GSM3368ASF

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.

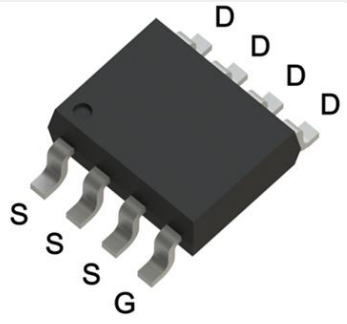
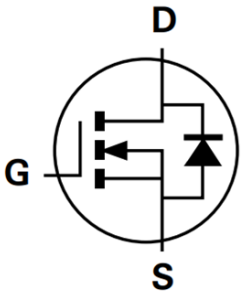
Features

- $R_{DS(ON)}$ =6mΩ @ V_{GS}=10V
- $R_{DS(ON)}$ =9.8mΩ @ V_{GS}=4.5V
- SOP-8 Package

Applications

- MB / VGA / Vcore
- POL
- SMPS

Packages & Pin Assignments

GSM3368ASF (SOP-8)	Equivalent Circuit
	

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

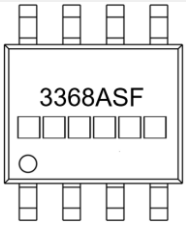
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM3368ASF	SOP-8	3368ASF □□□□□□	4,000 PCS

GSM3368A 1 2

- **Product Code:** GSM3368A
- **Package Code:** 1 is **S** for SOP-8
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 3368ASF
- **GS Code:** □□□□□□

Absolute Maximum Ratings

T_A=25ºC, 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_A=25ºC	13	A
		T_A=70ºC	10	
I_{DM}	Pulsed Drain Current [2]		65	A
P_D	Total Power Dissipation [3]	T_A=25ºC	1.5	W
		T_A=70ºC	1	
T_J	Operating Junction Temperature Range		-55 to +150	ºC
T_{STG}	Storage Temperature Range		-55 to +150	ºC
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient [1]		80	ºC/W

Note:
1.The data tested by surface mounted on a 1 inch2 FR-4 board with 2oz copper.
2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
3.The power dissipation is limited by 150ºC junction temperature.

Electrical Characteristics

TA=25ºC, 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=10A	-	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, Rg=3.3Ω, I_D=10A	-	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

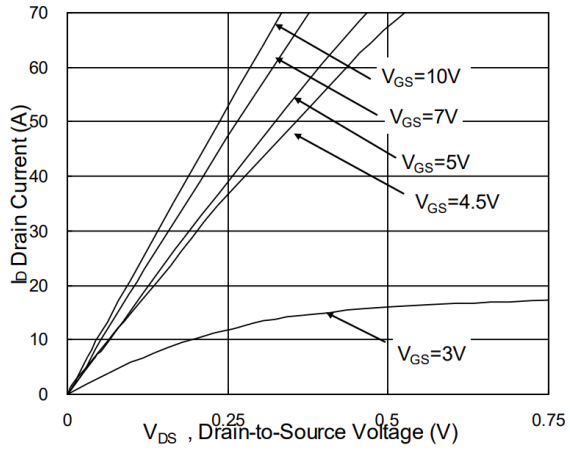


Figure 1. Typical Output Characteristics

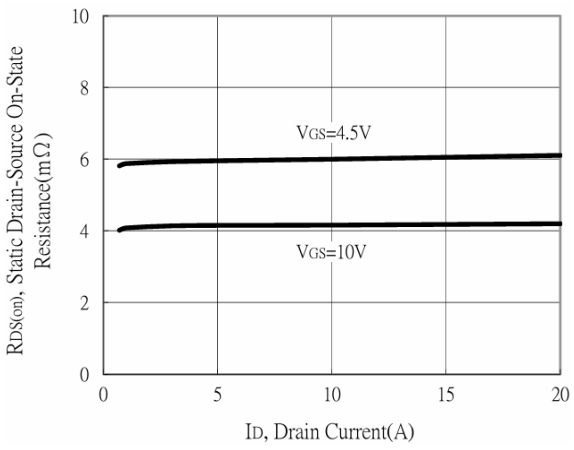


Figure 2. Drain-Source On-State resistance vs Drain Current

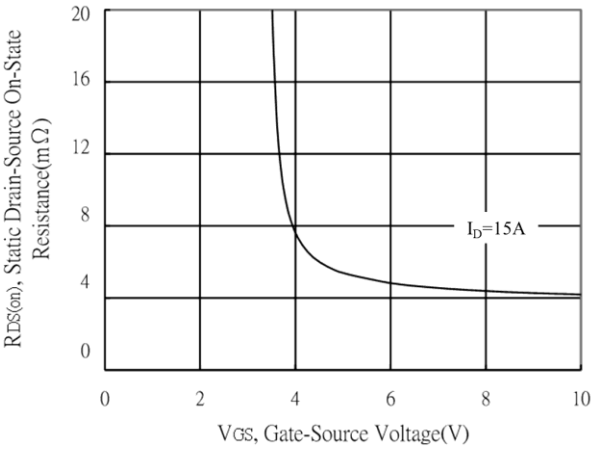


Figure 3. Drain-Source On-State Resistance vs Gate-Source Voltage

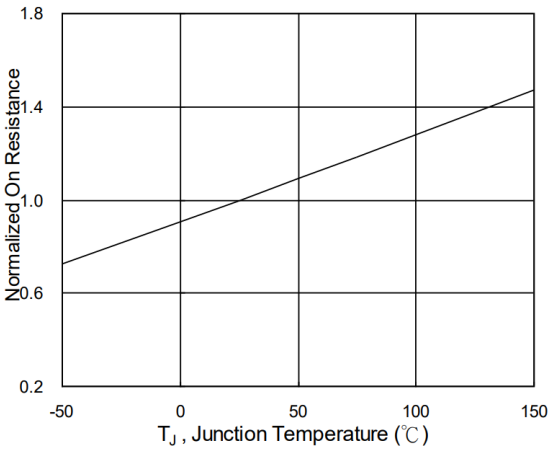


Figure 4. Drain-Source On-State Resistance vs Junction Temperature

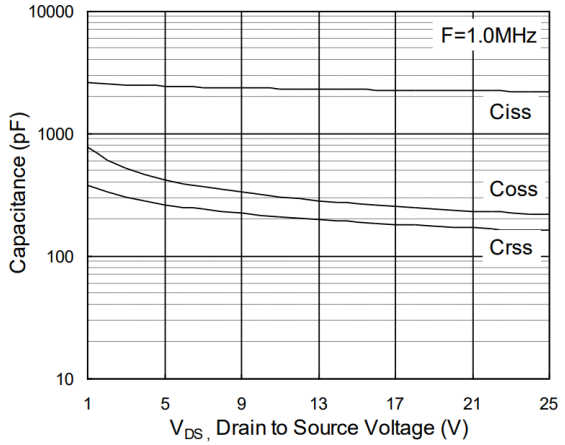


Figure 5. Capacitance vs Drain-to-Source Voltage

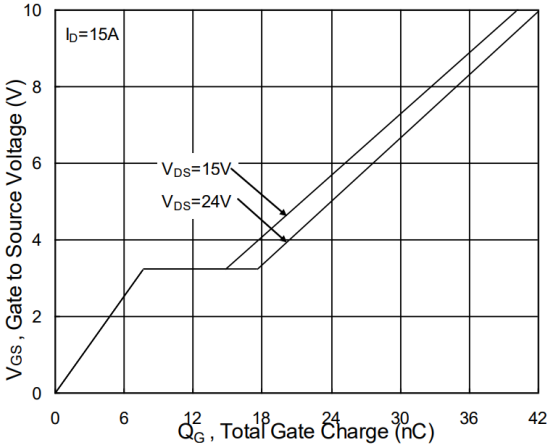


Figure 6. Gate Charge

Typical Performance Characteristics

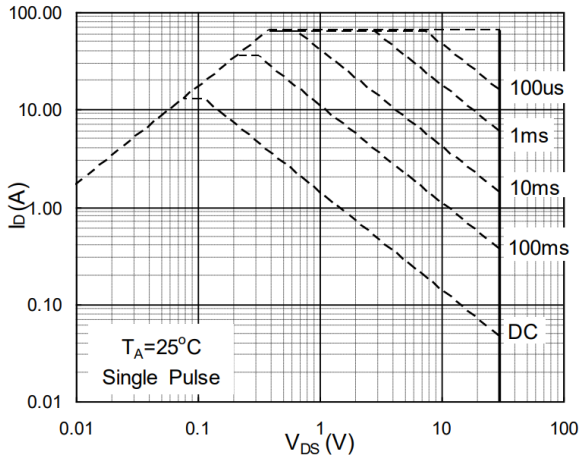


Figure 7. Maximum Safe Operating Area

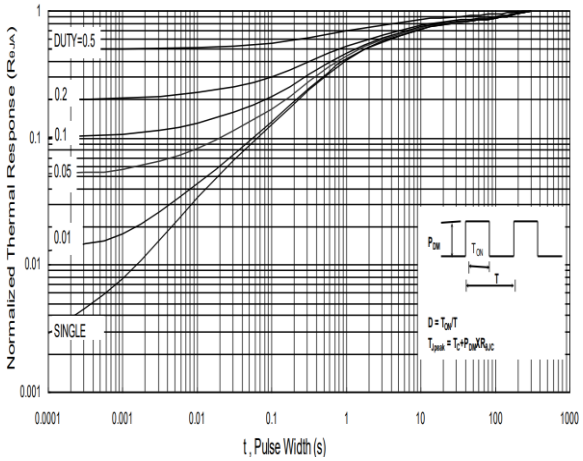
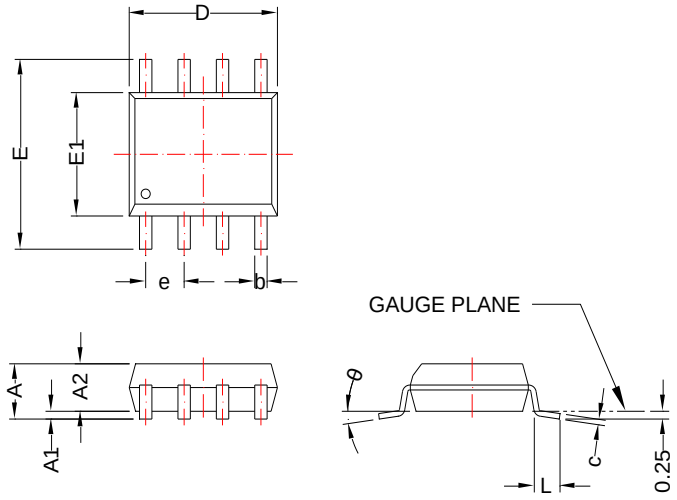


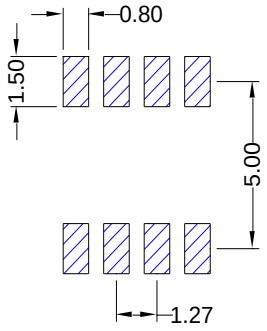
Figure 8. Normalized Transient Thermal Resistance

SOP-8

Package Dimension



Recommended Land Pattern



Dimensions				
Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.10	0.25	0.004	0.010
D	4.70	5.10	0.185	0.201
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
L	0.4	1.27	0.016	0.050
θ	0°	8°	0°	8°

NOTE:
DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 mm PER END.

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