

GSM2122JZF

20V N-Channel Enhancement Mode MOSFET

Product Description

GSM2122JZF, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

The device is particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

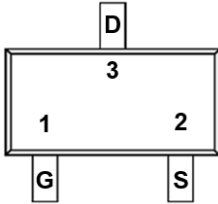
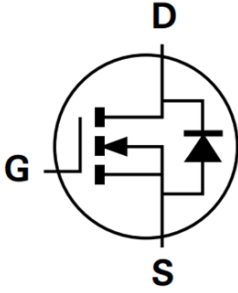
Features

- $R_{DS(ON)}=22m\Omega$ @ $V_{GS}=4.5V$
- Super high-density cell design for extremely low $R_{DS(ON)}$
- SOT-23 package
- RoHS Compliant and Halogen Free

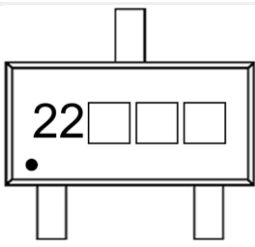
Applications

- Portable Equipment
- Battery Powered System
- Net Working System

Packages & Pin Assignments

GSM2122JZF (SOT-23)		Equivalent Circuit
		
Pin	Description	
1	Gate	
2	Source	
3	Drain	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM2122JZF	SOT-23	22□□□	3,000 PCS
GSM2122 1 1 2 <div> <div>- Product Code: GSM2122</div> <div>- Package Code: 1 1 is JZ for SOT-23</div> <div>- Green Level: 2 is F for RoHS Compliant and Halogen Free</div> </div>			
Marking Information			
<div>  <div> <div>- Product Code: 22</div> <div>- GS Code: □ □ □</div> </div> </div>			

Absolute Maximum Ratings (T_A=25°C, unless otherwise specified)

Symbol	Parameter		Value	Unit
V _{DSS}	Drain-Source Voltage		20	V
V _{GSS}	Gate-Source Voltage		±12	V
I _D	Continuous Drain Current	T _A =25°C	6	A
		T _A =70°C	5	
I _{DM}	Pulsed Drain Current		20	A
P _D	Power Dissipation	T _A =25°C	1.25	W
		T _A =70°C	0.8	
T _J	Operating Junction Temperature		-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_A=25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.4	-	1	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =4.5V, I _D =4A	-	17	22	mΩ
		V _{GS} =2.5V, I _D =3A	-	24	32	
		V _{GS} =1.8V, I _D =2A	-	35	45	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =3A	-	3.7	-	S
V _{SD}	Diode Forward Voltage	I _S =1A, V _{GS} =0V	-	-	1	V
Dynamic characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	560	-	pF
C _{oss}	Output Capacitance		-	166	-	
C _{rss}	Reverse Transfer Capacitance		-	150	-	
Q _g	Total Gate Charge ^{1,2}	V _{DS} =10V, V _{GS} =4.5V, I _D =6A	-	8.5	-	nC
Q _{gs}	Gate-Source Charge ^{1,2}		-	1.5	-	
Q _{gd}	Gate-Drain Charge ^{1,2}		-	3.5	-	
t _{d(on)}	Turn-On Time ^{1,2}	V _{DD} =10V, I _D =1A, V _{GS} =4.5V, R _G =6Ω	-	12	-	ns
t _r	Rise Time ^{1,2}		-	15	-	
t _{d(off)}	Turn-Off Time ^{1,2}		-	30	-	
t _f	Fall Time ^{1,2}		-	15	-	

Note:

1. The data tested by pulsed, pulse width≤300us, duty cycles≤2%.
2. Independent of operating temperature.

Typical Performance Characteristics

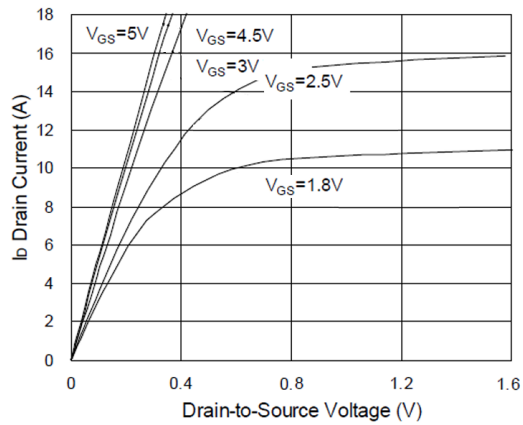


Fig.1 Typical Output Characteristics

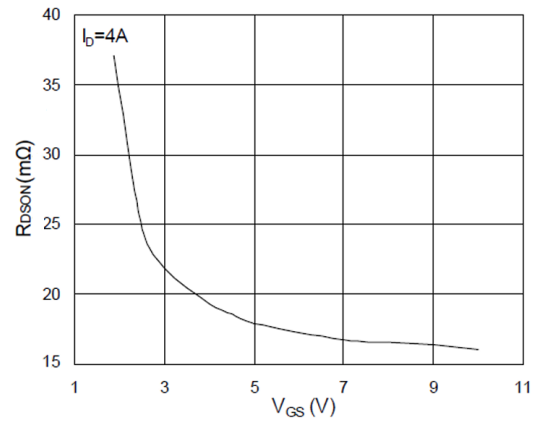


Fig.2 Typical On-Resistance vs. Gate Voltage

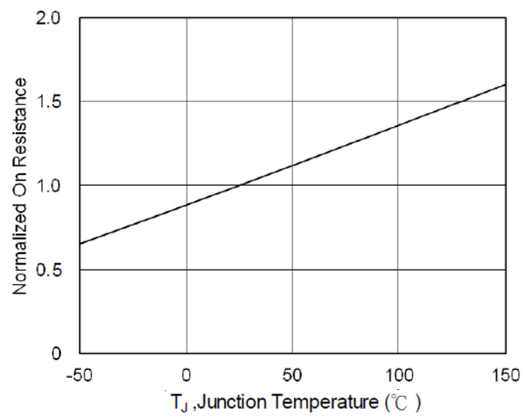


Fig.3 Normalized On-Resistance vs. T_J

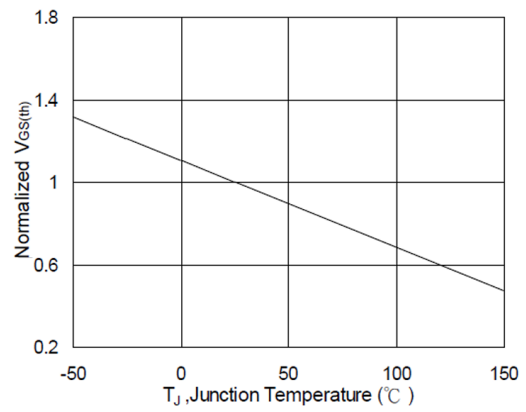


Fig.4 Normalized $V_{GS(th)}$ vs. T_J

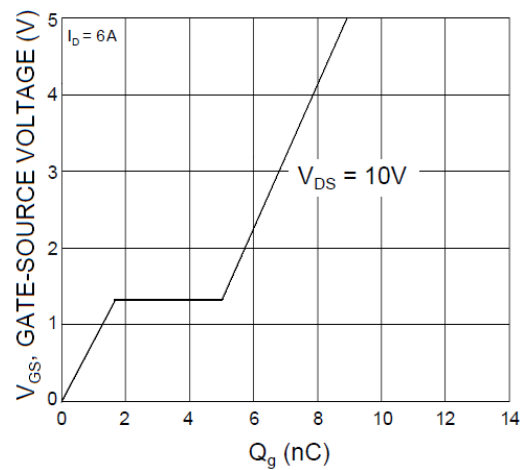


Fig.5 Gate Charge Characteristics

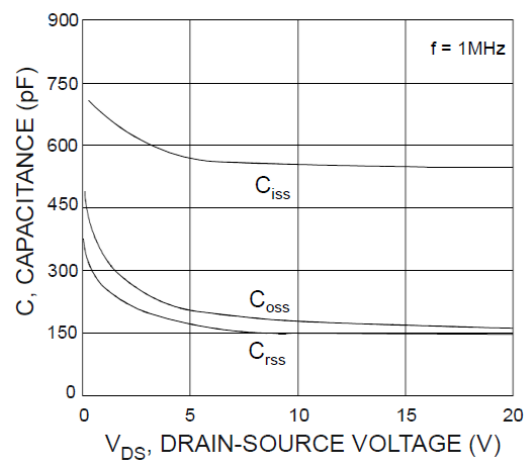


Fig.6 Capacitance Characteristics

Typical Performance Characteristics

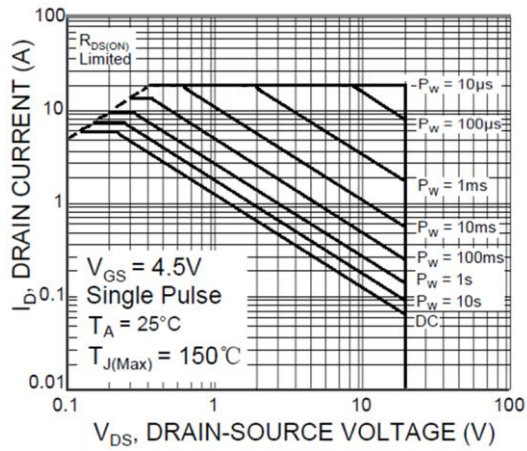


Fig.7 Maximum Safe Operation Area

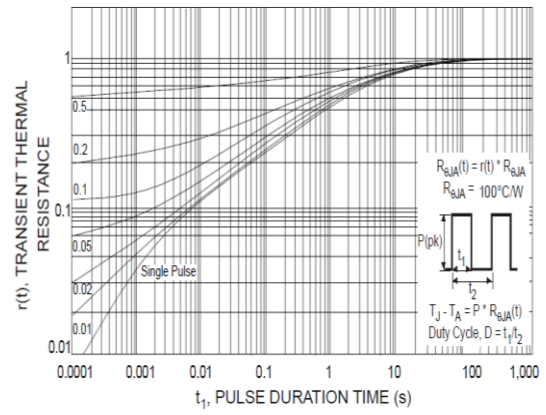
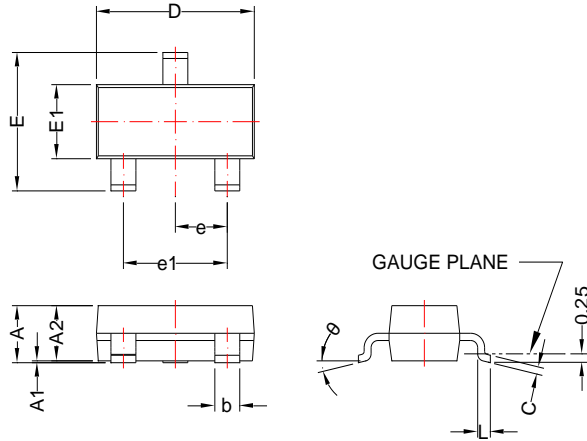


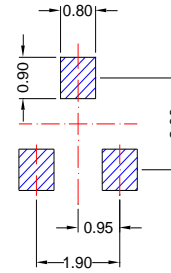
Fig.8 Normalized Transient Impedance

SOT-23

Package Dimension



Recommended Land Pattern







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	0.3	0.6	0.012	0.024
θ	0°	8°	0°	8°



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

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