GSM3117SF

30V P-Channel MOSFET

Product Description

The P-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.

This device is well suited for high efficiency fast switching applications.

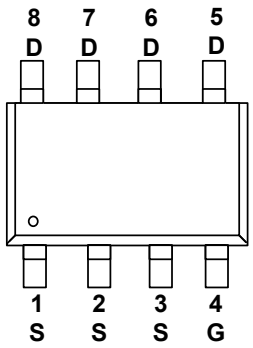
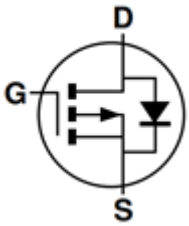
Features

- $R_{DS(ON)}$=18mΩ@V_{GS}=-10V
- $R_{DS(ON)}$=26mΩ@V_{GS}=-4.5V
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- SOP-8L package design

Applications

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

Packages & Pin Assignments

SOP-8L	Equivalent Circuit
 Top View	

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

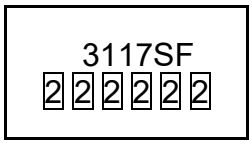
Ordering and Marking Information

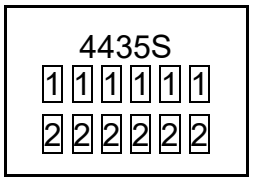
Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM3117SF	SOP-8L	3117SF □□□□□□ 4435S □□□□□□ □□□□□□	4,000 PCS

GSM3117 1 2

- **Product Code:** 3117SF or 4435S
- **Package Code:** 1 is **S** for SOP-8L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information





- **Product Code:** 3117SF
- **Lot Code:** 1 is Lot Code
- **GS Code:** 2 is 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		±25	V
I_D	Continuous Drain Current	T_C=25℃	-13.8	A
		T_C=70℃	-11.1	
		T_A=25ºC	-7.8	
		T_A=70ºC	-6.2	
I_{DM}	Pulsed Drain Current		-50	A
P_D	Power Dissipation	T_C=25℃	5.3	W
		T_C=70℃	3.4	
		T_A=25ºC	1.7	
		T_A=70ºC	1.1	
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		75	ºC/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		24	ºC/W

Electrical Characteristics (T_A=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=-250uA	-30	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.2	-	-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
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_S=-1A	-	-	-1	V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-10A	-	12.3	18	mΩ
		V_{GS}=-4.5V, I_D=-6A	-	19.4	26	
Gate charge characteristics						
Q_g	Total Gate Charge	V_{DD}=-15V, V_{GS}=-4.5V, I_D=-15A	-	22	-	nC
Q_{gs}	Gate-Source Charge		-	8.7	-	
Q_{gd}	Gate-Drain Charge		-	7.2	-	
Dynamic characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1.0MHz	-	2215	-	pF
C_{oss}	Output Capacitance		-	310	-	
C_{rss}	Reverse Transfer Capacitance		-	237	-	
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, VGS=-10V, Rg=3.3Ω, I_D=-15A	-	8	-	ns
t_r	Rise Time		-	73.7	-	
$t_{d(off)}$	Turn-Off Time		-	61.8	-	
t_f	Fall Time		-	24.4	-	

Typical Performance Characteristics

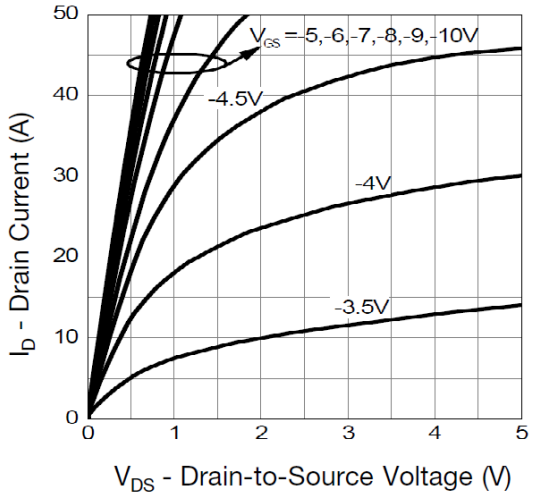


Figure 1. Output Characteristics

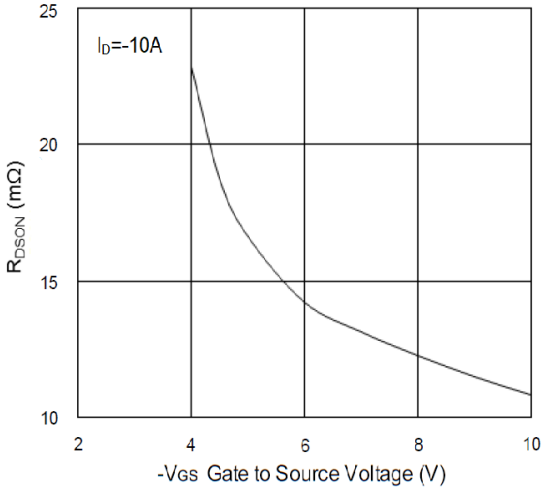


Figure 2. On-Resistance Variation with V_{GS}

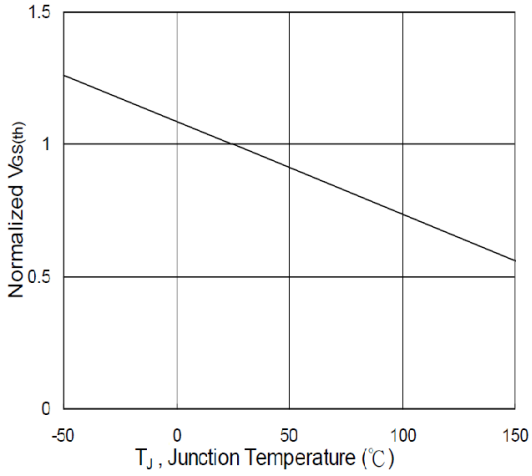


Figure 3. Normalized $V_{GS(th)}$ vs. T_J

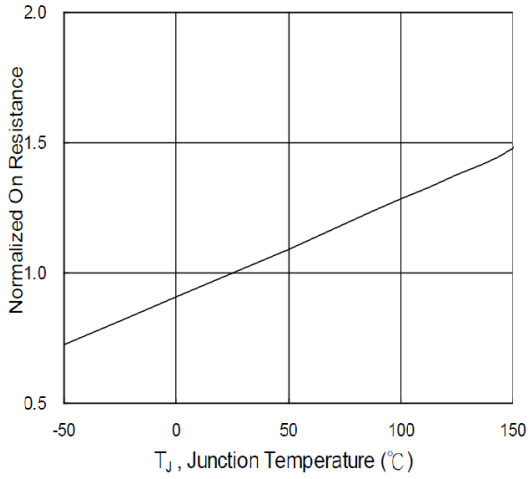


Figure 4. Normalized R_{DSON} vs. T_J

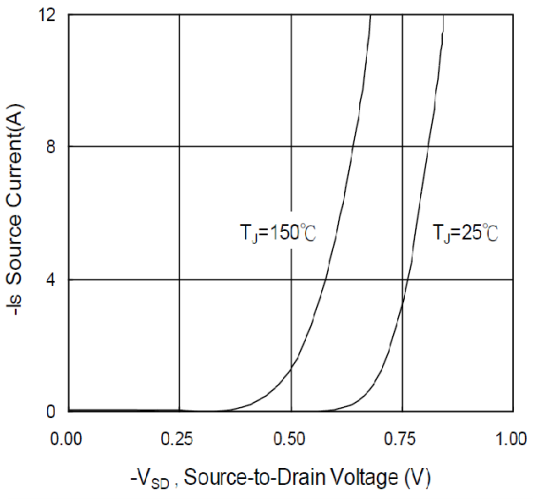


Figure 5. Diode Forward Voltage vs. Current

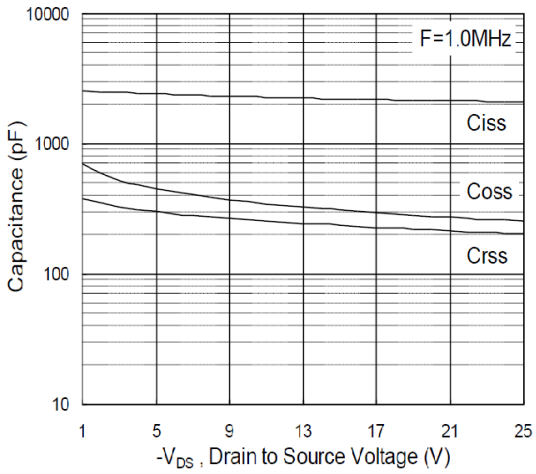


Figure 6. Capacitance

Typical Performance Characteristics (Continue)

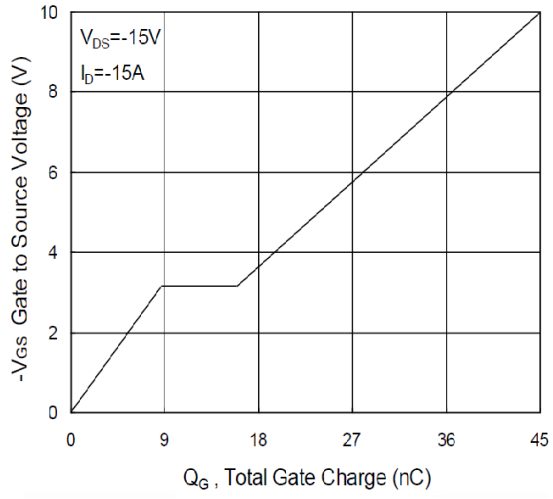


Figure 7. Gate Charge Waveform

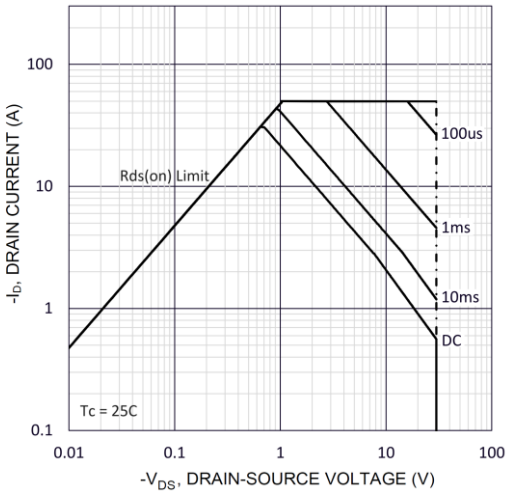


Figure 8. Maximum Safe Operating Area

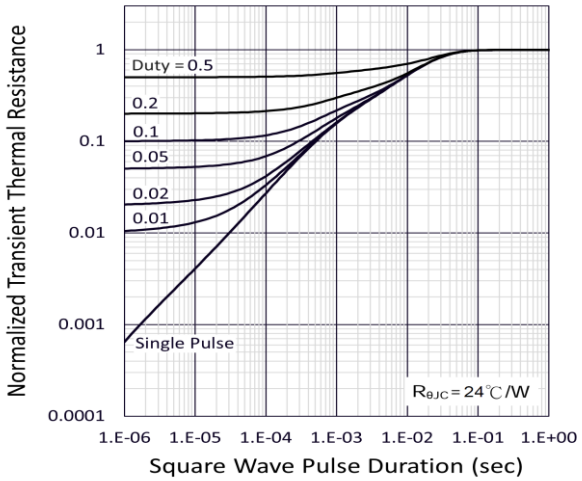
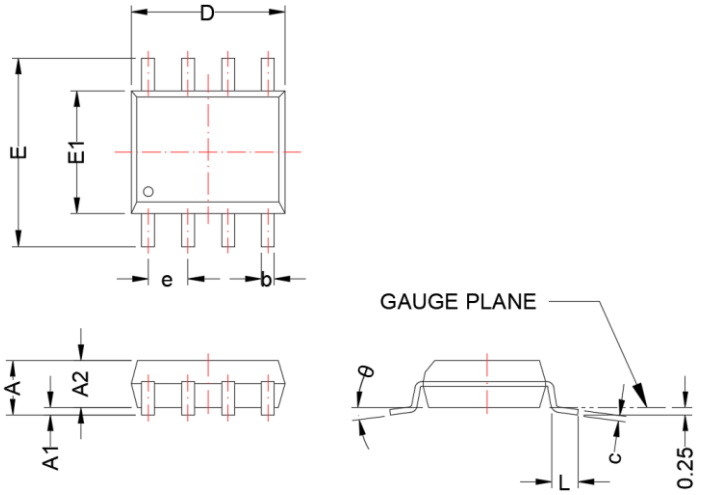


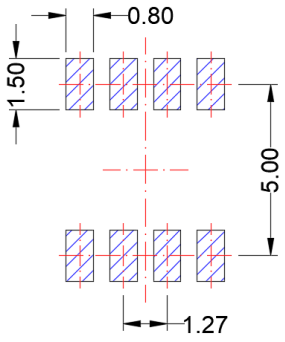
Figure 9. Normalized Transient Thermal Resistance

SOP-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 & Tie Bar extrusions.

NOTICE

- Globaltech Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all Globaltech Semiconductor products described or contained herein. Globaltech Semiconductor products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Globaltech Semiconductor makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

- The information furnished is believed to be accurate and reliable. However, Globaltech Semiconductor assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Globaltech Semiconductor. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information without express written approval of Globaltech Semiconductor.

CONTACT US

GS Headquarter	
	4F, NO.43-1, Lane 11, Sec. 6, Minquan E. Rd Neihu 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