GSM22N10XF

100V 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

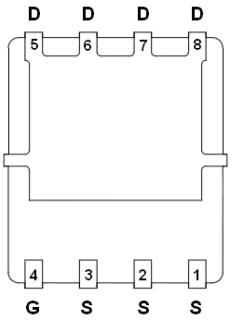
- 100V, 45A, $R_{DS(ON)}$<22mΩ@V_{GS}=10V
- Improved dv/dt capability
- Fast switching
- 100% EAS guaranteed
- Green Device Available
- DFN5X6-8L package design

Applications

- Networking
- Load Switch
- LED Applications

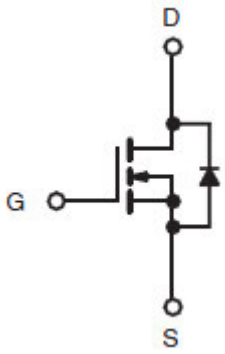
Packages & Pin Assignments

GSM22N10XF (DFN5X6-8L)

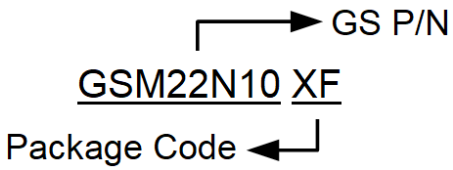


Bottom View

Pin	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain

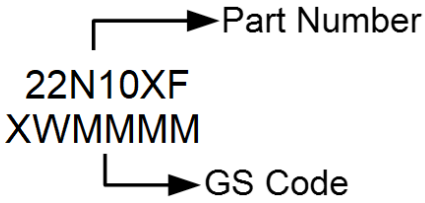


Ordering Information



Part Number	Package	Quantity Reel
GSM22N10XF	DFN5X6-8L	3000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25ºC Unless otherwise noted

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		100	V
V_{GS}	Gate –Source Voltage		±20	V
I_D	Continuous Drain Current	T_C=25℃	45	A
		T_C=100℃	28	
I_{DM}	Pulsed Drain Current		150	A
EAS	Single Pulse Avalanche Energy		45	mJ
IAS	Single Pulse Avalanche Current		30	A
P_D	Power Dissipation (T_C=25℃)		96	W
T_J	Operating Junction Temperature Range		-50 to +150	℃
T_{STG}	Storage Temperature Range		-50 to +150	℃
$R_{\theta JC}$	Thermal Resistance-Junction to Case		1.2	℃/W

Electrical Characteristics

T_A=25℃ Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	100			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1	2	3	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0V			1	uA
I_S	Continuous Source Current	V_G=V_D=0V, Force Current			45	A
I_{SM}	Pulsed Source Current				90	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=16A		19	22	mΩ
		V_{GS}=6V, I_D=8A		20	24	
		V_{GS}=4.5V, I_D=5A		21	38	
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=3A		13		S
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A			1	V
Dynamic						
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		
R_g	Gate Resistance	V_{DS}=0V, V_{GS}=0V, f=1MHz		1.6		Ω
Q_g	Total Gate Charge	V_{DS}=80V, V_{GS}=10V, I_D=20A		36		nC
Q_{gs}	Gate-Source Charge			5		
Q_{gd}	Gate-Drain Charge			10		
$t_{d(on)}$	Turn-On Time	V_{DD}=40V, I_D=20A, V_{GS}=10V, R_G=3.3Ω		11.5		ns
t_r				29		
$t_{d(off)}$	Turn-Off Time			42		
t_f				18		

Typical Performance Characteristics

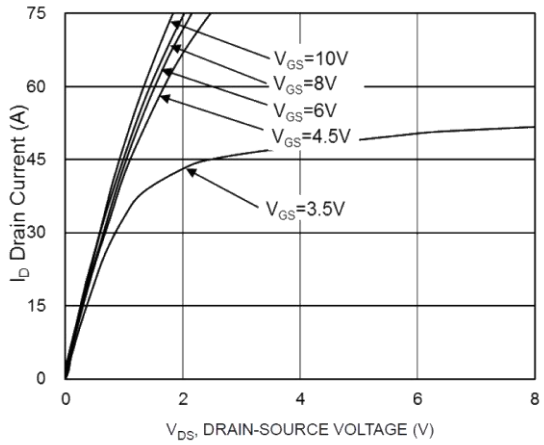


Fig. 1 Typical Output Characteristics

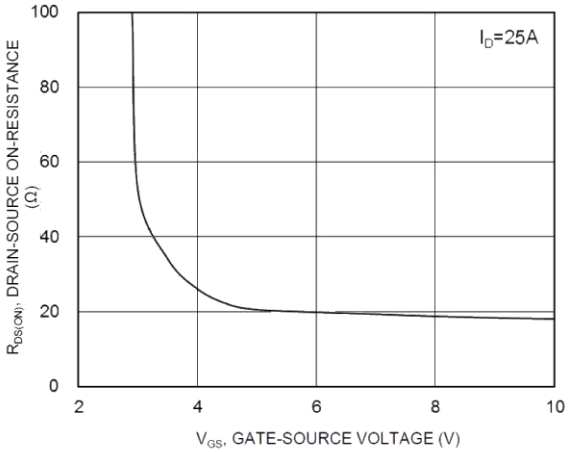


Fig. 2 Typical Transfer Characteristics

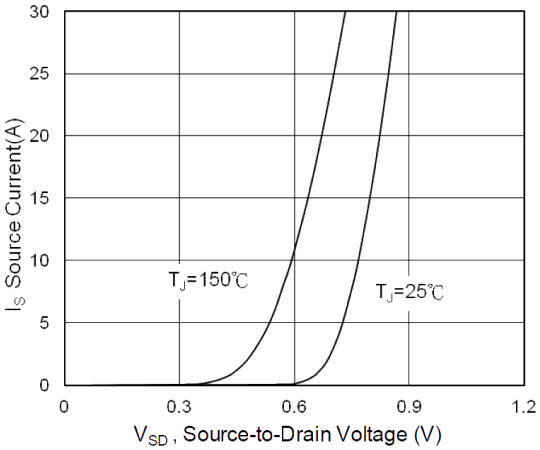


Fig. 3 Diode Forward Voltage vs. Current

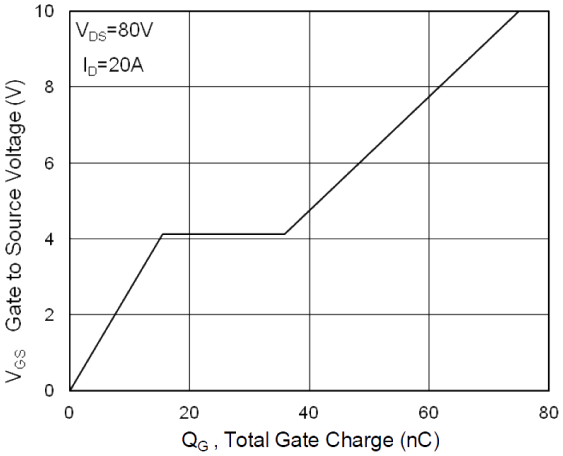


Fig. 4 Gate Charge

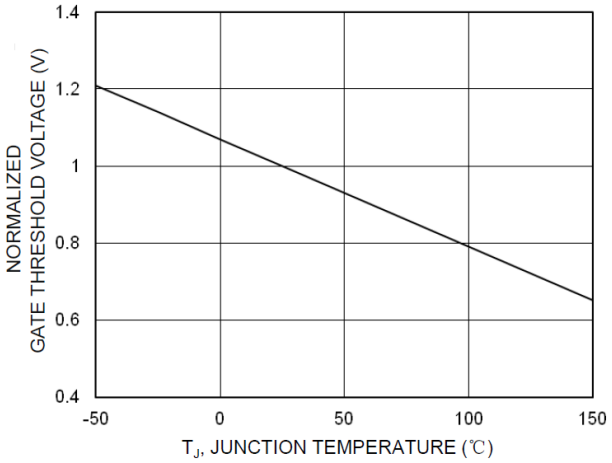


Fig. 5 Gate Threshold Variation vs. T_J

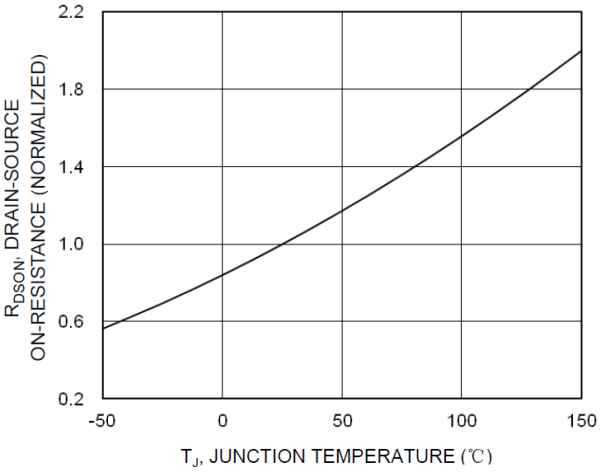


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (continue)

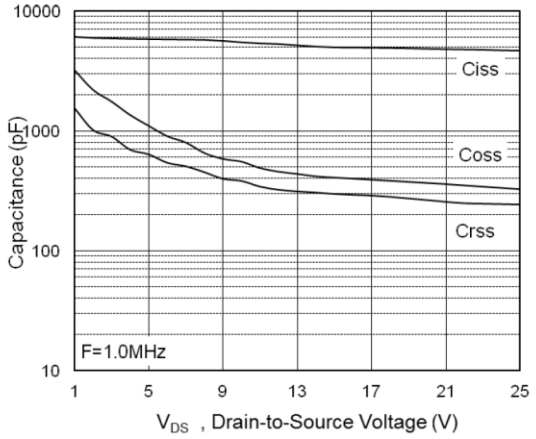
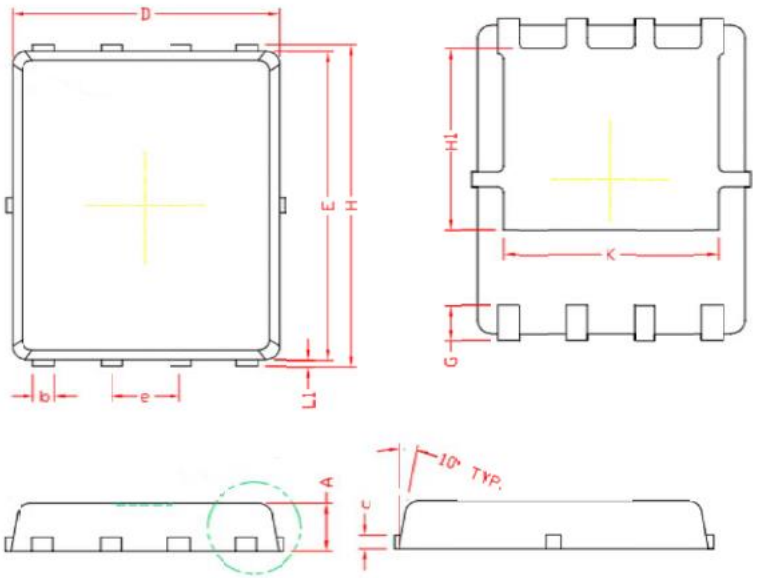


Fig. 7 Typical Capacitance

Package Dimension

DFN5X6-8L



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.800	1.000	0.031	0.039
A1	0.000	0.050	0.000	0.002
b	0.250	0.490	0.014	0.019
c	0.254 REF		0.010 REF	
D	4.900	5.400	0.193	0.201
F	1.400 REF		0.055 REF	
E	5.400	5.900	0.224	0.232
e	1.270 BSC		0.050 BSC	
H	5.900	6.200	0.234	0.244
H1	3.435 REF		0.135 REF	
L1	0.100	0.250	0.012	0.009
G	0.590 REF		0.024 REF	
K	4.000 REF		0.157 REF	

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