

GSM3612PJZF

30V 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.

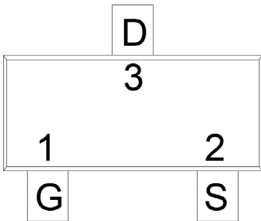
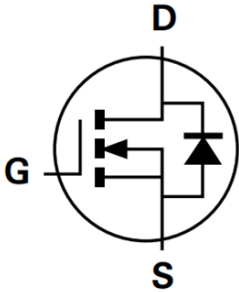
Features

- 30V, 5.3A, $R_{DS(ON)}=36m\Omega@V_{GS}=4.5V$
- Improved dv/dt capability
- Fast switching
- Suit for 2.5V Gate Drive Applications
- Green Device Available
- SOT-23 package design

Applications

- Notebook
- Load Switch
- LED applications

Packages & Pin Assignments

SOT-23		Equivalent Circuit
 Top Views		
Pin	Description	
1	Gate	
2	Source	
3	Drain	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM3612PJZF	SOT-23	P□□□□	3,000 PCS
GSM3612P 1 2			
- Product Code: GS3612P - Package Code: 1 is JZ for SOT-23 - Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
P□□□□ - Product Code: P - GS Code: □□□□			

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

Symbol	Parameter		Value	Unit
V _{DS}	Drain-Source Voltage		30	V
V _{GS}	Gate-Source Voltage		±12	V
I _D	Continuous Drain Current	T _A =25°C	5.3	A
		T _A =70°C	3.4	
I _{DM}	Pulsed Drain Current ¹		21.2	A
P _D	Power Dissipation	T _A =25°C	1.25	W
		T _A =70°C	0.64	W
T _J	Operating Junction Temperature Range		-55 to +150	°C
T _{STG}	Storage Temperature Range		-55 to +150	°C
R _{θJA}	Thermal Resistance - Junction to Ambient		100	°C/W

Electrical Characteristics (T_J=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30			V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =1mA		0.06		V/°C
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.4	0.6	0.9	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient			-3		mV/°C
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	uA
		V _{DS} =24V, V _{GS} =0V, T _J =125°C			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			5.3	A
I _{SM}	Pulsed Source Current				21.2	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =4.5V, I _D =4A		31	36	mΩ
		V _{GS} =2.5V, I _D =3A		36	45	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =3A		7		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A			1	V
Dynamic characteristics						
Q _g	Total Gate Charge ^{2,3}	V _{DS} =10V, V _{GS} =4.5V, I _D =4A		8.4	12	nC
Q _{gs}	Gate-Source Charge ^{2,3}			1	2	
Q _{gd}	Gate-Drain Charge ^{2,3}			2.2	4	
C _{iss}	Input Capacitance	V _{DS} =10V,V _{GS} =0V, f=1MHz		695	1000	pF
C _{OSS}	Output Capacitance			45	65	
C _{rss}	Reverse Transfer Capacitance			36	50	
t _{d(on)}	Turn-On Time ^{2,3}	V _{DD} =10V, I _D =1A, V _{GS} =4.5V, R _G =25Ω		4.5	9	ns
t _r				13	25	
t _{d(off)}	Turn-Off Time ^{2,3}			27	51	
t _f				8.3	16	
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		1.5	3	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

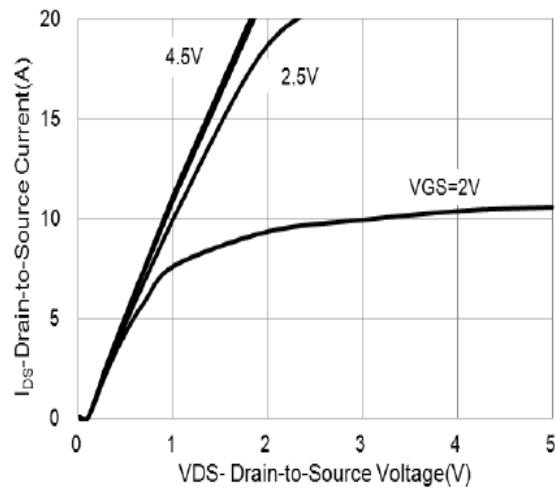


Fig.1 Output Characteristics

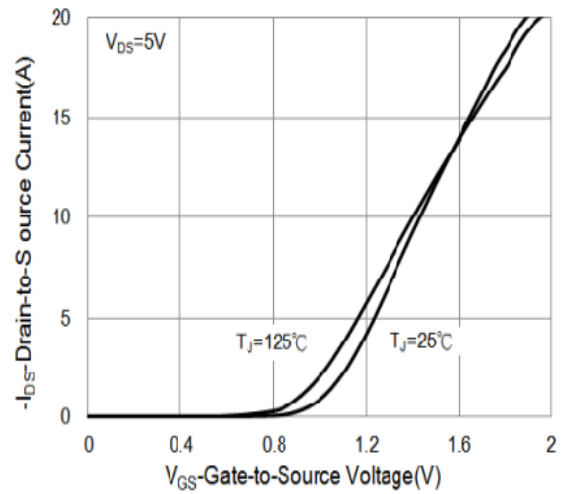


Fig.2 Transfer Characteristics

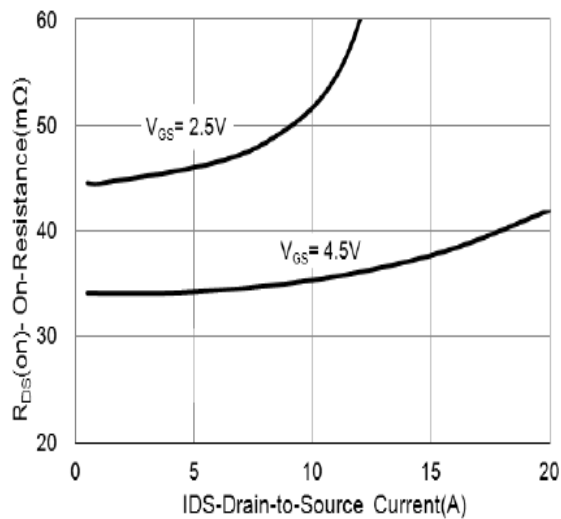


Fig.3 On-Resistance vs. Drain Current

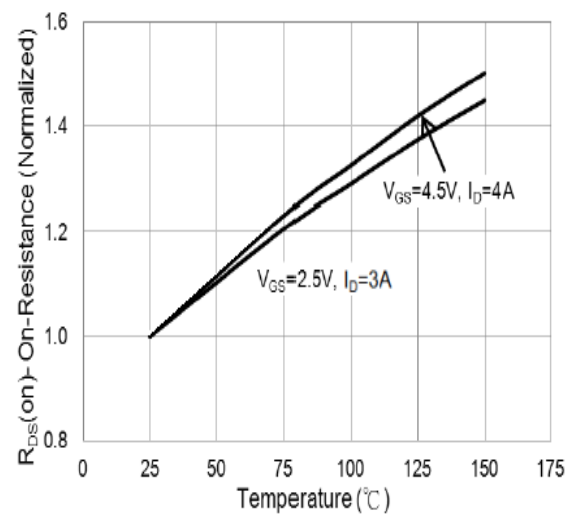


Fig.4 On-Resistance vs. Junction temperature

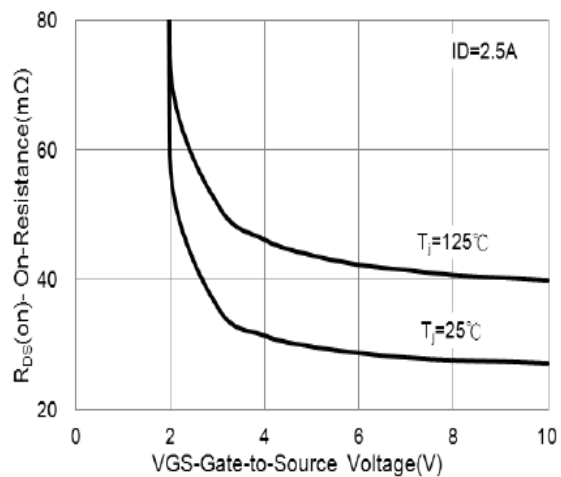


Fig.5 On-resistance vs. Gate-to-Source Voltage

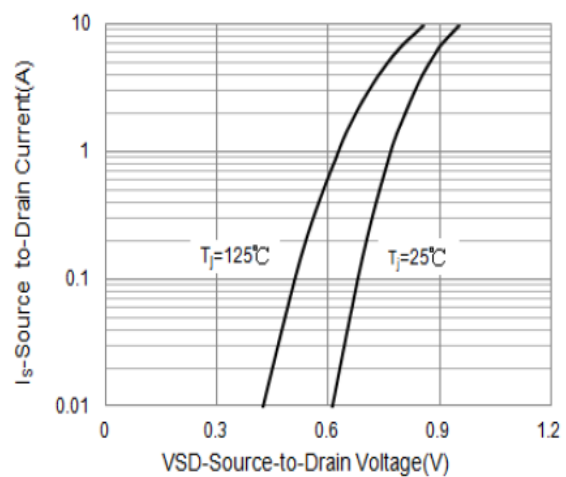


Fig.6 Source-Drain Diode Forward Voltage

Typical Performance Characteristics (Continue)

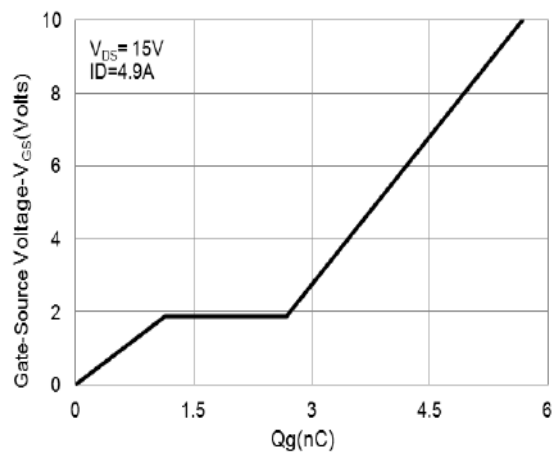


Fig.7 Gate-Charge

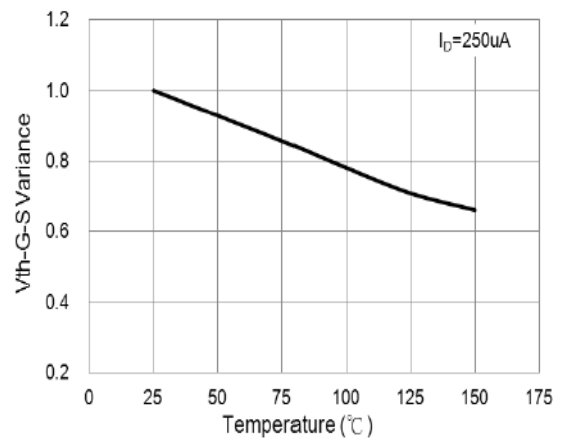


Fig.8 Threshold Voltage

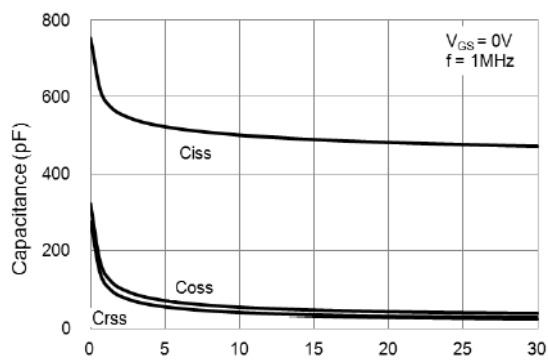
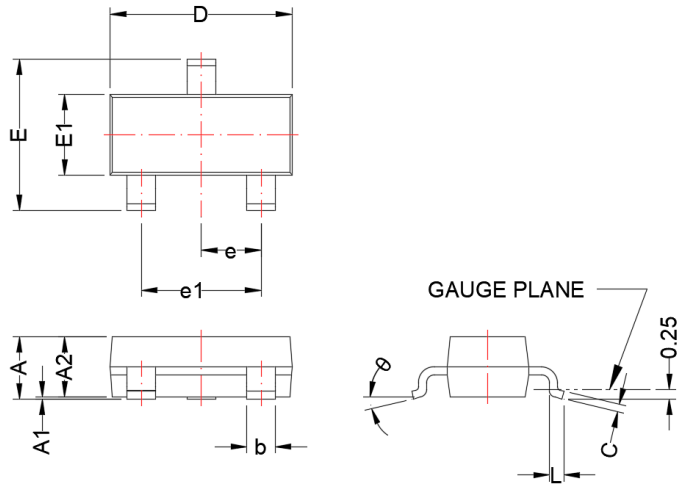


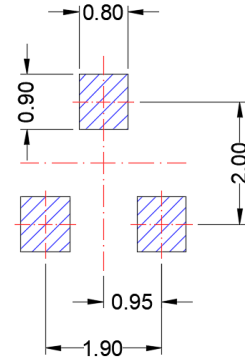
Fig.9 Capacitance

SOT-23

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.75	1.17	0.030	0.046
A1	0.01	0.15	0.000	0.006
A2	0.70	1.02	0.028	0.040
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

NOTE:

Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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