

GSM3385DF

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.

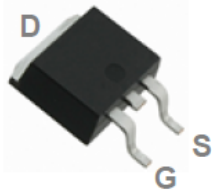
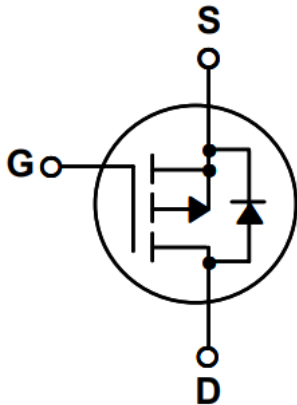
Features

- -30V, -70A, $R_{DS(ON)} < 8.5m\Omega @ V_{GS} = -10V$
- Suit for -4.5V Gate Drive Applications
- TO-252-2L Package
- RoHS Compliant and Halogen Free

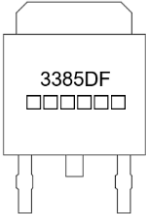
Applications

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

Packages & Pin Assignments

GSM3385DF (TO-252-2L)		Equivalent Circuit
		
Pin	Description	
G	Gate	
S	Source	
D	Drain	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM3385DF	TO-252-2L	3385DF □□□□□□	2,500 PCS
GSM3385 1 2			
- Product Code: GSM3385 - Package Code: 1 is D for TO-252-2L - Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
 - Product Code: 3385DF - GS Code: □□□□□□			

Absolute Maximum Ratings (T_C=25°C 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 _C =25°C	-70	A
		T _C =100°C	-44	
I _{DM}	Pulsed Drain Current ¹		-180	A
P _D	Power Dissipation	T _C =25°C	62.5	W
		T _C =100°C	25	
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		2	°C/W

Electrical Characteristics (T_C=25°C 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}	Drain-Source Leakage Current	V _{DS} =-30V, V _{GS} =0V			-1	uA
R _{DS(on)}	Drain-Source On-Resistance ³	V _{GS} =-10V, I _D =-20A		7.2	8.5	mΩ
		V _{GS} =-4.5V, I _D =-10 A		11.5	14	
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V, I _S =-1A			-1	V
Gate charge 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		
Dynamic characteristics						
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, R _g =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

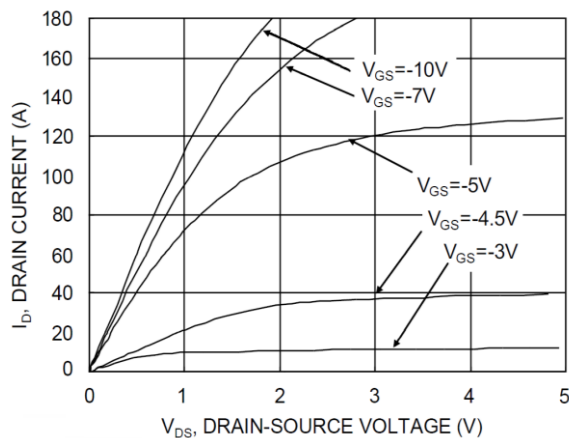


Fig.1 Typical Output Characteristics

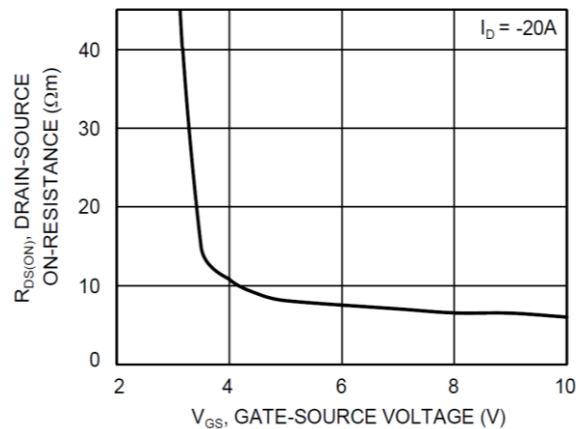


Fig.2 Typical On-Resistance vs. Gate Voltage

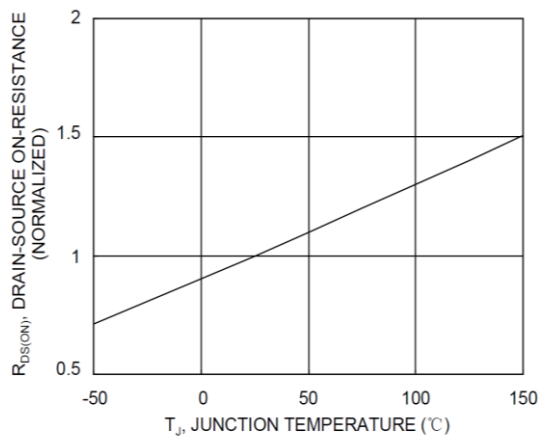


Fig.3 Normalized On-Resistance vs. T_J

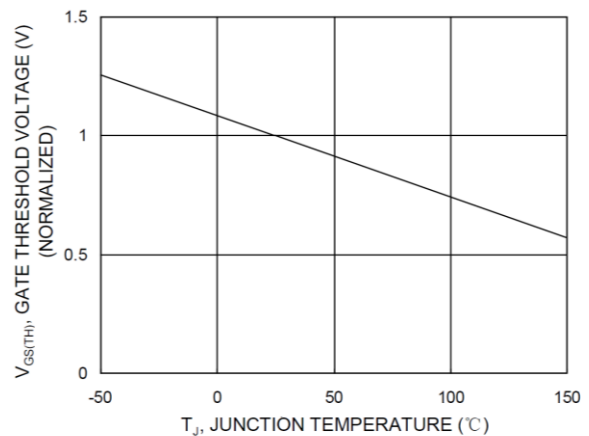


Fig.4 Normalized $V_{GS(th)}$ vs. T_J

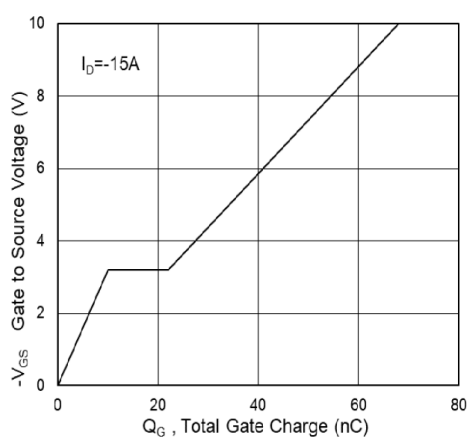


Fig.5 Gate Charge Characteristics

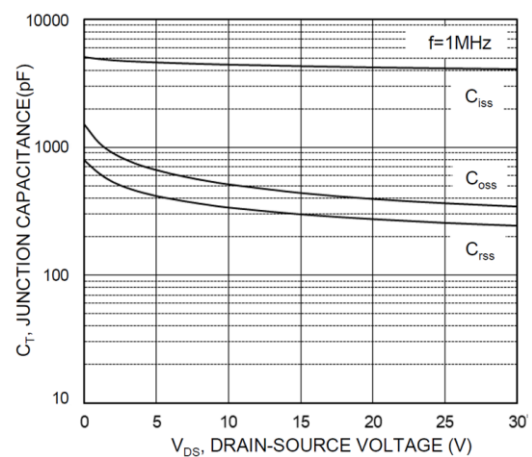


Fig.6 Capacitance Characteristics

Typical Performance Characteristics (Continue)

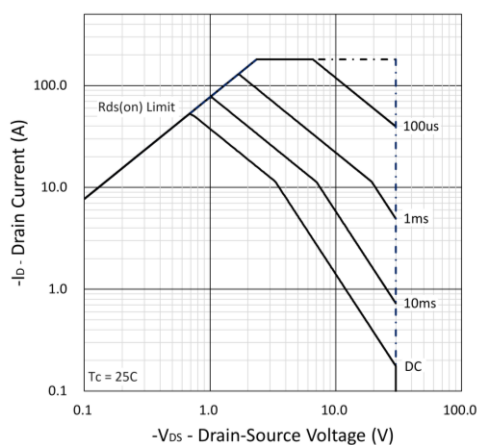


Fig.7 Maximum Safe Operation Area

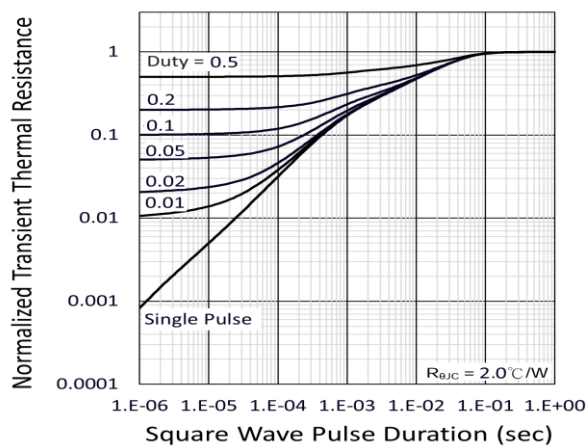
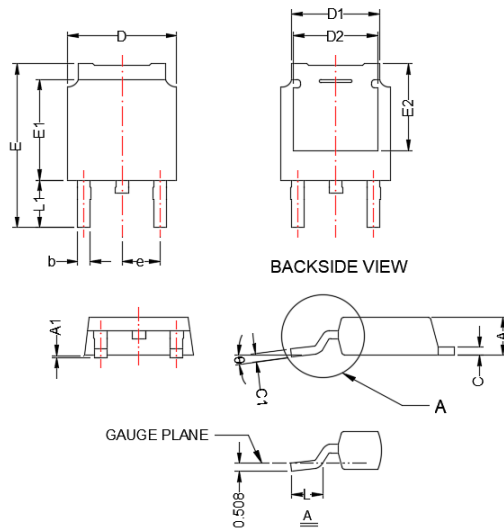


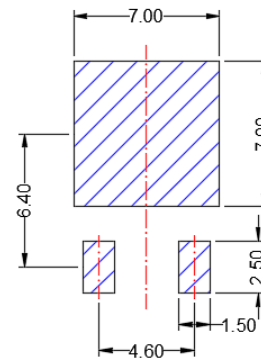
Fig.8 Normalized Transient Impedance

TO-252-2L

Package Dimension



Recommended Land Pattern



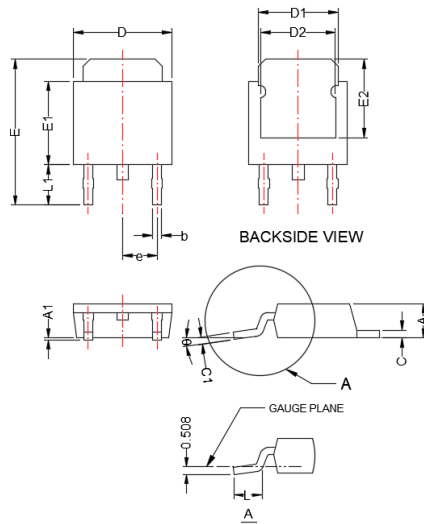
Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.18	2.40	0.086	0.094
A1	0.00	0.15	0.000	0.006
b	0.64	0.90	0.025	0.035
b1	0.76	1.14	0.030	0.045
c	0.40	0.89	0.016	0.035
c1	0.40	0.61	0.016	0.024
D	6.35	6.73	0.250	0.265
D1	4.95	5.46	0.195	0.215
D2	4.32	---	0.170	---
E	9.40	10.41	0.370	0.410
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
L2	---	1.20	---	0.047
θ	0°	8°	0°	8°

NOTE:

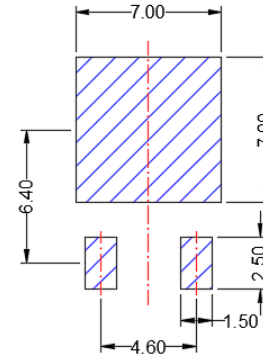
Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions.

TO-252-2L

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	0.50	0.90	0.020	0.035
b1	0.60	1.14	0.024	0.045
c	0.45	0.89	0.018	0.035
c1	0.40	0.61	0.016	0.024
D	6.35	6.80	0.250	0.268
D1	4.95	5.50	0.195	0.217
D2	3.81	---	0.150	---
E	9.40	10.41	0.370	0.410
E1	5.33	5.80	0.210	0.228
E2	4.57	---	0.180	---
e	2.286 BSC		0.090 BSC	
L	1.40	1.78	0.055	0.070
L1	2.40	3.00	0.094	0.118
L2	---	1.20	---	0.047
θ	0°	8°	0°	8°

NOTE:

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

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CONTACT US

GS Headquarter	
	4F, NO.43-1, Lane 11, Sec. 6, Minquan E. Rd Neihs District, Taipei City 114761, 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