

GSM3368ADF

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.

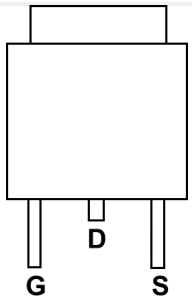
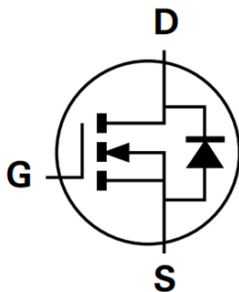
Features

- $R_{DS(ON)} = 6m\Omega @ V_{GS} = 10V$
- $R_{DS(ON)} = 9.8m\Omega @ V_{GS} = 4.5V$
- TO-252 Package

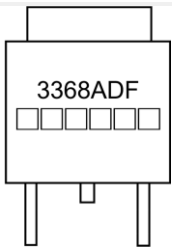
Applications

- MB / VGA / Vcore
- POL Applications
- SMPS

Packages & Pin Assignments

GSM3368ADF (TO-252)		Equivalent Circuit
		
Pin	Description	
1	Gate	
2	Drain	
3	Source	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM3368ADF	TO-252	3368ADF □□□□□□	2,500 PCS
GSM3368A 1 2			
- Product Code: GSM3368A		- Package Code: 1 is D for TO-252	
- Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
		- Product Code: 3368ADF	
		- 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	60
		T _C =100°C	40
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	Power Dissipation ¹	T _C =25°C	40
		T _C =100°C	16
R _{θJC}	Thermal Resistance-Junction to Case	3	°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 limited by P_D.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. E_{AS} ratings are based on low frequency and duty cycles to keep T_J = +25°C.
4. The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper.

Electrical Characteristics

TA=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	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

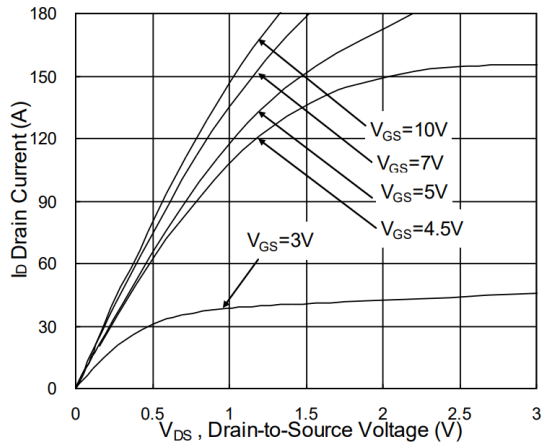


Figure 1. Typical Output Characteristics

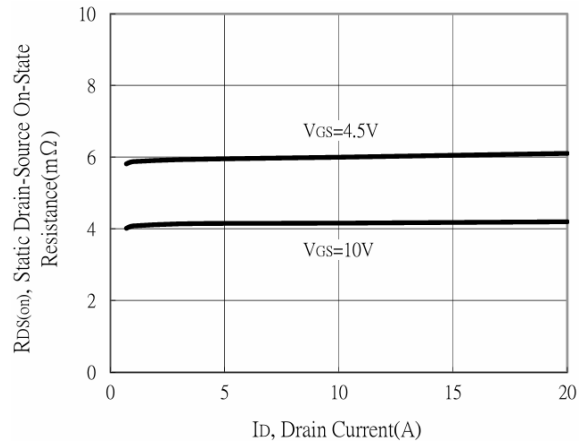


Figure 2. Drain-Source On-State resistance vs Drain Current

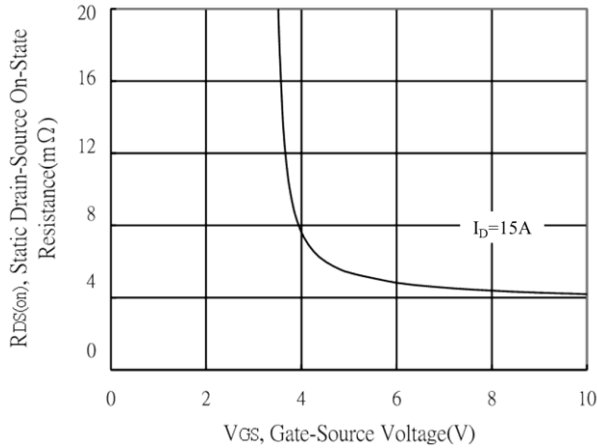


Figure 3. Drain-Source On-State Resistance vs Gate-Source Voltage

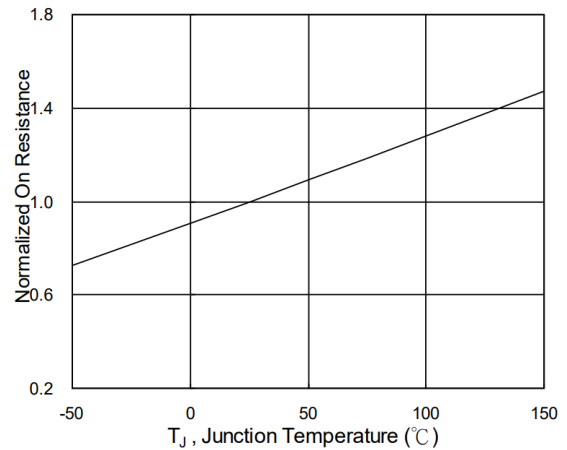


Figure 4. Drain-Source On-State Resistance vs Junction Temperature

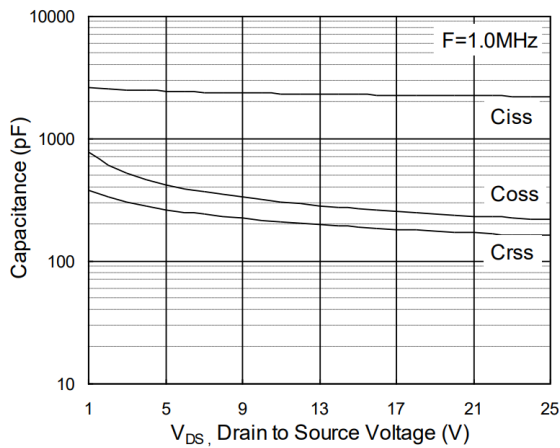


Figure 5. Capacitance vs Drain-to-Source Voltage

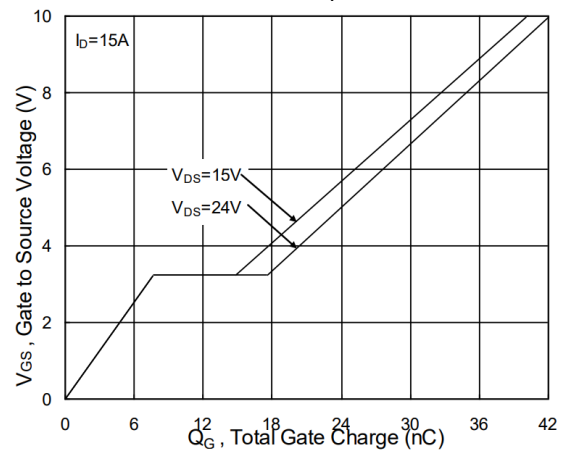


Figure 6. Gate Charge

Typical Performance Characteristics

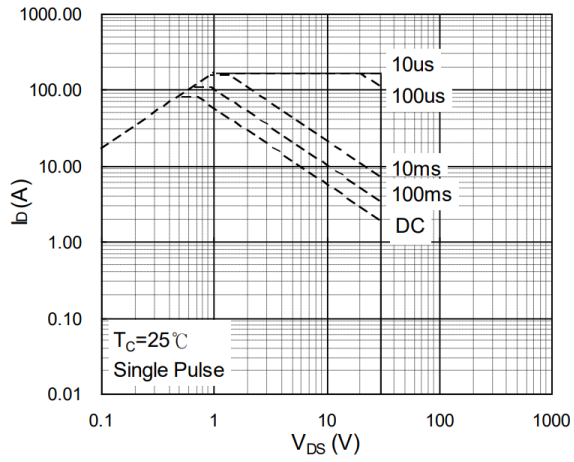


Figure 7. Maximum Safe Operating Area

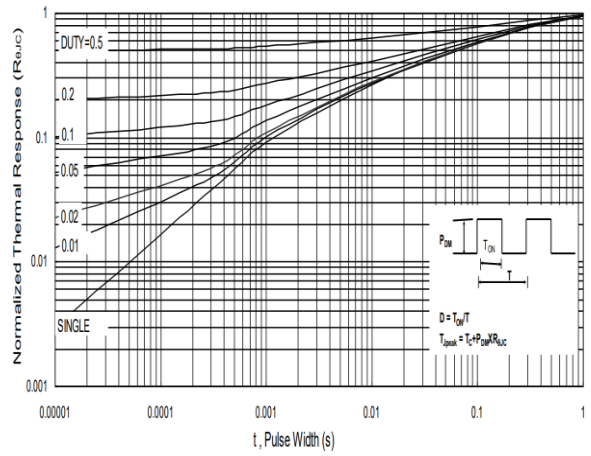
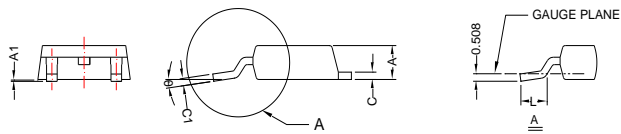
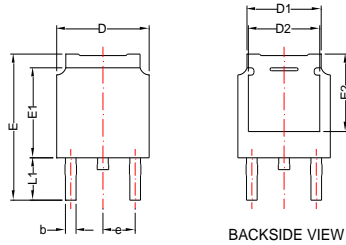


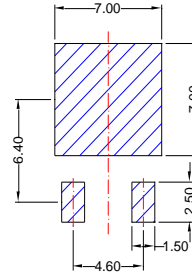
Figure 8. Normalized Transient Thermal Resistance

TO-252

Package Dimension



Recommended Land Pattern



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:
 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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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihsu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587