

GSM0910P

100V N-Channel MOSFETs

Product Description

These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

These devices are well suited for high efficiency fast switching applications.

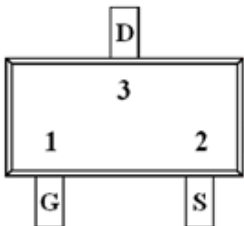
Features

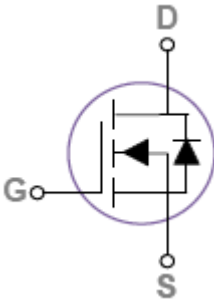
- 100V, 2A, $R_{DS(ON)}=200m\Omega@V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed
- Green Device Available

Applications

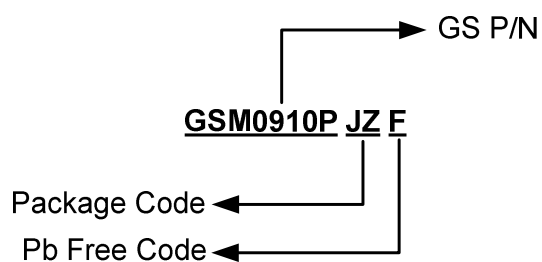
- Notebook
- Load Switch
- LED applications

Packages & Pin Assignments

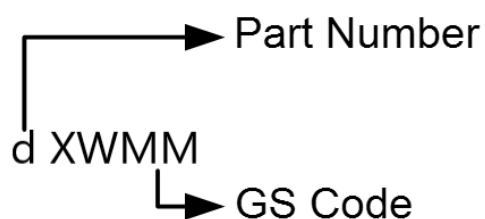
GSM0910PJZF (SOT-23)	
 Top Views	
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM0910PJZF	SOT-23	dXWMM	3000pcs

Absolute Maximum Ratings

$T_C=25^{\circ}\text{C}$ Unless otherwise noted

Symbol	Parameter	Typical	Unit
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$	A
		$T_C=100^{\circ}\text{C}$	
I_{DM}	Pulsed Drain Current ¹	8	A
P_D	Power Dissipation ($T_C=25^{\circ}\text{C}$)	1.56	W
	Power Dissipation (Derate above 25°C)	0.012	W/ $^{\circ}\text{C}$
T_J	Operating Junction Temperature Range	-50 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-50 to +150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	80	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

T_J=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 =250uA	100			V
△BV _{DSS} /△T _J	BV _{DSS} Temperature Coefficient	Reference to 25℃ , I _D =1mA		0.10		V/℃
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250uA	1.2	1.8	2.5	V
△V _{GS(th)}	V _{GS(th)} Temperature Coefficient			-4		mV/℃
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V,V _{GS} =±20V			±100	nA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V,V _{GS} =0V			1	uA
		V _{DS} =80V,V _{GS} =0V, T _J =125℃			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			2	A
I _{SM}	Pulsed Source Current				8	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V,I _D =2A		161	200	mΩ
		V _{GS} =4.5V,I _D =1A		169	210	
g _{FS}	Forward Transconductance	V _{DS} =10V,I _D =1A		5		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _S =1A			1	V
Dynamic						
Q _g	Total Gate Charge ^{2,3}	V _{DS} =50V,V _{GS} =10V, I _D =2A		13.4	21	nC
Q _{gs}	Gate-Source Charge ^{2,3}			2.9	6	
Q _{gd}	Gate-Drain Charge ^{2,3}			1.7	4	
C _{iss}	Input Capacitance	V _{DS} =50V,V _{GS} =0V, f=1MHz		820	1190	pF
C _{oss}	Output Capacitance			35	55	
C _{rss}	Reverse Transfer Capacitance			20	30	
t _{d(on)}	Turn-On Time ^{2,3}	V _{DD} =30V,I _D =1A, V _{GS} =10V,R _G =3.3Ω		1.6	3	ns
t _r				6.6	13	
t _{d(off)}	Turn-Off Time ^{2,3}			11.5	22	
t _f				3.6	7	
R _g	Gate Resistance	V _{DS} =0V,V _{GS} =0V, f=1MHz		1.3	2.6	Ω

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

Typical Performance Characteristics

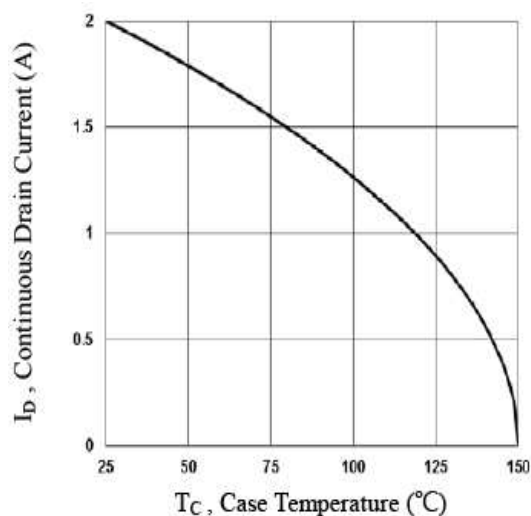


Fig.1 Continuous Drain Current vs. T_C

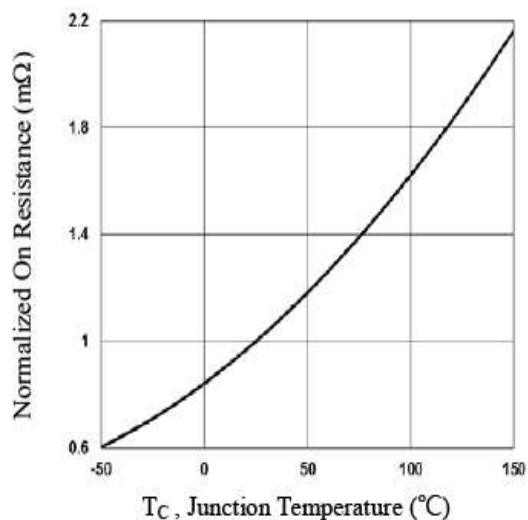


Fig.2 Continuous Drain Current vs. T_C

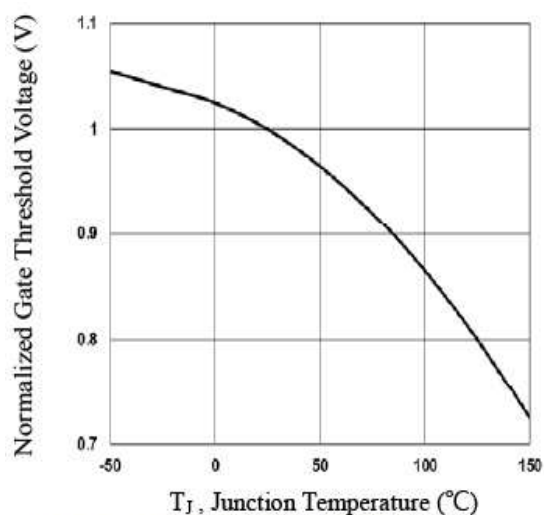


Fig.3 Normalized V_{th} vs. T_J

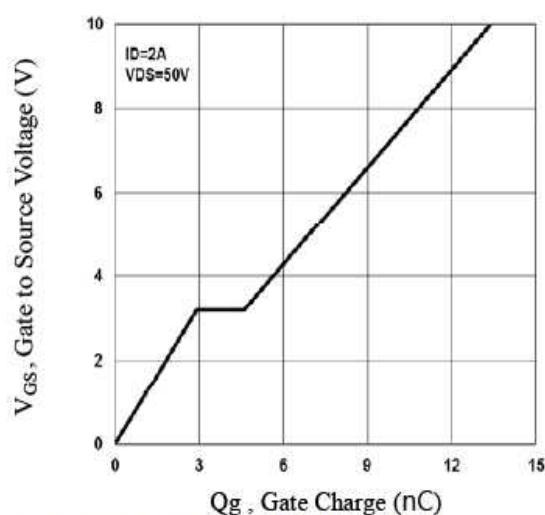


Fig.4 Gate Charge Waveform

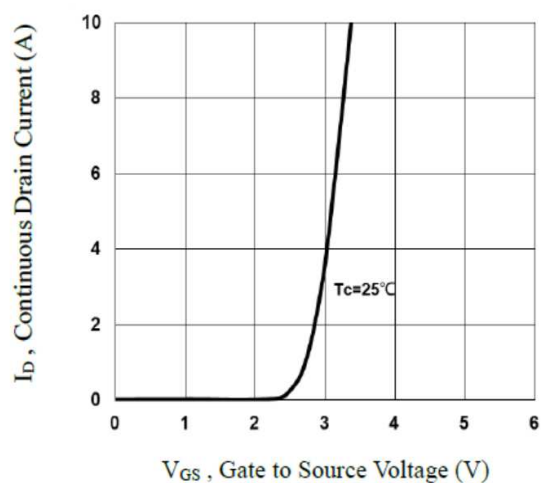


Fig.5 Transfer Characteristics

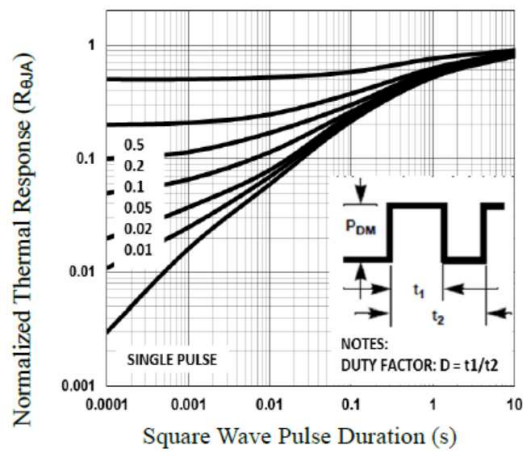


Fig.6 Normalized Transient Impedance

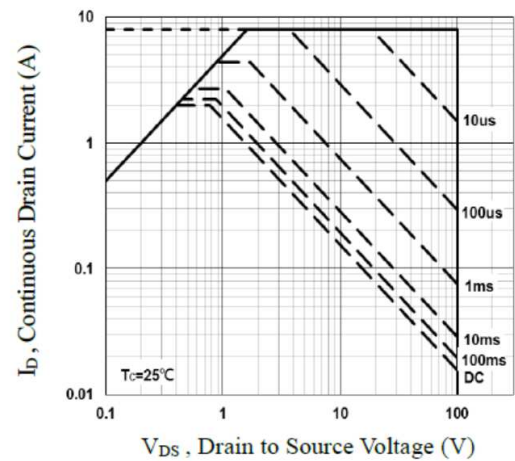


Fig.7 Maximum Safe Operation Area

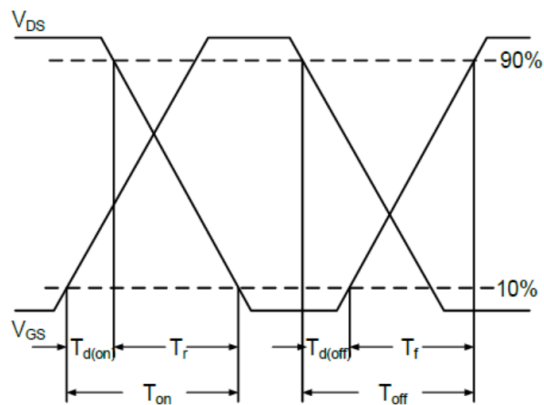


Fig.8 Switching Time Waveform

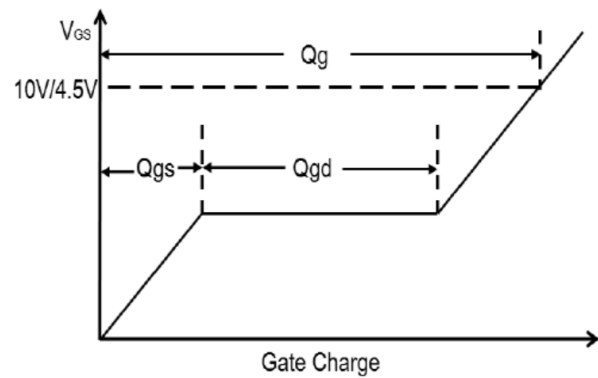
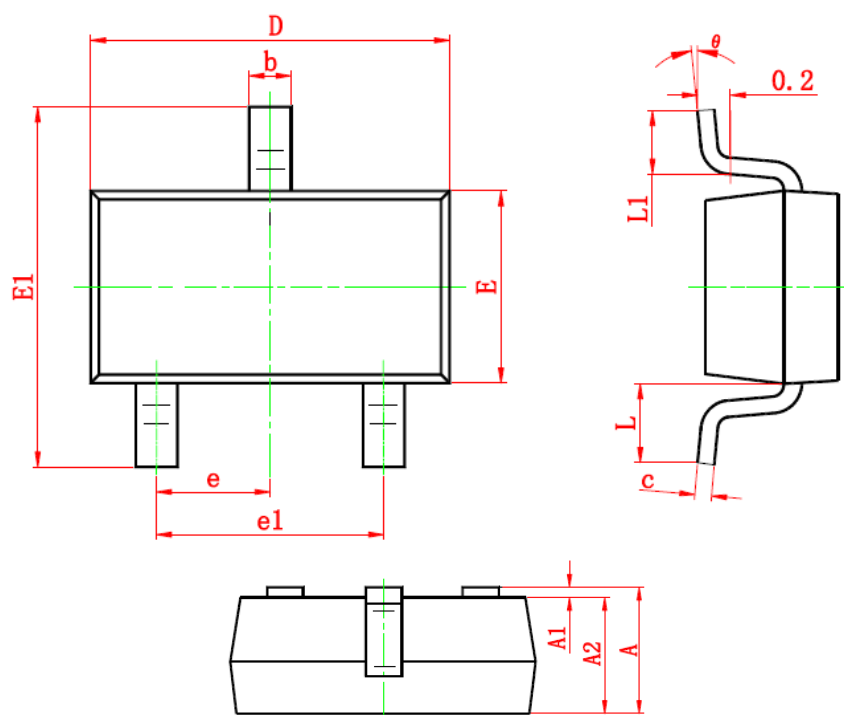


Fig.9 Gate Charge Waveform

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 Neihs District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

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