

GSM1336XF

100V N-Channel MOSFET

Product Description

The N-Channel enhancement mode power field effect transistor is 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.

The device is well suited for high efficiency fast switching applications.

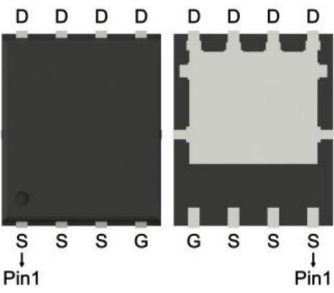
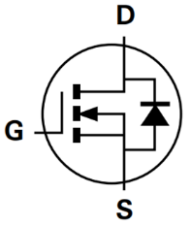
Features

- $R_{DS(ON)} = 3.6m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} = 5.1m\Omega @ V_{GS}=4.5V$
- DFN5X6-8L Package
- RoHS Compliant and Halogen Free

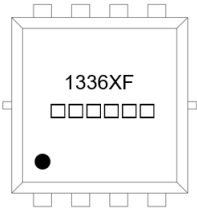
Applications

- MB / VGA / Vcore
- POL Applications
- SMPS

Packages & Pin Assignments

GSM1336XF (DFN5X6-8L)			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
GSM1336XF	DFN5X6-8L	1336XF □□□□□□	3,000 PCS
GSM1336 1 2			
<div> <div> - Product Code: GSM1336 </div> <div> - Package Code: 1 is X for DFN5X6-8L </div> <div> - Green Level: 2 is F for RoHS Compliant and Halogen Free </div> </div>			
Marking Information			
<div> <div>  </div> <div> - Product Code: 1336XF - GS Code: □□□□□□ </div> </div>			

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

Symbol	Parameter		Value	Unit
V _{DSS}	Drain-Source Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current ¹ ,	T _C =25°C	100	A
		T _C =100°C	92	
I _{DM}	Pulsed Drain Current ²		400	A
I _{AS}	Single Pulse Avalanche Current, L = 0.1mH ²		37	A
E _{AS}	Single Pulse Avalanche Energy, L = 0.1mH ²		136	mJ
P _D	Power Dissipation	T _C =25°C	192	W
		T _C =100°C	76	
R _{θJC}	Thermal Resistance-Junction to Case		0.65	°C/W
T _J	Operating Junction Temperature Range		-55 to +150	°C
T _{STG}	Storage Temperature Range		-55 to +150	°C

NOTE:

1. The maximum current rating is package limited.
2. Single pulse width is limited by max junction temperature.

Electrical Characteristics (T_J = 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	100	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	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} =100V, V _{GS} =0V	-	-	1	μA
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =20A	-	3.1	3.6	mΩ
		V _{GS} =4.5V, I _D =15A	-	4.1	5.1	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =30A	-	60	-	S
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A	-	-	1	V
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	-	4000	-	pF
C _{oss}	Output Capacitance		-	750	-	
C _{rss}	Reverse Transfer Capacitance		-	10	-	
Q _g	Total Gate Charge	V _{DS} =50V, I _D =20A V _{GS} =10V	-	65	-	nC
Q _{gs}	Gate-Source Charge		-	10	-	
Q _{gd}	Gate-Drain Charge		-	14	-	
t _{d(on)}	Turn-On Delay Time	V _{DD} =50V, I _D =20A V _{GS} =10V, R _g =6Ω	-	24	-	ns
t _r	Turn-On Rise Time		-	20	-	
t _{d(off)}	Turn-Off Delay Time		-	45	-	
t _f	Turn-Off Fall Time		-	25	-	

Typical Performance Characteristics

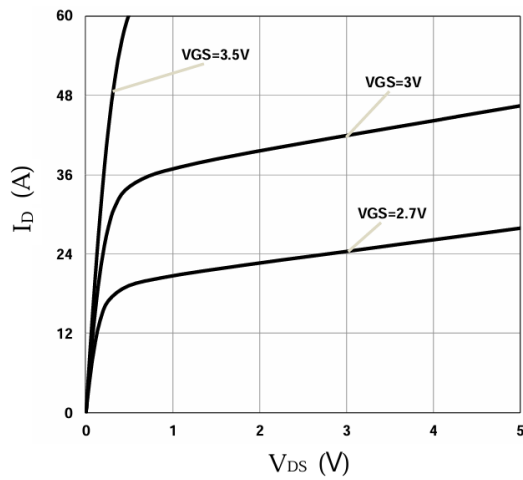


Fig.1 Output Characteristics

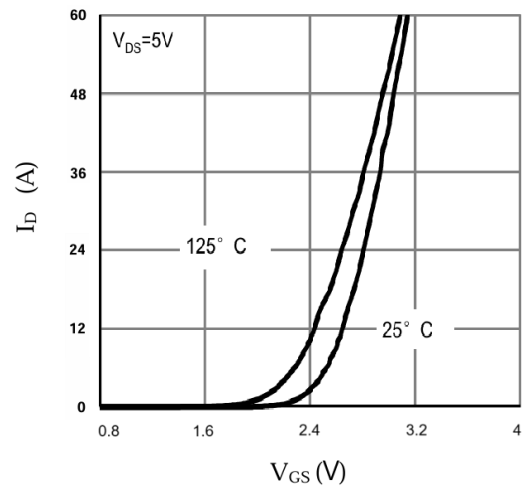


Fig.2 Transfer Characteristics

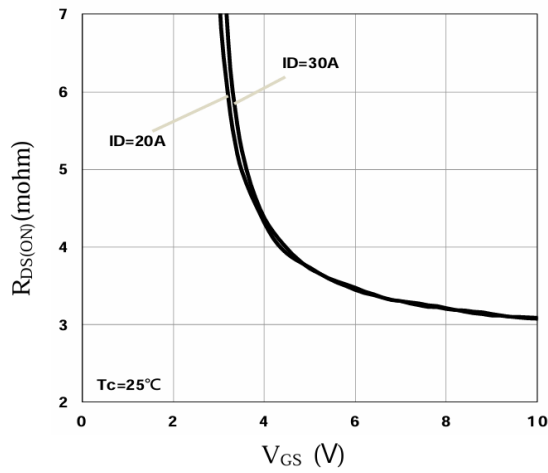


Fig.3 On-Resistance vs. Gate Voltage

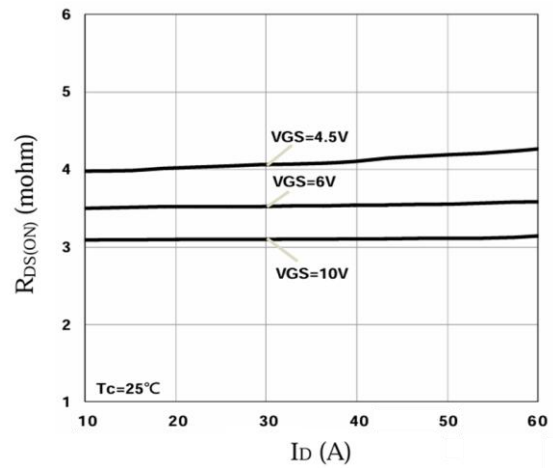


Fig.4 On-Resistance vs. Drain Current

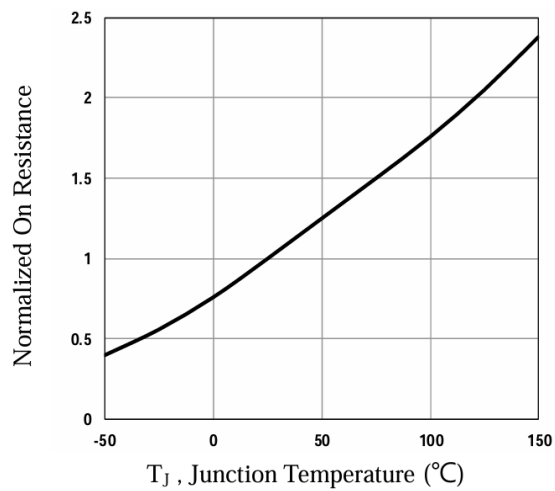


Fig.5 Normalized On-Resistance vs. T_J

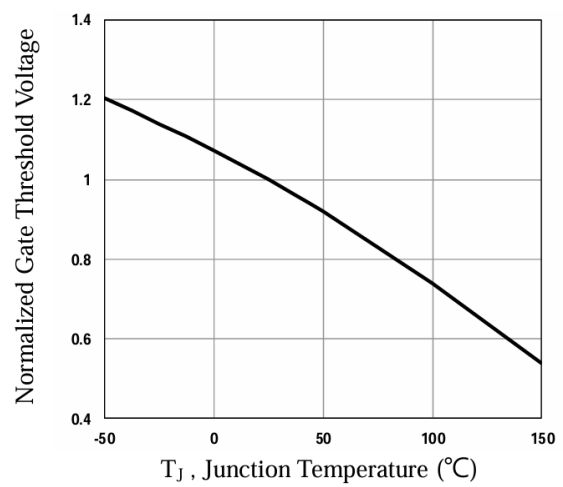


Fig.6 Normalized $V_{GS(th)}$ vs. T_J

Typical Performance Characteristics

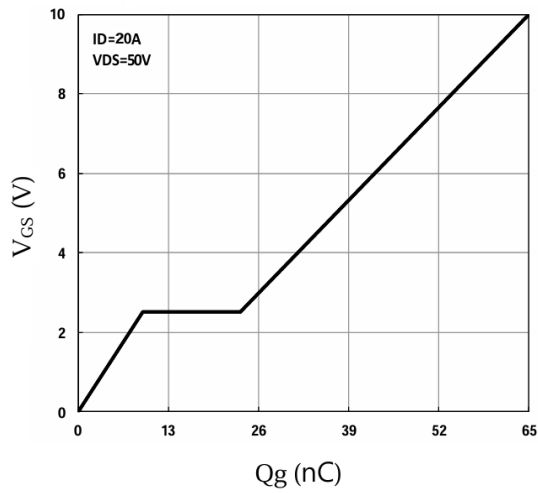


Fig.7 Gate Charge Characteristics

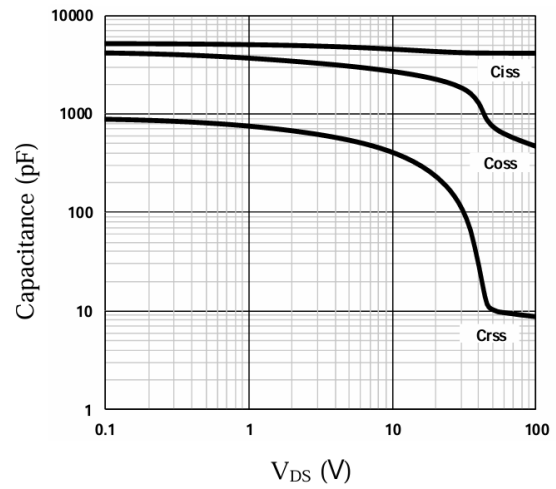


Fig.8 Capacitance Characteristics

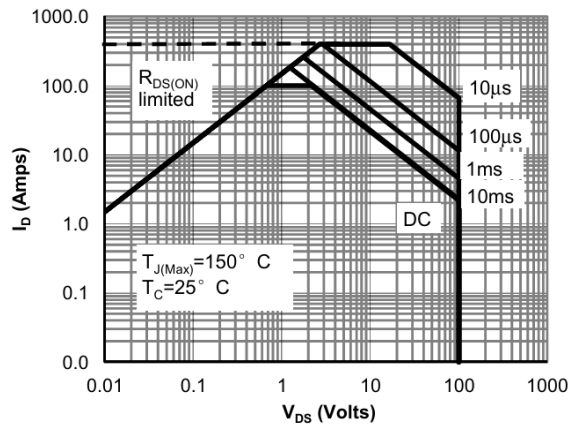


Fig.9 Maximum Safe Operation Area

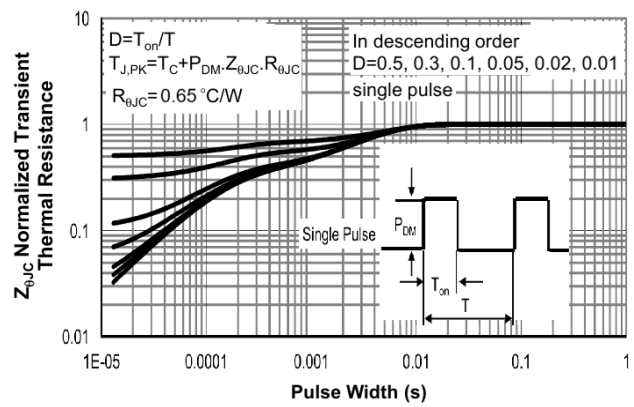
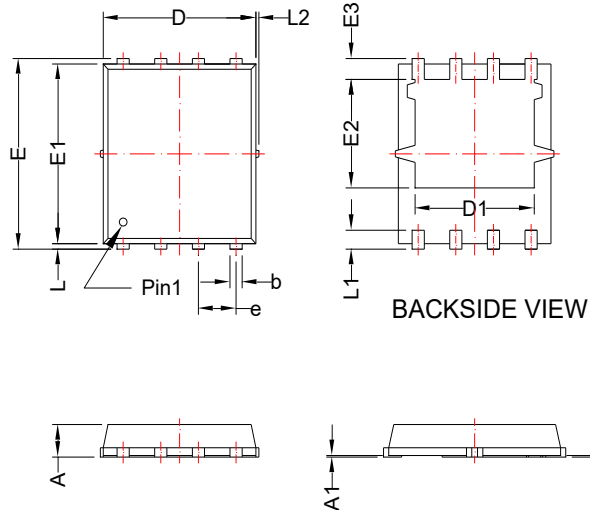


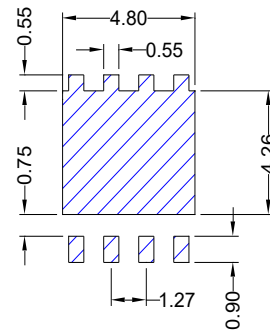
Fig.10 Normalized Transient Impedance

DFN5X6-8L

Package Dimension



Recommended Land Pattern



Unit: mm

Dimensions

Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.18	2.40	0.086	0.094
A1	0.00	0.15	0.000	0.006
b	0.64	0.90	0.025	0.035
c	0.40	0.89	0.016	0.035
c1	0.40	0.61	0.016	0.024
D	6.35	6.73	0.250	0.265
D1	4.95	5.46	0.195	0.215
D2	4.32	-	0.170	-
E	9.40	10.41	0.370	0.410
E1	5.97	6.22	0.235	0.245
E2	4.95	-	0.195	-
e	2.286 BSC		0.090 BSC	
L	1.40	1.77	0.055	0.070
L1	2.67	3.07	0.105	0.121
θ	0°	8°	0°	8°





NOTE:



Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions.

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