

GSM3335SF

30V P-Channel MOSFET

Product Description

The 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.

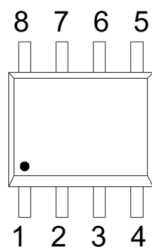
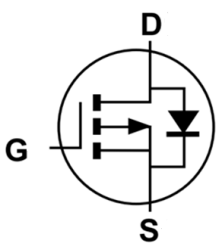
Features

- $R_{DS(ON)} = 4.8m\Omega @ V_{GS} = -10V$
- $R_{DS(ON)} = 7.8m\Omega @ V_{GS} = -4.5V$
- SOP-8L Package
- RoHS Compliant and Halogen Free

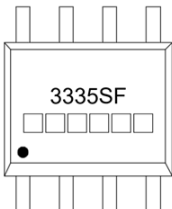
Applications

- Notebook
- Load Switch
- Battery Protection
- Hand-held Instruments

Packages & Pin Assignments

SOP-8L			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
GSM3335SF	SOP-8L	3335SF □□□□□□	4,000 PCS
GSM3335 1 2			
- Product Code: GSM3335		- Package Code: 1 is S for SOP-8L	
		- Green Level: 2 is F for RoHS Compliant and Halogen Free	
Marking Information			
		- Product Code: 3335SF	
		- GS Code: □□□□□□ • The Dot denotes Pin 1	

Absolute Maximum Ratings (T_J=25°C Unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{DS}	Drain-Source Voltage	-30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current ³	T _A =25°C	-24
		T _A =70°C	-19
I _{DM}	Pulsed Drain Current ^{1, 3}	-96	A
I _{AS}	Single Pulse Avalanche Current, L = 0.1mH ¹	25	A
E _{AS}	Single Pulse Avalanche Energy, L = 0.1mH ¹	93	mJ
P _D	Power Dissipation	T _A =25°C	3.1
		T _A =70°C	2
R _{θJA}	Max Thermal Resistance-Junction to Ambient (Steady State) ²	75	°C/W
	Max Thermal Resistance-Junction to Ambient (t ≤ 10s) ²	40	
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

NOTE:

- Pulsed width is limited by the maximum junction temperature.
- Surface mounted on 1in2 FR-4 board with 2oz. Copper.
- The typical thermal Resistance-Junction to Ambient t ≤ 10s is 28°C/W..

Electrical Characteristics (T_J=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
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-	-2.5	V
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-20A	-	4.3	4.8	mΩ
		V _{GS} =-4.5V, I _D =-10A	-	6.3	7.8	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	-	7500	-	pF
C _{oss}	Output Capacitance		-	1200	-	
C _{rss}	Reverse Transfer Capacitance		-	940	-	
Q _g	Total Gate Charge	V _{DS} =-15V, I _D =-10A V _{GS} =-10V	-	150	-	nC
Q _{gs}	Gate-Source Charge		-	28	-	
Q _{gd}	Gate-Drain Charge		-	24	-	
t _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, I _D =-10A V _{GS} =-10V, R _g =6Ω	-	25	-	ns
t _r	Turn-On Rise Time		-	35	-	
t _{d(off)}	Turn-Off Delay Time		-	100	-	
t _f	Turn-Off Fall Time		-	50	-	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A	-	-	-1	V

Typical Performance Characteristics

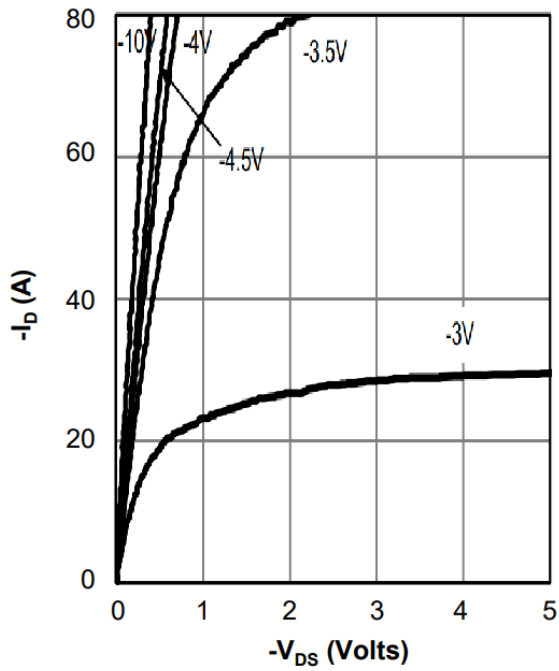


FIG.1 Output Characteristics

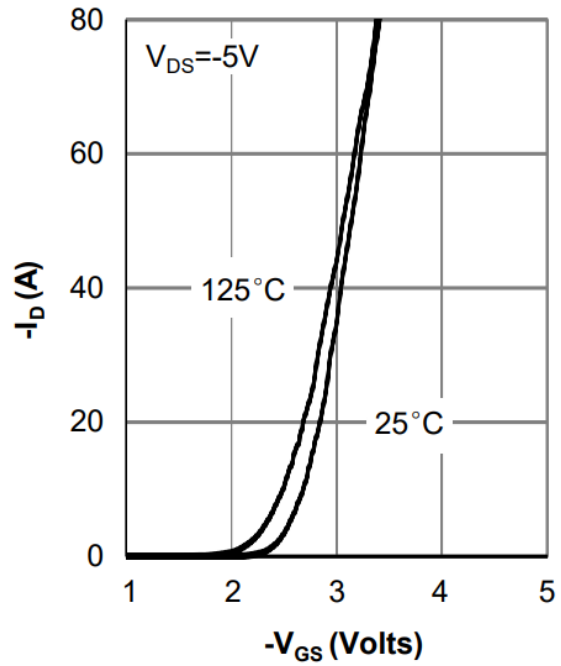


FIG.2 Transfer Characteristics

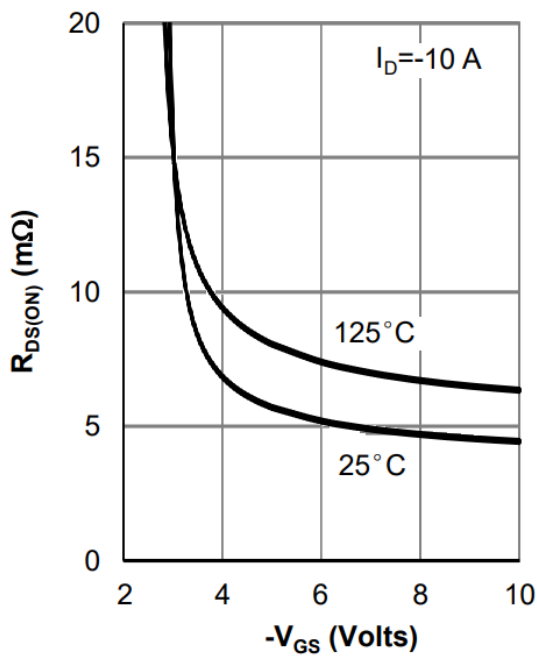


FIG.3 On-Resistance vs. Gate Voltage

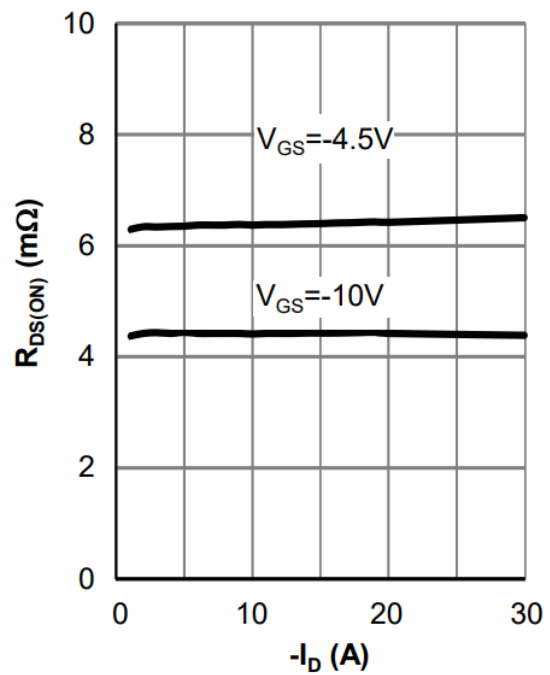


FIG.4 On-Resistance vs. Drain Current

Typical Performance Characteristics

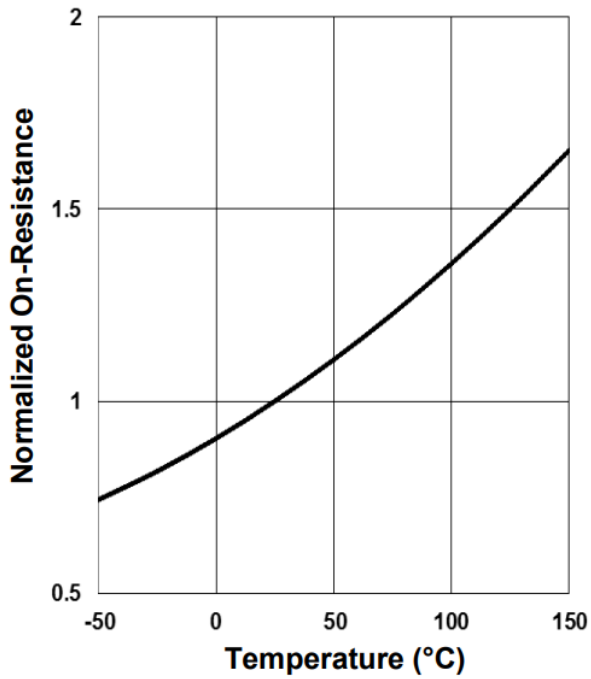


FIG.5 Normalized On-Resistance vs. T_J

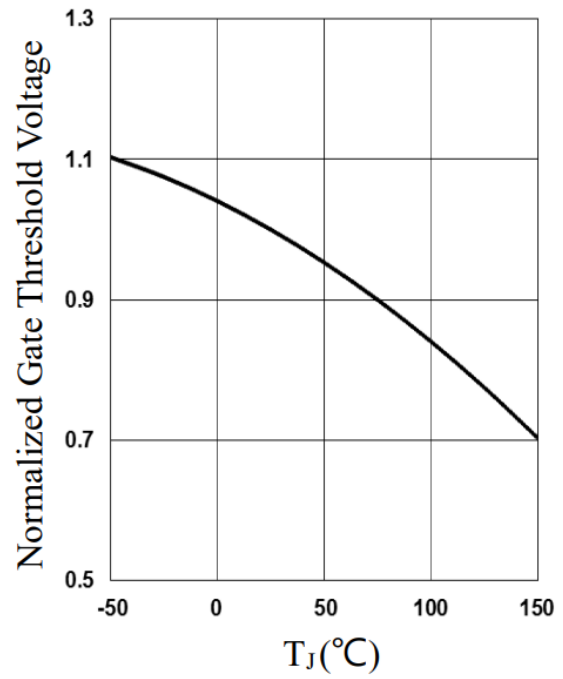


FIG.6 Normalized $V_{GS(th)}$ vs. T_J

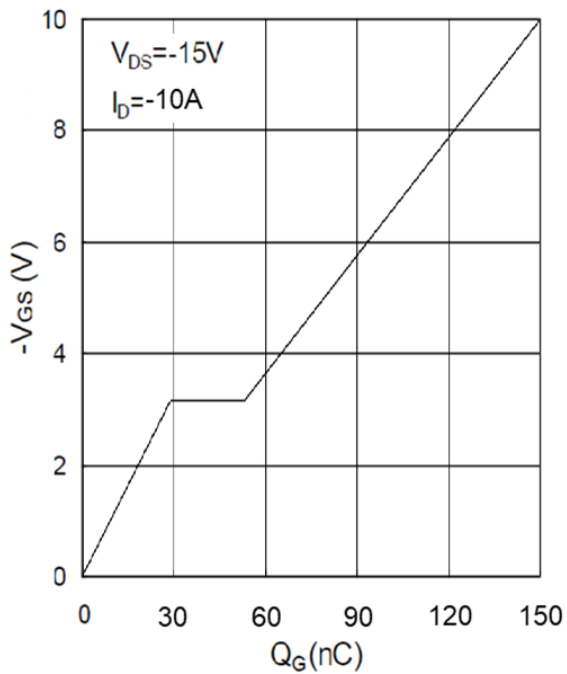


FIG.7 Gate Charge Characteristics

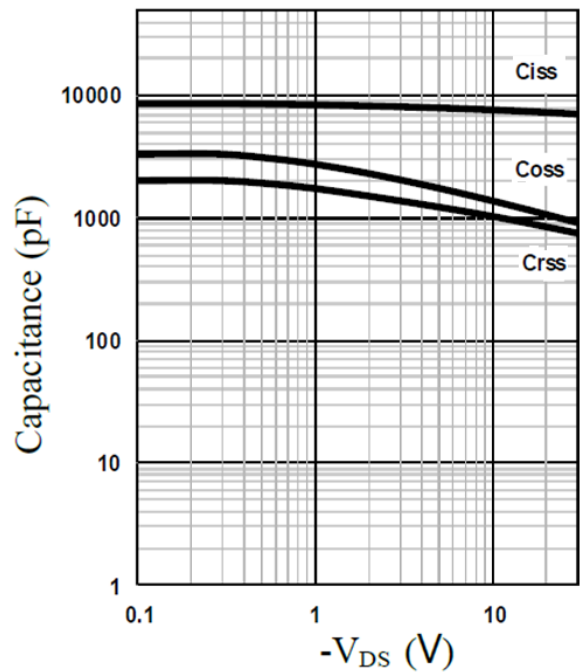


FIG.8 Capacitance Characteristics

Typical Performance Characteristics

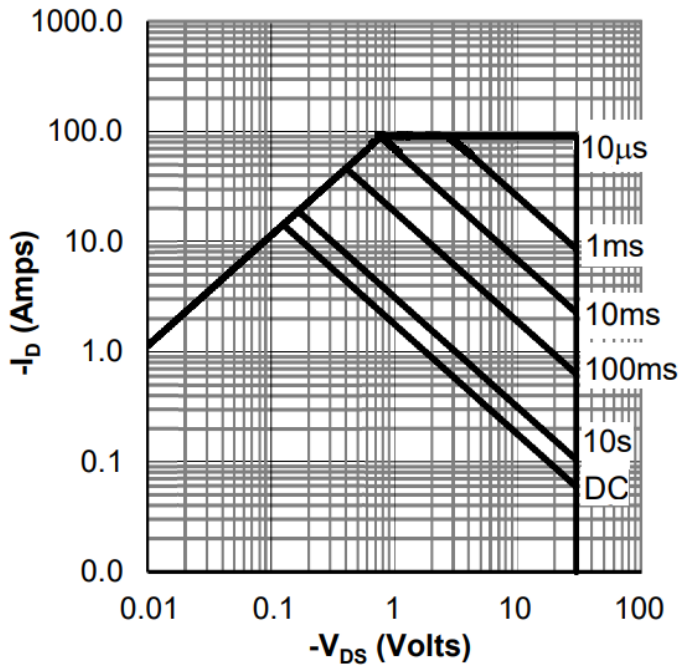


FIG.9 Maximum Safe Operation Area

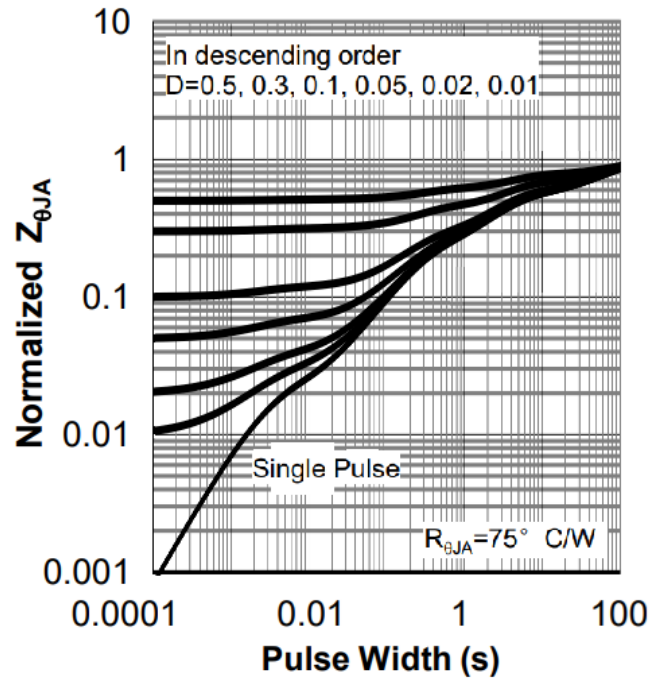
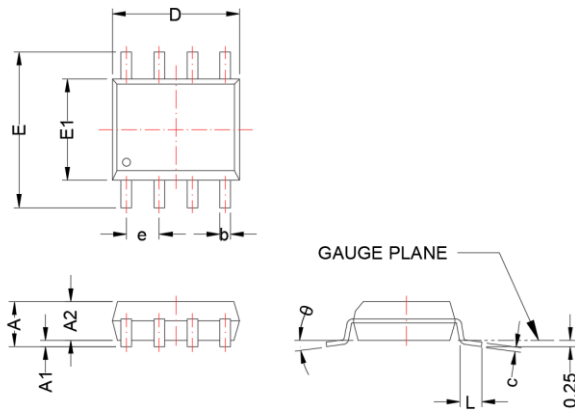


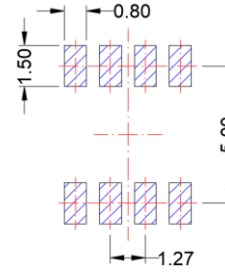
FIG.10 Normalized Transient Impedance

SOP-8L

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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