

GSM3112XF

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.

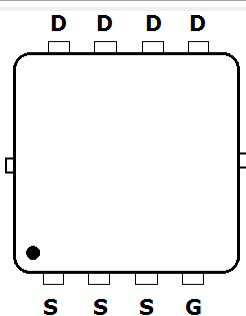
Features

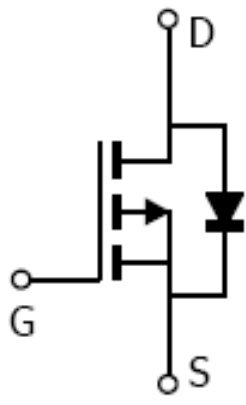
- 30V, 11.7A, $R_{DS(ON)}=12m\Omega@V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS guaranteed
- Green Device Available

Applications

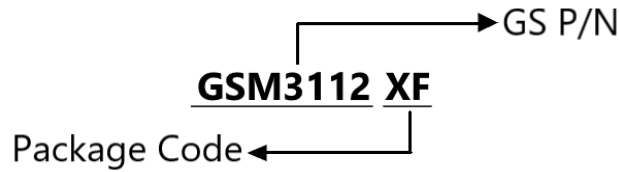
- MB / VGA / Vcore
- DC-DC Converters
- Power Management Functions

Packages & Pin Assignments

GSM3112XF (DFN5X6-8L)	
	
Top View	
Pin	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain

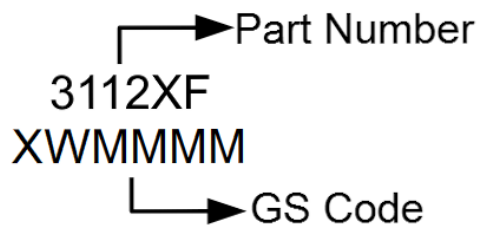


Ordering Information



Part Number	Package	Quantity
GSM3112XF	DFN5x6-8L	3000pcs

Marking Information



Absolute Maximum Ratings

T_C=25°C Unless otherwise noted

Symbol	Parameter	Typical	Unit
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _A =25°C	11.7
		T _A =70°C	9.3
		T _C =25°C	28
I _{DM}	Pulsed Drain Current ¹	50	A
EAS	Single Pulse Avalanche Energy ²	21	mJ
P _D	Power Dissipation	T _A =25°C	2.5
		T _A =70°C	1.6
		T _C =25°C	27.2
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	50	°C/W
R _{θJC}	Thermal Resistance-Junction to Case	4.6	°C/W

Electrical Characteristics

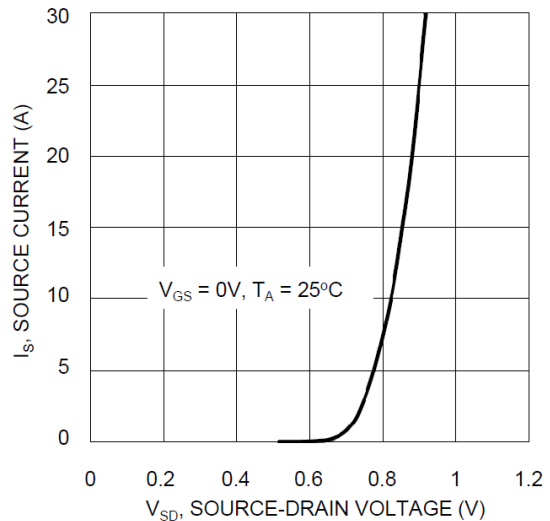
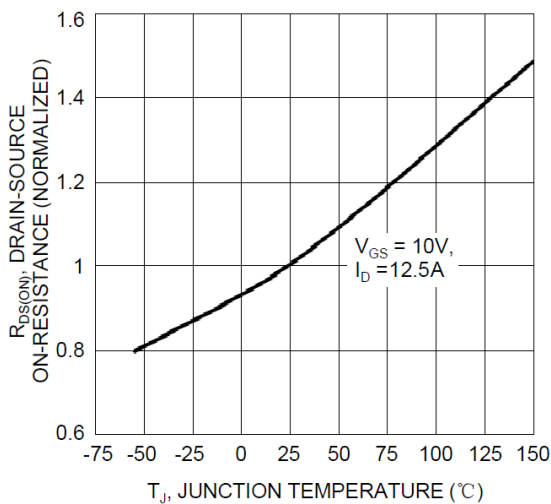
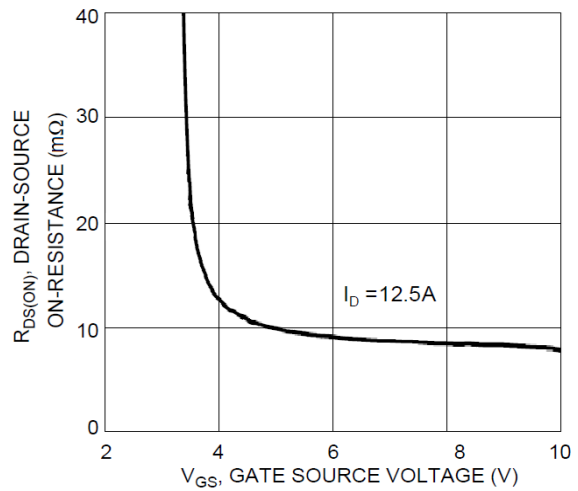
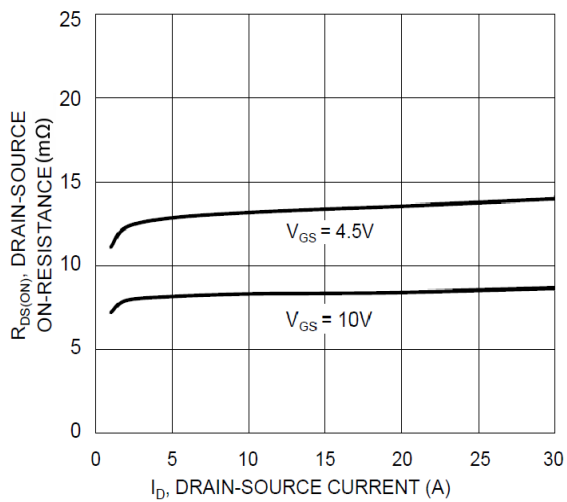
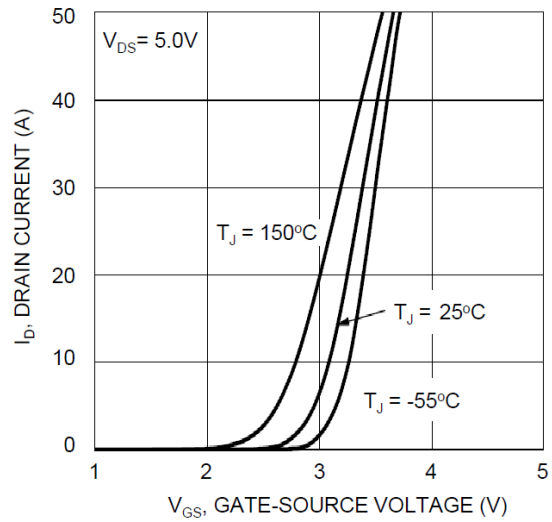
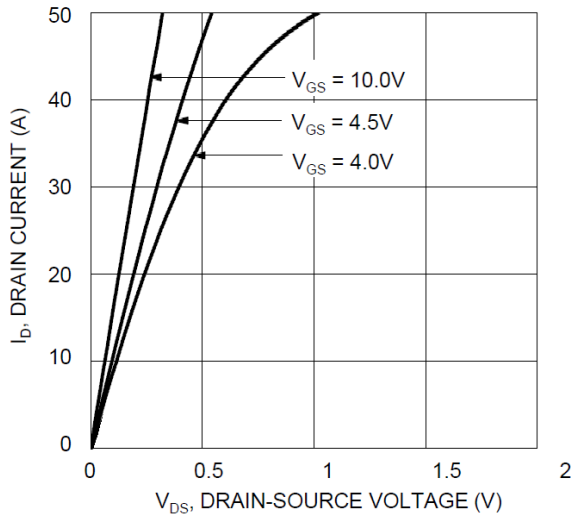
T_J=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.2		2.5	V
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V, V _{GS} =0V			1	uA
R _{DS(on)}	Drain-Source On-Resistance ³	V _{GS} =10V, I _D =10A		8.1	12	mΩ
		V _{GS} =4.5V, I _D =5A,		13.7	16	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =3A			10	S
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V, I _S =1A		0.7	1	V
Dynamic						
Q _g	Total Gate Charge ^{3,4}	V _{DS} =15V, V _{GS} =4.5V, I _D =12.5A		8		nC
Q _{gs}	Gate-Source Charge ^{3,4}			4		
Q _{gd}	Gate-Drain Charge ^{3,4}			2		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		1040		pF
C _{oss}	Output Capacitance			445		
C _{rss}	Reverse Transfer Capacitance			40		
t _{d(on)}	Turn-On Time ^{3,4}	V _{DD} =15V, I _D =12.5A, V _{GS} =10V, R _G =6Ω		10		ns
t _r	Rise Time ^{3,4}			9		
t _{d(off)}	Turn-Off Time ^{3,4}			24		
t _f	Fall Time ^{3,4}			8		
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.1		Ω

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V, V_{GS}=10V, L=0.3mH, I_{AS}=12A, Starting T_J=25°C.
3. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

Typical Performance Characteristics



Typical Performance Characteristics (Continue)

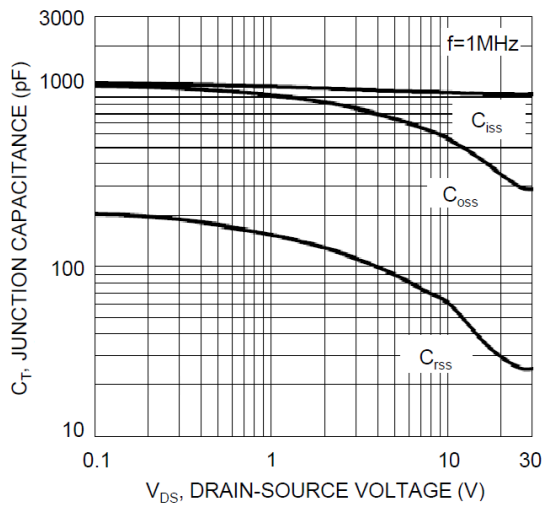


Fig. 7 Typical Capacitance

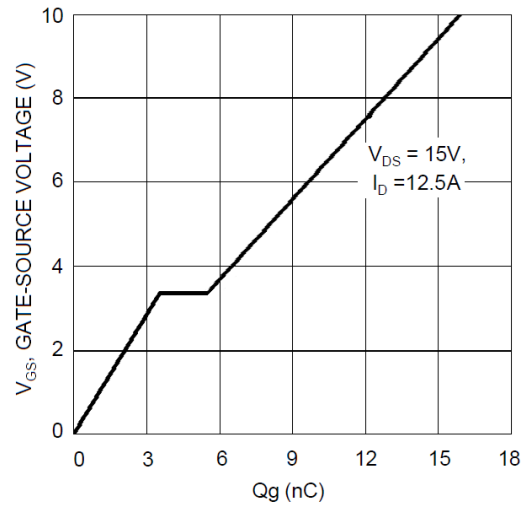
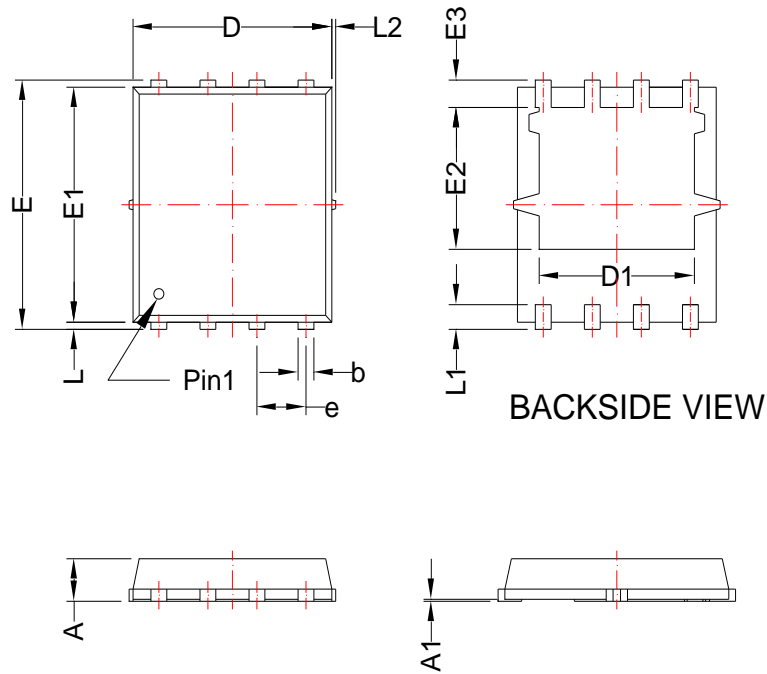


Fig. 8 Gate Charge

Package Dimension

DFN5X6-8L







Dimensions



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.80	1.20	0.031	0.047
A1	0.00	0.05	0.000	0.002
b	0.25	0.51	0.010	0.020
c	0.20	0.35	0.008	0.014
D	4.90	5.40	0.193	0.213
D1	3.40	4.60	0.134	0.181
E	5.90	6.20	0.232	0.244
E1	5.40	5.90	0.213	0.232
E2	3.20	3.80	0.126	0.150
E3	0.40	0.80	0.016	0.031
e	1.27 BSC		0.050 BSC	
L	0.1	0.25	0.004	0.010
L1	0.45	0.75	0.018	0.030
L2	---	0.15	---	0.006

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