GSM2122RF

20V N-Channel MOSFET

Product Description

GSM2122, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

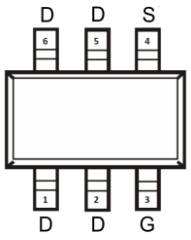
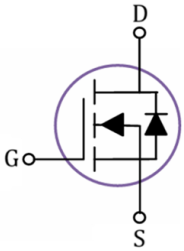
Features

- $R_{DS(ON)}$ = 22mΩ @ V_{GS}=4.5V
- SOT-23-6L Package
- RoHS Compliant and Halogen Free

Applications

- Portable Equipment
- Battery Powered System

Packages & Pin Assignments

SOT-23-6L	Equivalent Circuit
 Top View	

Pin	Symbol	Description	Pin	Symbol	Description
1	D	Drain	6	D	Drain
2	D	Drain	5	D	Drain
3	G	Gate	4	S	Source

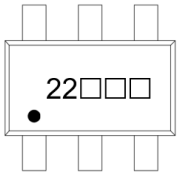
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM2122RF	SOT-23-6L	22□□□	3,000 PCS

GSM2122 1 2

- **Product Code:** GSM2122
- **Package Code:** 1 is **R** for SOT-23-6L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 22
- **GS Code:** □□□
- ● Dot denotes Pin1

Absolute Maximum Ratings (T_A=25ºC 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=25ºC	6.3	A
		T_A=70ºC	5	
I_{DM}	Pulsed Drain Current [1]		24	A
P_D	Power Dissipation	T_A=25ºC	1.38	W
		T_A=70ºC	0.88	
$R_{\theta JA}$	Maximax Thermal Resistance - Junction to Ambient [2]		90	ºC/ W
T_J	Junction Temperature Range		-55 to 150	ºC
T_{STG}	Storage Temperature Range		-55 to 150	ºC

NOTE:
1. Single pulse width is limited by max junction temperature.
2. The device mounted on 1in^2 FR-4 board with 2oz. Copper

Electrical Characteristics (T_A=25ºC 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
I_{DSS}	Drain-Source Leakage Current	V_{DS}=20V, V_{GS}=0V	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.4	-	1	V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=4A	-	17	22	mΩ
		V_{GS}=2.5V, I_D=3A	-	25	32	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	-	678	-	pF
C_{oss}	Output Capacitance		-	118	-	
C_{rss}	Reverse Transfer Capacitance		-	105	-	
Q_g	Total Gate Charge	V_{DS}=10V, I_D=3A V_{GS}=4.5V	-	11	-	nC
Q_{gs}	Gate-Source Charge		-	1.8	-	
Q_{gd}	Gate-Drain Charge		-	3	-	
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=10V, I_D=1A V_{GS}=4.5V, R_g=6Ω	-	12	-	ns
t_r	Turn-On Rise Time		-	15	-	
$t_{d(off)}$	Turn-Off Delay Time		-	30	-	
t_f	Turn-Off Fall Time		-	15	-	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A	-	-	1.2	V

Typical Performance Characteristics

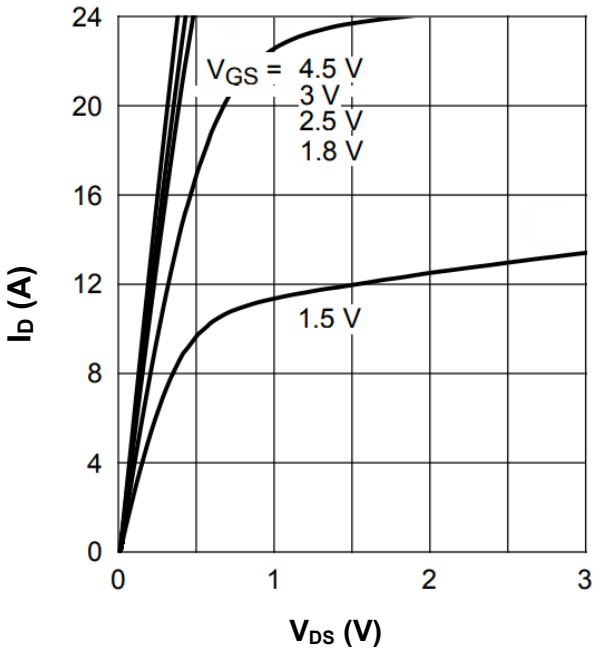


FIG.1 Output Characteristics

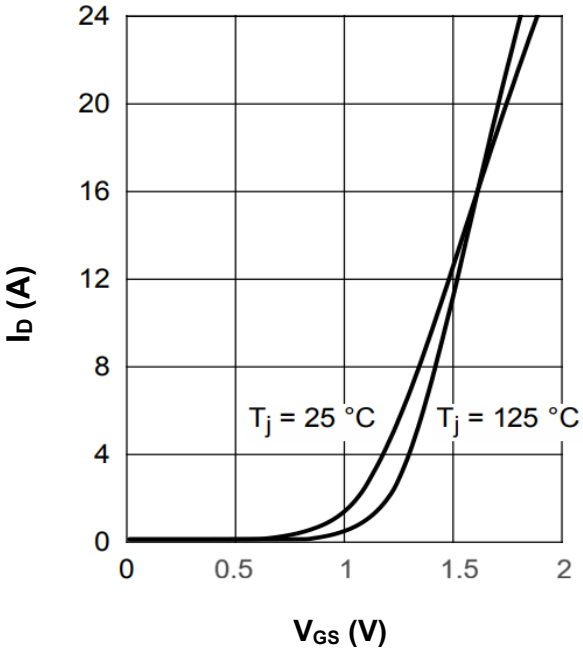


FIG.2 Transfer Characteristics

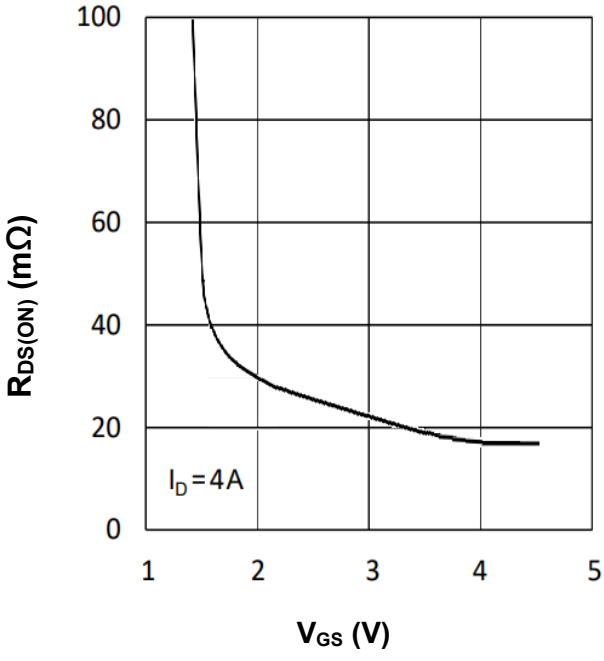


FIG.3 On-Resistance vs. Gate Voltage

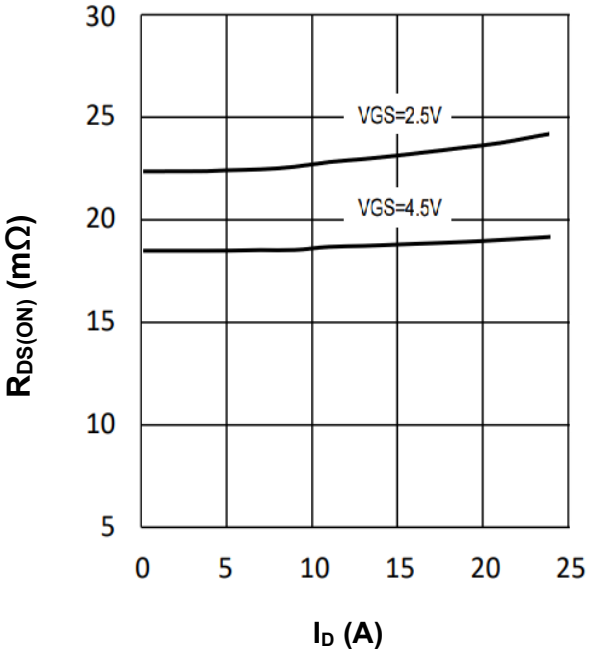


FIG.4 On-Resistance vs. Drain Current

Typical Performance Characteristics

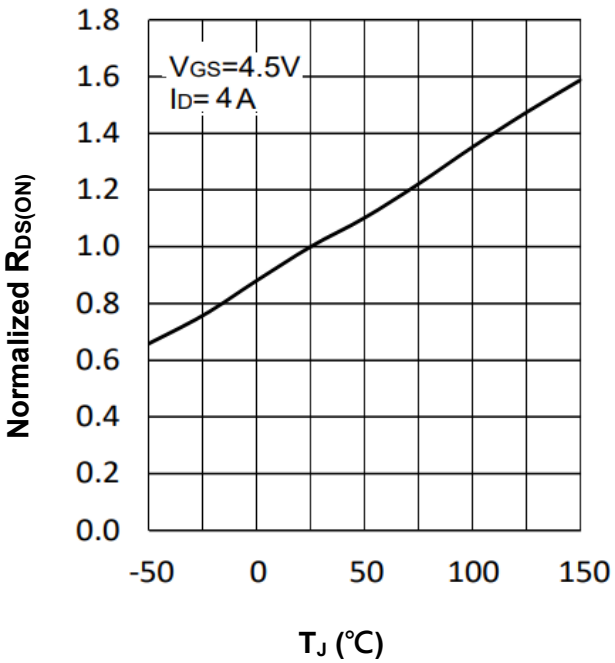


FIG.5 Normalized On-Resistance vs. T_J

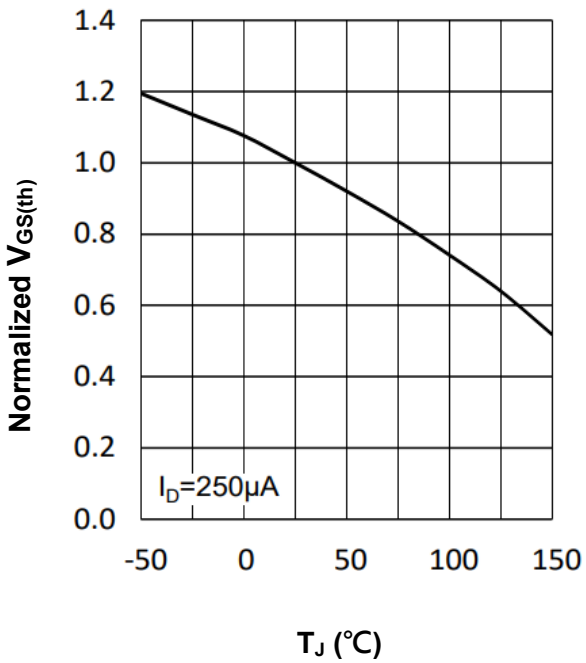


FIG.6 Normalized $V_{GS(th)}$ vs. T_J

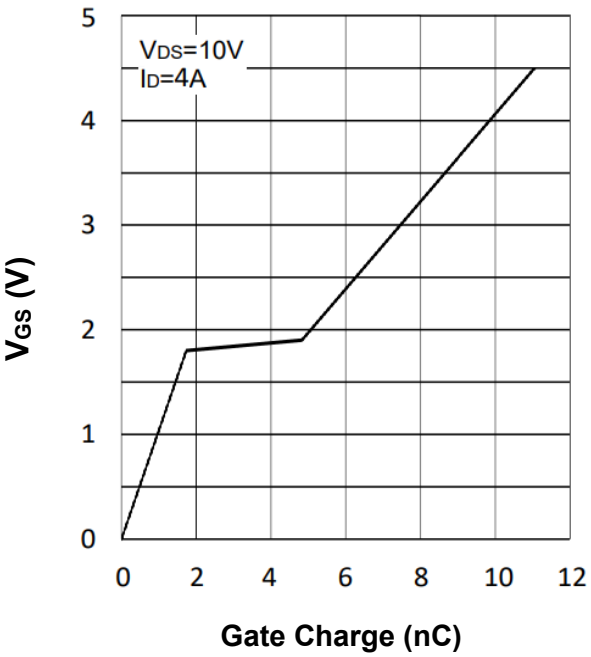


FIG.7 Gate Charge Characteristics

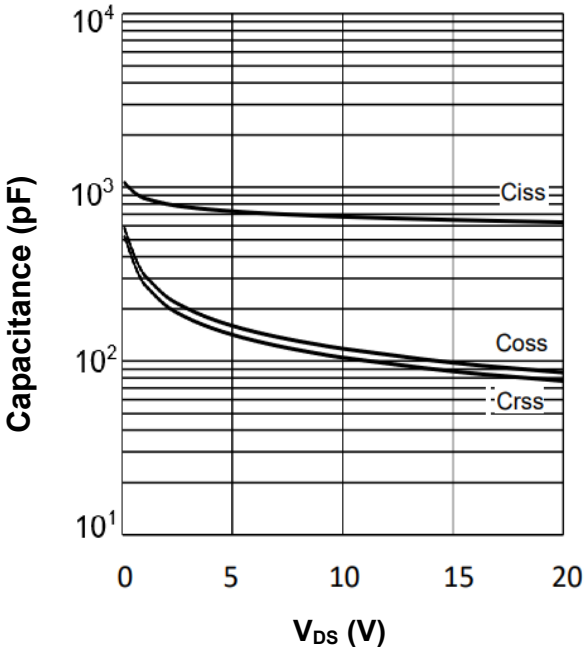


FIG.8 Capacitance Characteristics

Typical Performance Characteristics

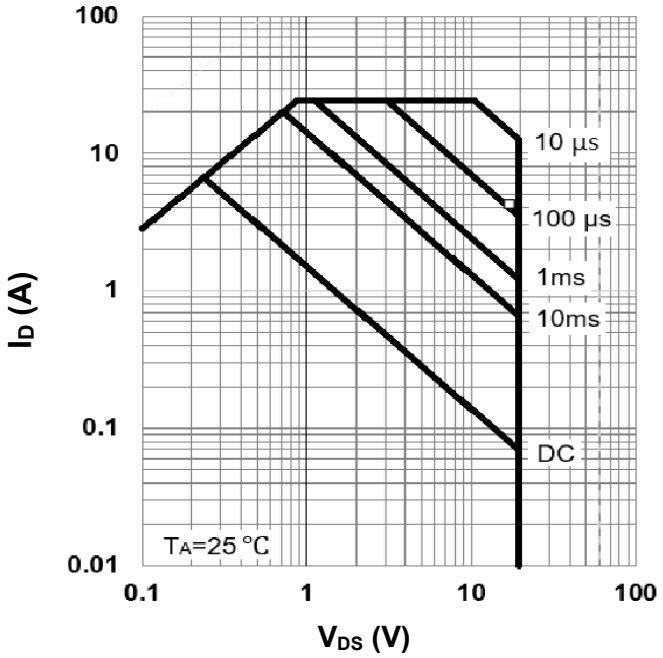


FIG.9 Maximum Safe Operation Area

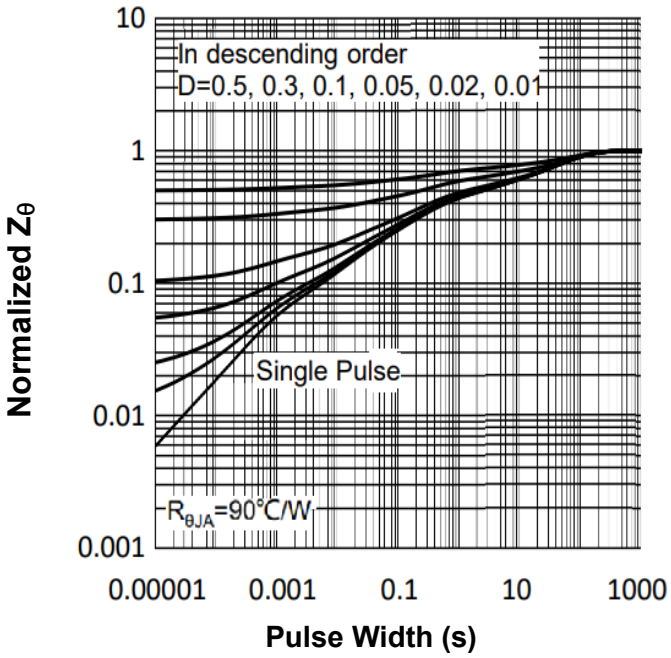
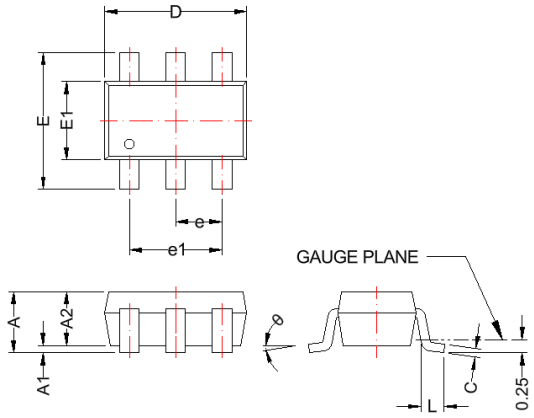


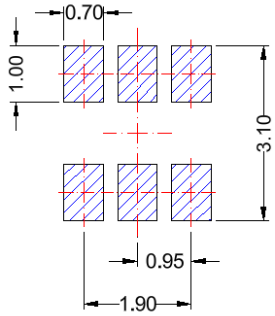
FIG.10 Normalized Transient Impedance

SOT-23-6L

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.90	1.45	0.035	0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.020
c	0.08	0.26	0.003	0.010
D	2.70	3.10	0.106	0.122
E	2.20	3.00	0.087	0.118
E1	1.30	1.75	0.051	0.069
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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