GSM3385SF

30V P-Channel MOSFETs

Product Description

These P-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

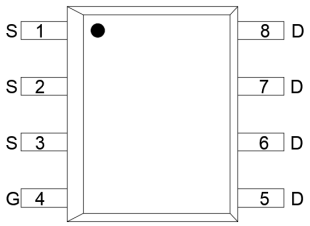
- -30V, -12A, $R_{DS(ON)}$<9.5mΩ@V_{GS}=-10V
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- SOP-8 package design

Applications

- MB / VGA / Vcore
- POL Applications
- Load Switch
- LED Application

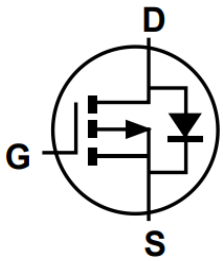
Packages & Pin Assignments

SOP-8L



Top view

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

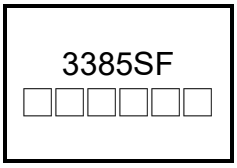
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM3385SF	SOP-8L	3385SF □□□□□□	4,000 PCS

GSM3385 1 2

- **Product Code:** GSM3385
- **Package Code:** 1 is **S** for SOP-8L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 3385SF
- **GS Code:** □□□□□□

Absolute Maximum Ratings (T_A=25ºC Unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		-30	V
V_{GS}	Gate –Source Voltage		±25	V
I_D	Continuous Drain Current	T_A=25℃	-12	A
		T_A=70℃	-8.1	
I_{DM}	Pulsed Drain Current		-52	A
P_D	Power Dissipation (T_A=25℃)		2.1	W
T_J	Operating Junction Temperature Range		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		60	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		30	℃/W

Electrical Characteristics (T_A=25℃ Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
$V_{(BR)DSS}$	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	-1.6	-2.5	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±25V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V, V_{GS}=0V			-1	uA
I_S	Continuous Source Current	V_G=V_D=0V, Force Current			-13	A
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-10A		8.3	9.5	mΩ
		V_{GS}=-4.5V, I_D=-8A		12.4	14	
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=-1A			-1	V
Dynamic Characteristics						
Q_g	Total Gate Charge[3,4]	V_{DD}=-15V, V_{GS}=10V, I_D=-15A		68		nC
Q_{gs}	Gate-Source Charge[3,4]			10		
Q_{gd}	Gate-Drain Charge[3,4]			12		
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1.0MHz		4319		pF
C_{oss}	Output Capacitance			439		
C_{rss}	Reverse Transfer Capacitance			299		
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, V_{GS}=-10V, Rg=3.3Ω, I_D=-15A		12		ns
t_r	Rise Time			11		
$t_{d(off)}$	Turn-Off Time			105		
t_f	Fall Time			21		

Typical Performance Characteristics

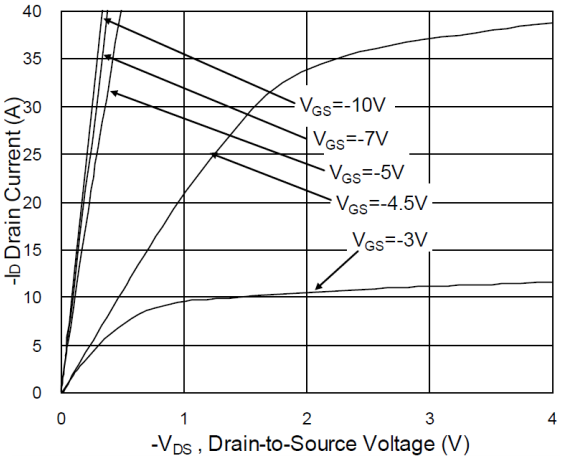


Figure 1. Output Characteristics

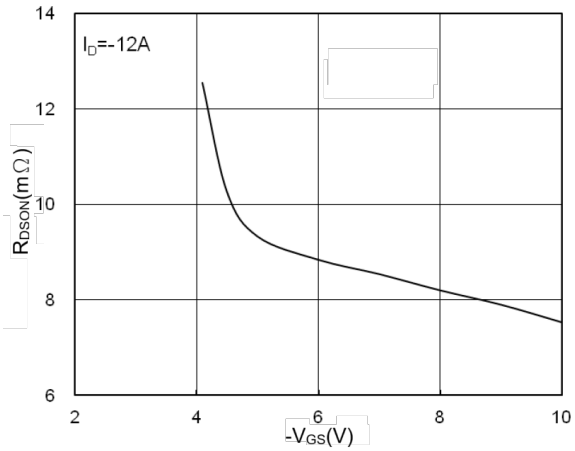


Figure 2. On-Resistance Variation with V_{GS}

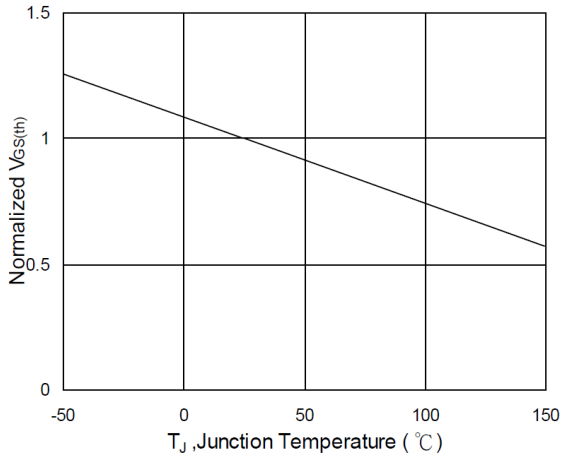


Figure 3. Normalized $V_{GS(th)}$ vs. T_J

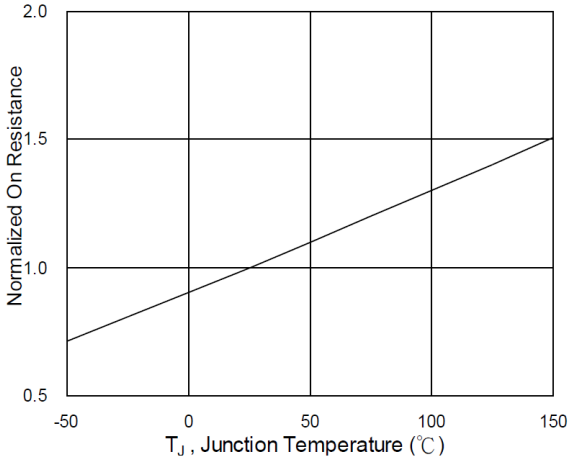


Figure 4. Normalized R_{DSON} vs. T_J

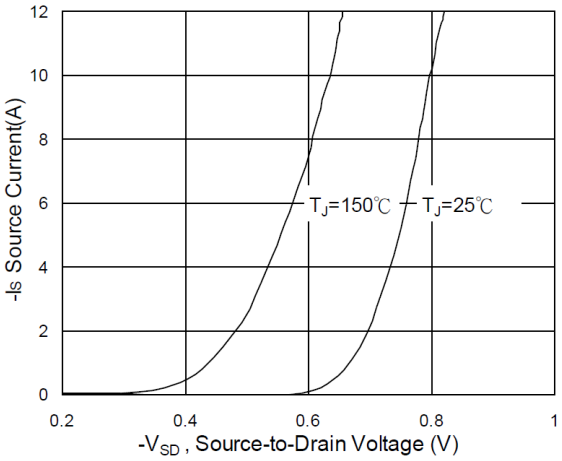


Figure 5. Diode Forward Voltage vs. Current

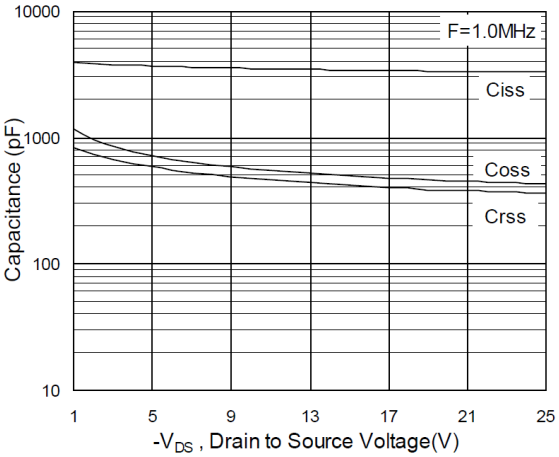


Figure 6. Capacitance

Typical Performance Characteristics (Continue)

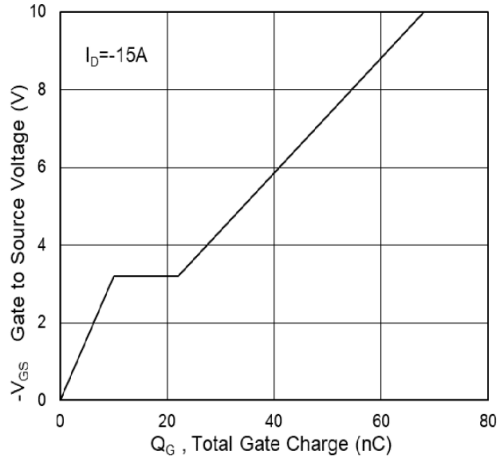


Figure 7. Gate Charge Waveform

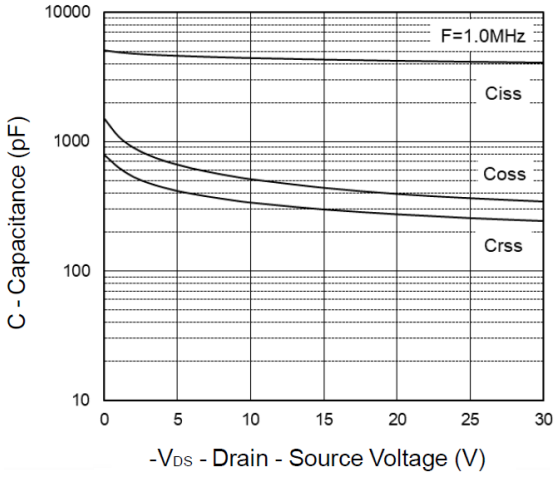


Figure 8. Maximum Safe Operating Area

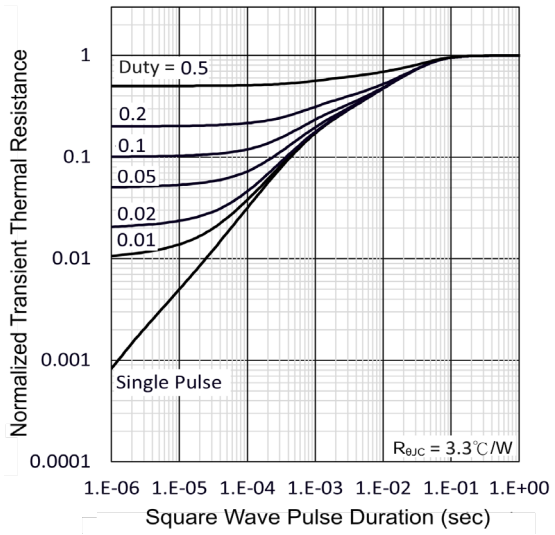
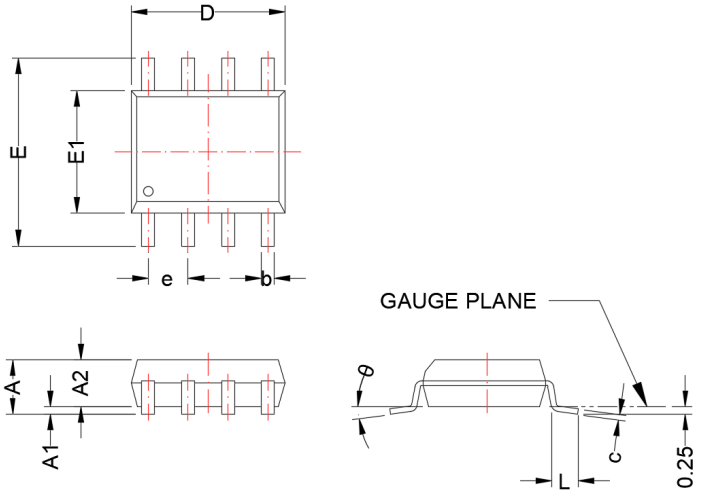


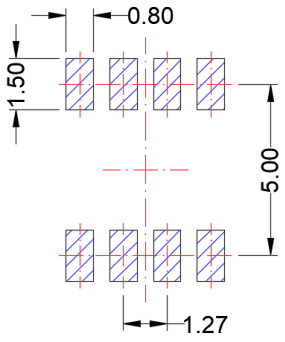
Figure 9. Normalized Transient Thermal Resistance

SOP-8

Package Dimension



Recommended Land Pattern



Unit:mm

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	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

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

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