

GSM3368AXF

30V N-Channel Enhancement Mode 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

- $R_{DS(ON)} = 6m\Omega @ V_{GS} = 10V$
- $R_{DS(ON)} = 9.8m\Omega @ V_{GS} = 4.5V$
- DFN5x6-8L Package

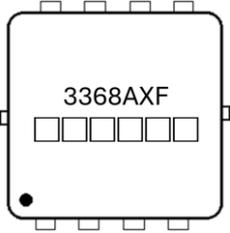
Applications

- MB / VGA / Vcore
- POL Applications
- SMPS 2nd SR

Packages & Pin Assignments

GSM3368AXF (DFN5x6-8L)		Equivalent Circuit
Pin	Description	
1	Source	
2	Source	
3	Source	
4	Gate	
5	Drain	
6	Drain	
7	Drain	
8	Drain	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM3368AXF	DFN5x6-8L	3368AXF □□□□□□	3,000 PCS
GSM3368A 1 2			
- Product Code: GSM3368A		- Package Code: 1 is X for DFN5x6-8L	- Green Level: 2 is F for RoHS Compliant and Halogen Free
Marking Information			
		- Product Code: 3368AXF - GS Code: □□□□□□	

Absolute Maximum Ratings

T_A=25°C, unless otherwise specified

Symbol	Parameter	Value	Unit	
V _{DSS}	Drain-Source Voltage	30	V	
V _{GSS}	Gate-Source Voltage	±20	V	
I _D	Continuous Drain Current ¹	T _C =25°C	70	A
		T _C =100°C	45	
I _{DM}	Pulsed Drain Current ²	180	A	
I _{AS}	Single Pulse Avalanche Current, L = 0.5mH ³	12	A	
E _{AS}	Single Pulse Avalanche Energy, L = 0.5mH ³	72	mJ	
P _D	Total Power Dissipation ⁴	T _C =25°C	58	W
		T _C =100°C	22	
T _J	Operating Junction Temperature Range	-55 to +150	°C	
T _{STG}	Storage Temperature Range	-55 to +150	°C	
R _{θJC}	Thermal Resistance, Junction to Case ¹	2.1	°C/W	

Note:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper.
- The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
- E_{AS} ratings are based on low frequency and duty cycles to keep T_J=+25°C.
- The power dissipation is limited by 150°C junction temperature.

Electrical Characteristics

T_A=25°C, unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static characteristics						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	-	-	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} =30V, V _{GS} =0V	-	-	1	μA
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =15A	-	4.2	6	mΩ
		V _{GS} =4.5V, I _D =10A	-	5.6	9.8	
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =20A	-	-	1.2	V
Dynamic characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	-	2295	-	pF
C _{oss}	Output Capacitance		-	267	-	
C _{rss}	Reverse Transfer Capacitance		-	210	-	
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.7	-	Ω
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =15A	-	39	-	nC
Q _{gs}	Gate-Source Charge		-	7.6	-	
Q _{gd}	Gate-Drain Charge		-	7.2	-	
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, V _{GS} =10V, R _g =3.3Ω, I _D =15A	-	7.8	-	ns
t _r	Turn-On Rise Time		-	15	-	
t _{d(off)}	Turn-Off Delay Time		-	37	-	
t _f	Turn-Off Fall Time		-	11	-	

Typical Performance Characteristics

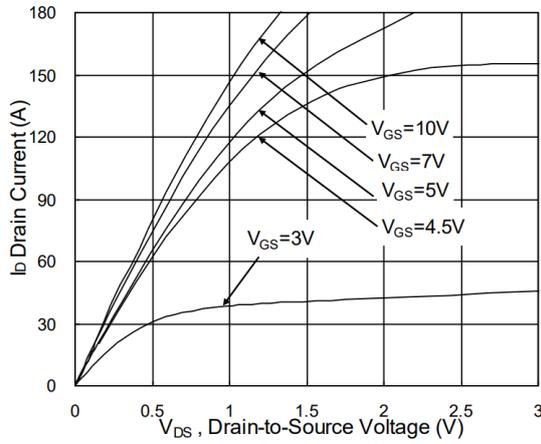


Figure 1. Typical Output Characteristics

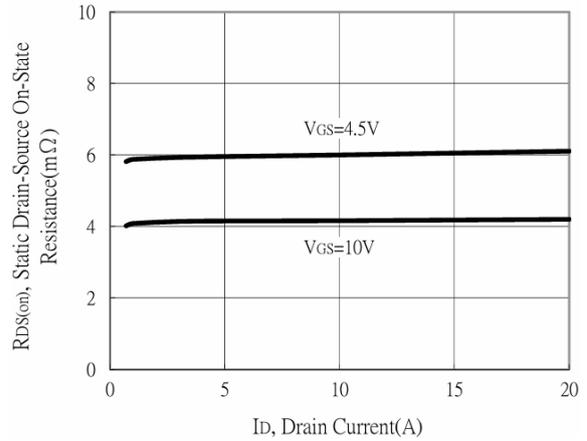


Figure 2. Drain-Source On-State resistance vs Drain Current

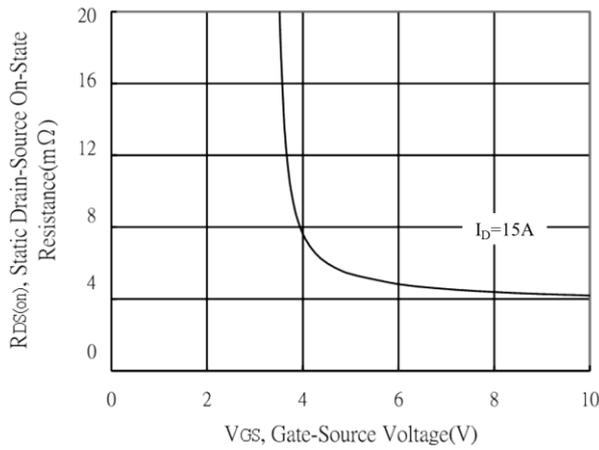


Figure 3. Drain-Source On-State Resistance vs Gate-Source Voltage

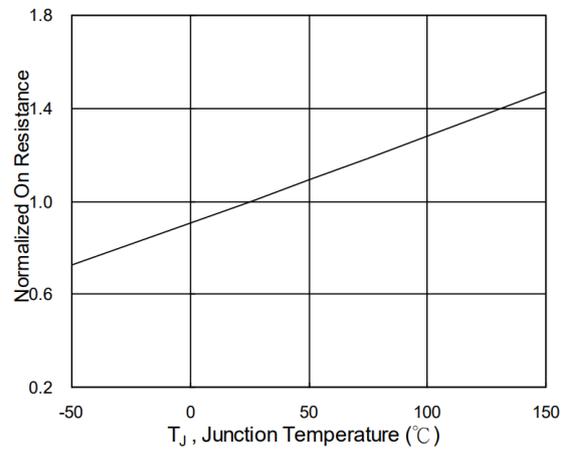


Figure 4. Drain-Source On-State Resistance vs Junction Temperature

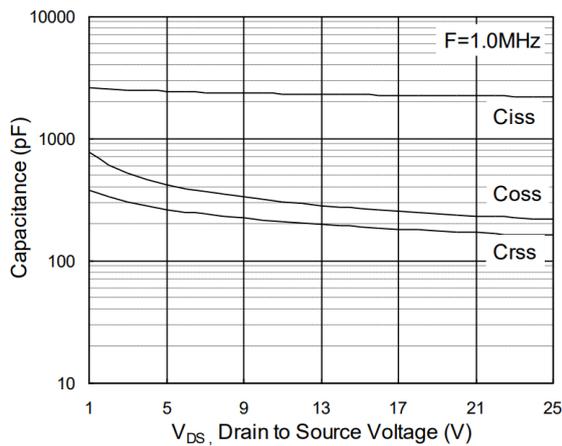


Figure 5. Capacitance vs Drain-to-Source Voltage

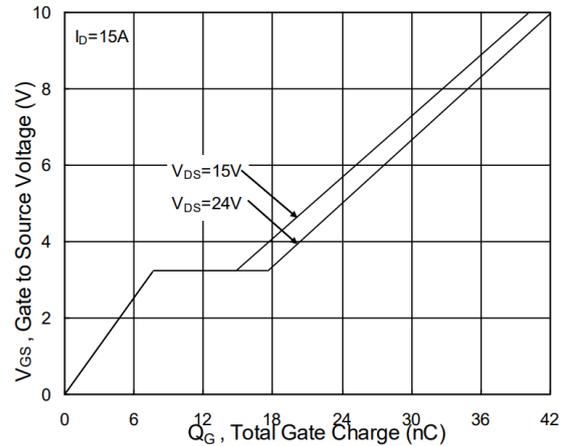


Figure 6. Gate Charge

Typical Performance Characteristics

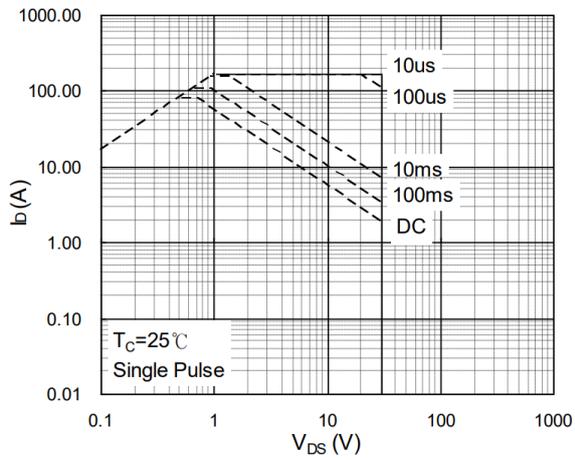


Figure 7. Maximum Safe Operating Area

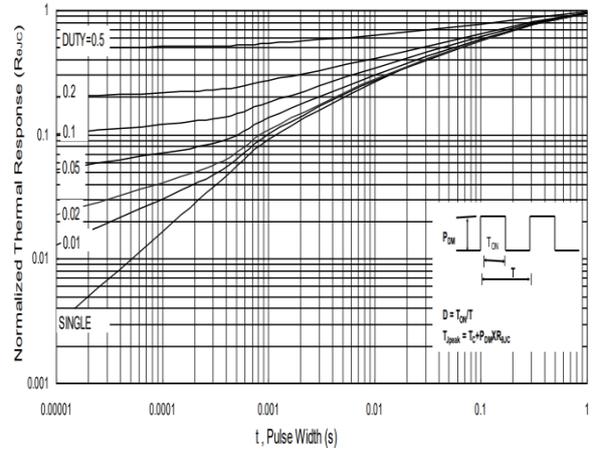
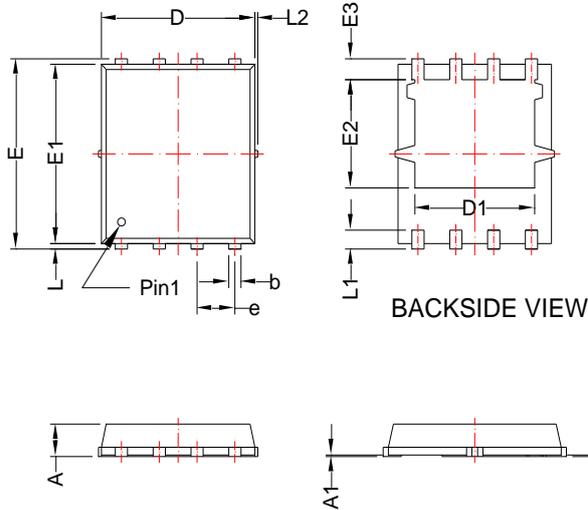


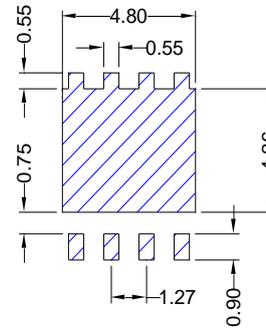
Figure 8. Normalized Transient Thermal Resistance

DFN5x6-8L

Package Dimension



Recommended Land Pattern



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

NOTE:
 DIMENSION D AND E1 DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.5mm PER INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.5mm PER SIDE.

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