V$	6			A
		$V_{DS} \geq 4.5V, V_{GS}=4.5V$	4			
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS} = 10V, I_D=3.2A$		0.050	0.065	Ω
		$V_{GS} = 4.5V, I_D=2.0A$		0.065	0.090	
g_{fs}	Forward Transconductance	$V_{DS}=4.5V, I_D=2.5A$		4.6		S
V_{SD}	Diode Forward Voltage	$I_S=1.25A, V_{GS}=0V$		0.82	1.2	V
Dynamic						
Q_g	Total Gate Charge	$V_{DS}=1V, V_{GS}=10V$ $I_D=2.5A$		4.5	10	nC
Q_{gs}	Gate-Source Charge			0.8		
Q_{gd}	Gate-Drain Charge			1.0		
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V$ $f=1MHz$		240		pF
C_{oss}	Output Capacitance			110		
C_{rss}	Reverse Transfer Capacitance			17		
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, R_L=15\Omega$ $I_D=1.0A,$ $V_{GEN}=10V$ $R_G=6\Omega$		8	20	ns
t_r				12	30	
$t_{d(off)}$	Turn-Off Time			17	35	
t_f				8	20	

Typical Performance Characteristics

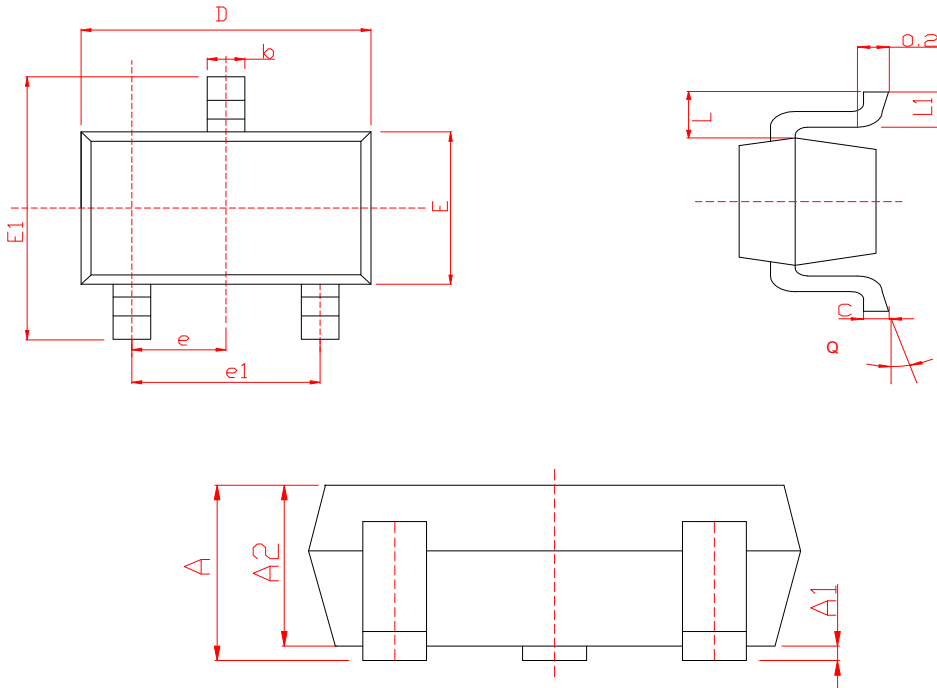


Typical Performance Characteristics(Continue)



Package Dimension

SOT-23-3L







Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 (TYP)		0.037 (TYP)	
e1	1.800	2.000	0.071	0.079
L	0.700 (REF)		0.028 (REF)	
L1	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°



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