

GSM4911P

40V P-Channel MOSFETs

Product Description

These P-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.

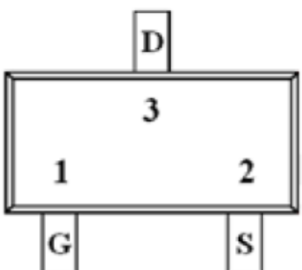
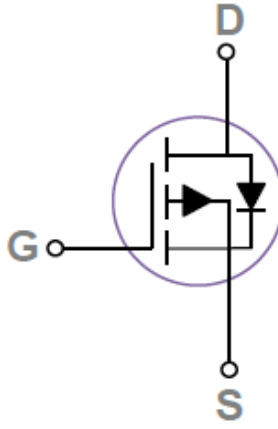
Features

- -40V, -2.9A, $R_{DS(ON)}=68m\Omega@V_{GS}=-10V$
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available

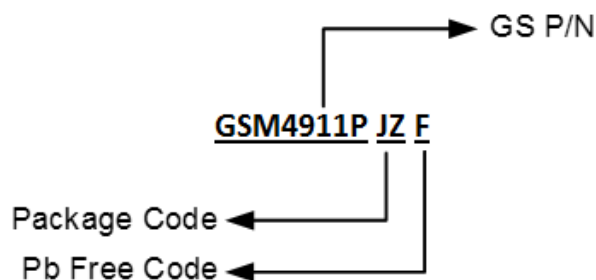
Applications

- POL Applications
- Load Switch
- LED Application

Packages & Pin Assignments

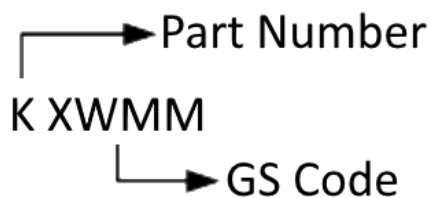
GSM4911PJZF (SOT-23)	
 <p>Top Views</p>	
	
Pin	Description
1	Gate
2	Source
3	Drain

Ordering Information



Part Number	Package	Quantity
GSM4911PJZF	SOT-23	3000pcs

Marking Information



Part Number	Package	Part Marking
GSM4911PJZF	SOT-23	KXWMM

Absolute Maximum Ratings (T_C=25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DS}	Drain-Source Voltage	-40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _A =25°C	-2.9
		T _A =100°C	-2.32
I _{DM}	Pulsed Drain Current ¹	-11.6	A
P _D	Power Dissipation (T _A =25°C)	1	W
	Power Dissipation (Derate above 25°C)	8	mW/°C
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
Symbol	Parameter	Max	Unit
R _{θJA}	Thermal Resistance-Junction to Ambient	125	°C/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	-40			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-1.0	-1.65	-2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-40V, V _{GS} =0V, T _J =25°C			-1	uA
		V _{DS} =-32V, V _{GS} =0V, T _J =125°C			-10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			-2.9	A
I _{SM}	Pulsed Source Current				-5.8	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-2A		55	68	mΩ
		V _{GS} =-4.5V, I _D =-1A		75	100	
g _{FS}	Forward Transconductance	V _{DS} =-10V, I _D =-1A		3		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-1A, T _J =25°C			-1	V
Dynamic						
Q _g	Total Gate Charge ^{2,3}	V _{DS} =-32V, V _{GS} =-10V, I _D =-2A		6.4	13	nC
Q _{gs}	Gate-Source Charge ^{2,3}			0.5	2	
Q _{gd}	Gate-Drain Charge ^{2,3}			2.7	6	
C _{iss}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, f=1MHz		600	1200	pF
C _{oss}	Output Capacitance			60	120	
C _{rss}	Reverse Transfer Capacitance			43	80	
t _{d(on)}	Turn-On Time ^{2,3}	V _{DD} =-20V, I _D =-1A, V _{GS} =-10V, R _G =6Ω		12	24	ns
t _r	Rise Time ^{2,3}			9	20	
t _{d(off)}	Turn-Off Time ^{2,3}			45	90	
t _f	Fall Time ^{2,3}			5	10	

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

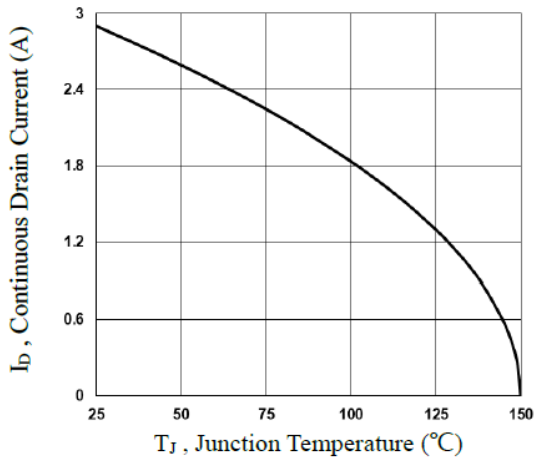


Fig.1 Continuous Drain Current vs. T_J

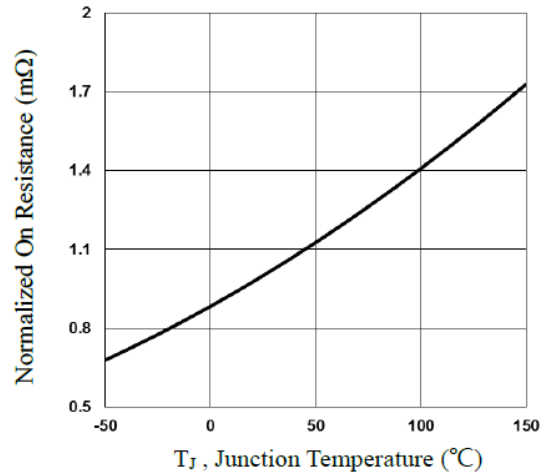


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

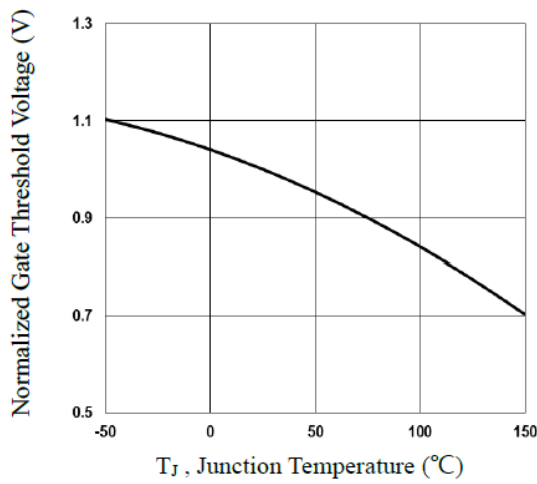


Fig.3 Normalized V_{th} vs. T_J

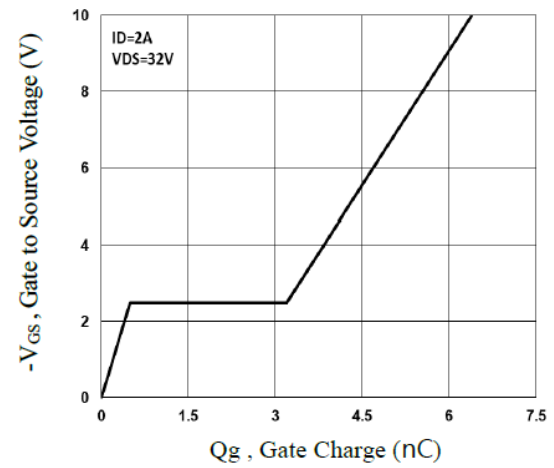


Fig.4 Gate Charge Waveform

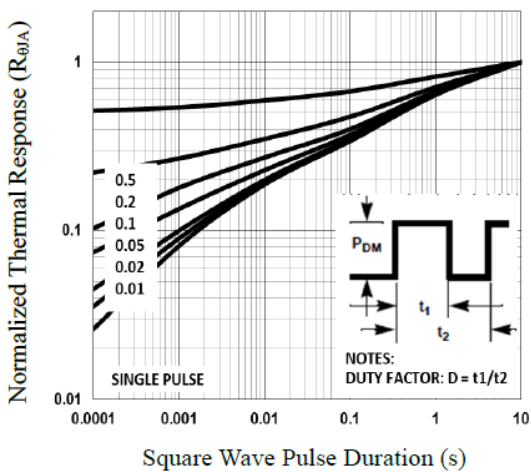


Fig.5 Normalized Transient Impedance

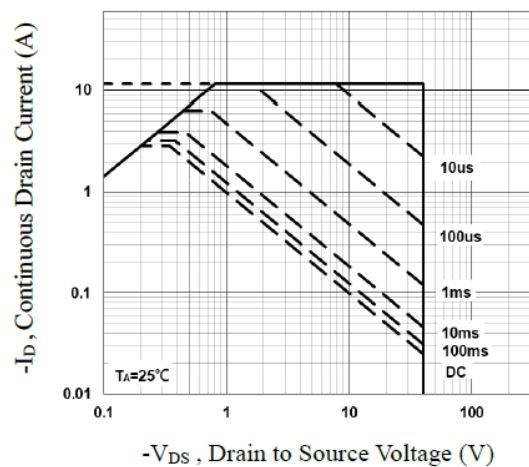


Fig.6 Maximum Safe Operation Area

Typical Performance Characteristics (Continue)

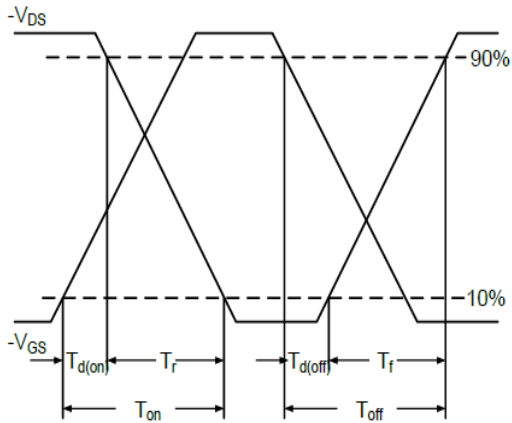


Fig.7 Switching Time Waveform

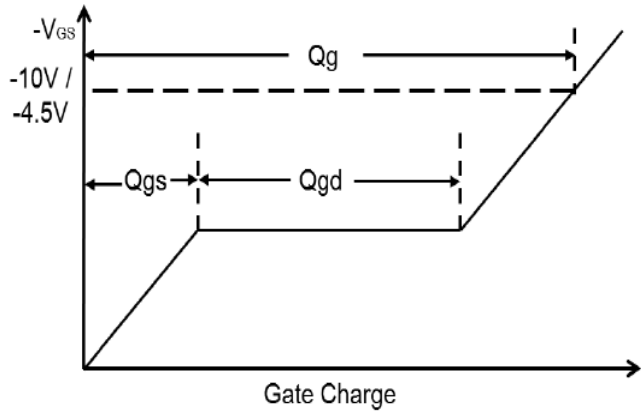
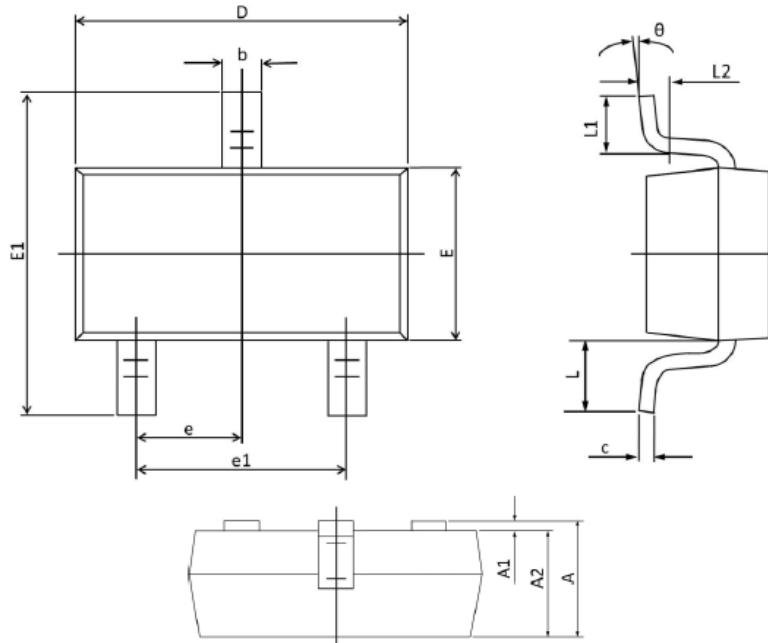


Fig.8 Gate Charge Waveform

Package Dimension

SOT-23







Dimensions



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
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
L2	0.250 TYP		0.010 TYP	
θ	0°	8°	0°	8°

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