GSM22N10SF

100V N-Channel MOSFET

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.

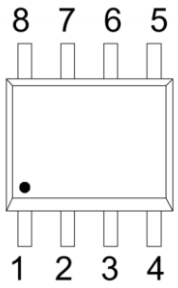
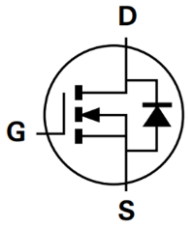
Features

- $R_{DS(ON)}$ = 24mΩ @ V_{GS}=10V
- SOP-8L Package
- RoHS Compliant and Halogen Free

Applications

- Networking
- Load Switch
- LED Applications

Packages & Pin Assignments

GSM22N10SF (SOP-8L)	Equivalent Circuit
	

Pin	Symbol	Description	Pin	Symbol	Description
1	S	Source	8	D	Drain
2	S	Source	7	D	Drain
3	S	Source	6	D	Drain
4	G	Gate	5	D	Drain

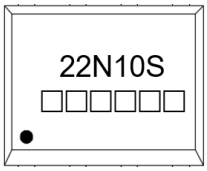
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM22N10SF	SOP-8L	22N10S □□□□□□	4,000 PCS

GSM22N10 1 2

- **Product Code:** GSM22N10
- **Package Code:** 1 is **S** for SOP-82L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 22N10S
- **GS Code:** □□□□□□

Absolute Maximum Ratings (T_A=25ºC unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		100	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A=25℃	8	A
		T_A=70℃	6.2	
I_{DM}	Pulsed Drain Current [2]		32	A
I_{AS}	Single Pulse Avalanche Current, L = 0.5mH		14	A
E_{AS}	Single Pulse Avalanche Energy, L = 0.5mH		98	mJ
P_D	Power Dissipation T_A=25℃		2.7	W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [1] (t≦10s)		45	℃/W
T_J	Operating Junction Temperature Range		-50 to +150	℃
T_{STG}	Storage Temperature Range		-50 to +150	℃

NOTE:
1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2_{OZ} copper.
2. Single pulse width is limited by max junction temperature.

Electrical Characteristics (T_A = 25℃ unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0V			1	uA
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1	2	3	V
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=10A		18	24	mΩ
		V_{GS}=4.5V, I_D=5A		21	30	mΩ
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=3A		14		S
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A			1	V
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz		4708		pF
C_{oss}	Output Capacitance			326		
C_{rss}	Reverse Transfer Capacitance			247		
Q_g	Total Gate Charge	V_{DS}=80V, V_{GS}=10V, I_D=10A		75		nC
Q_{gs}	Gate-Source Charge			13.5		
Q_{gd}	Gate-Drain Charge			20.3		
$t_{d(on)}$	Turn-On Time	V_{DD}=40V, I_D=10A, V_{GS}=10V, R_G=3.3Ω		18.5		ns
t_r				10		
$t_{d(off)}$	Turn-Off Time			58		
t_f				16		

Typical Performance Characteristics

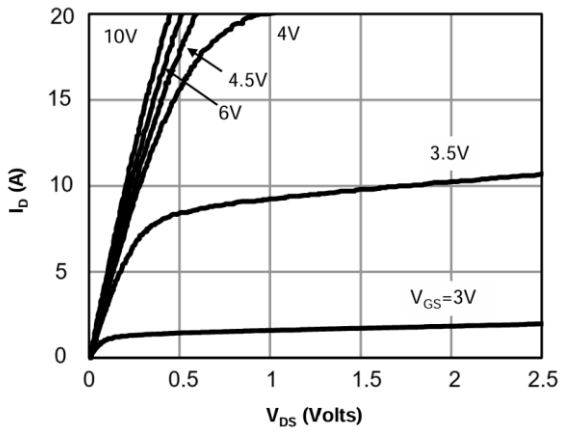


Fig.1 Output Characteristics

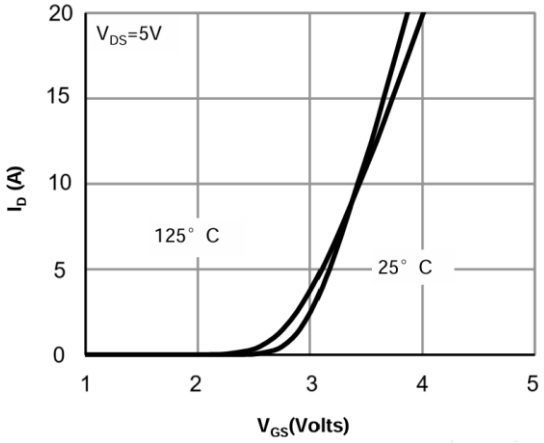


Fig.2 Transfer Characteristics

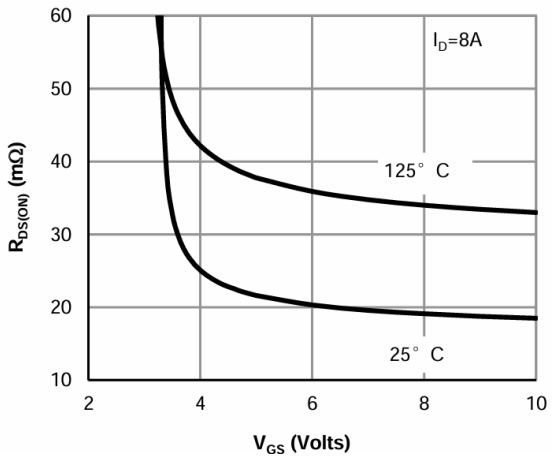


Fig.3 On-Resistance vs. Gate Voltage

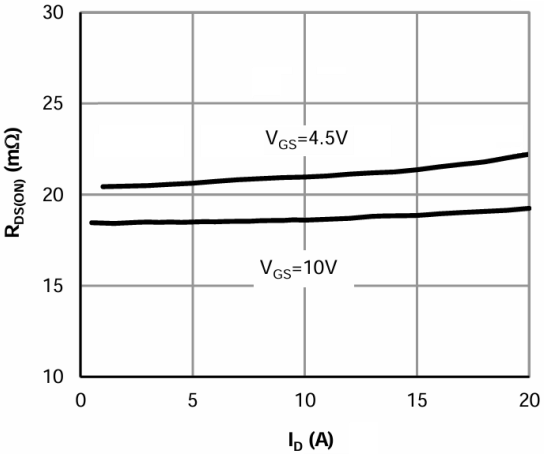


Fig.4 On-Resistance vs. Drain Current

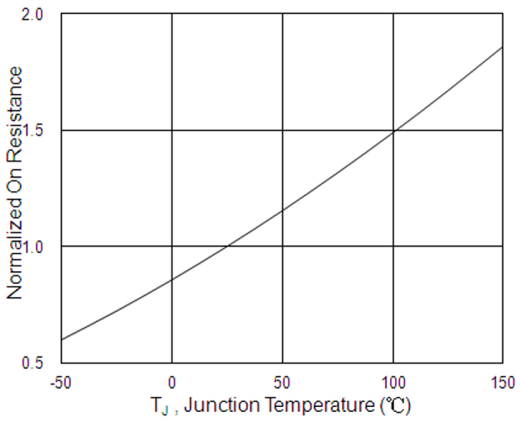


Fig.5 Normalized On-Resistance vs. T_J

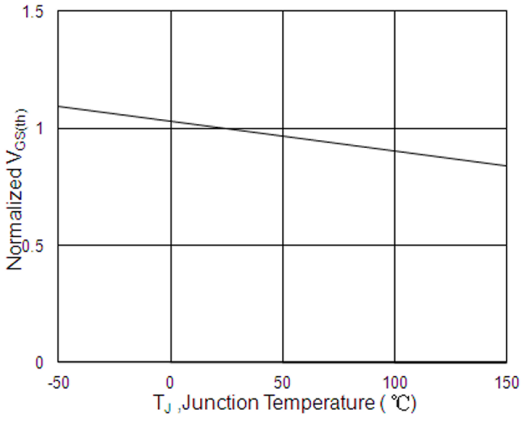


Fig.6 Normalized $V_{GS(th)}$ vs. T_J

Typical Performance Characteristics

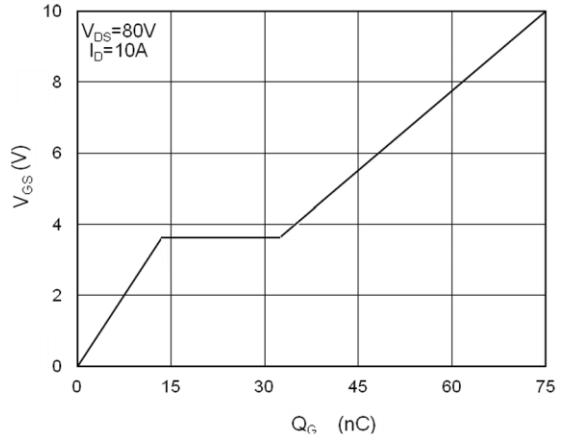


Fig.7 Gate Charge Characteristics

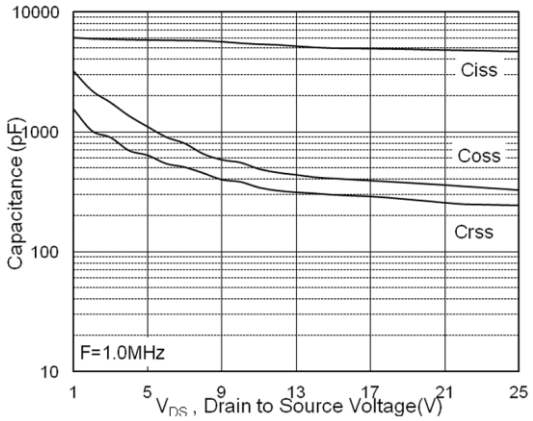


Fig.8 Capacitance Characteristics

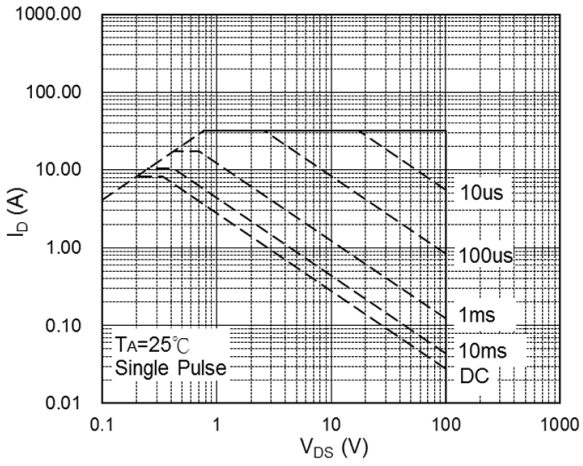


Fig.9 Maximum Safe Operation Area

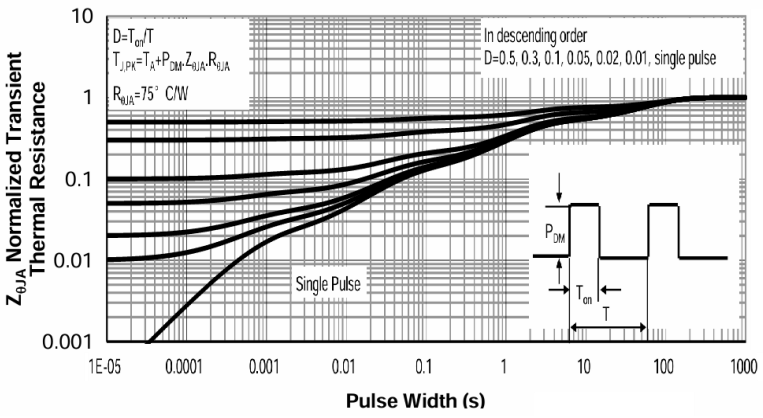
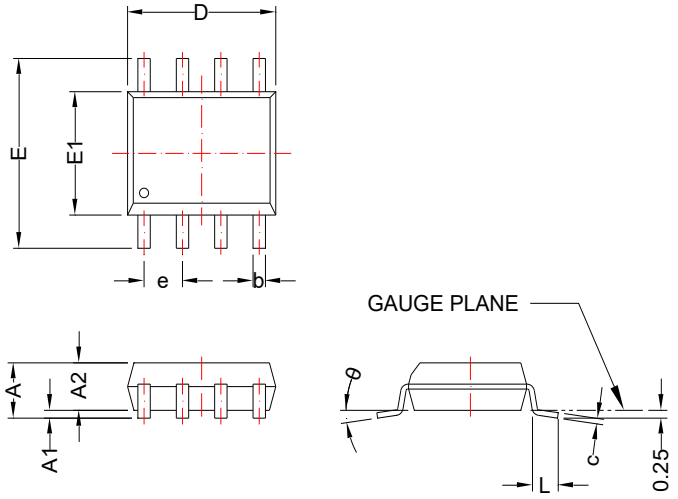


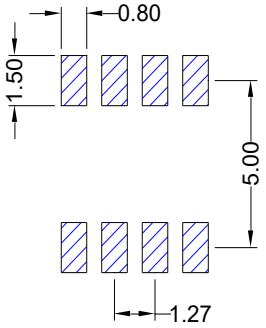
Fig.10 Normalized Transient Impedance

SOP-8L

Package Dimension



Recommended Land Pattern



Dimensions				
Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.10	0.25	0.004	0.010
D	4.70	5.10	0.185	0.201
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
L	0.4	1.27	0.016	0.050
θ	0°	8°	0°	8°

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

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