GSM2151EJZF

25V 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.

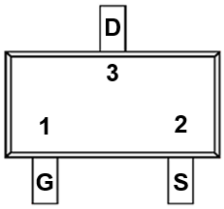
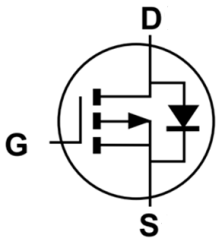
Features

- $R_{DS(ON)}$ = 50mΩ @ V_{GS}=-10V
- $R_{DS(ON)}$ = 80mΩ @ V_{GS}=-4.5V
- SOT-23 Package
- RoHS Compliant and Halogen Free

Applications

- Load Switch
- Hand-held Instruments

Packages & Pin Assignments

SOT-23	Equivalent Circuit
	

Pin	Symbol	Description	Pin	Symbol	Description
1	G	Gate	3	D	Drain
2	S	Source			

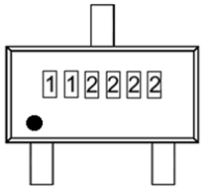
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM2151EJZF	SOT-23	1 1 2 2 2 2 or 1 1 2 2 2	3,000 PCS

GSM2151E 1 2

- **Product Code:** GSM2151E
- **Package Code:** 1 is **JZ** for SOT-23
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 1 1 is 1E or 31
- **GS Code:** 2 2 2 2 or 2 2 2
- ● Dot for Pin1

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

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		-25	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A=25ºC	-4.2	A
		T_A=70ºC	-3.4	
I_{DM}	Pulsed Drain Current [1]		-16	A
P_D	Power Dissipation	T_A=25ºC	1.38	W
		T_A=70ºC	0.88	
$R_{\theta JA}$	Max Thermal Resistance-Junction to Ambient [2]		90	℃/W
T_J	Operating Junction Temperature Range		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃

NOTE:
1. Pulsed width is limited by the maximum junction temperature.
2. Surface mounted on 1in2 FR-4 board with 2oz. Copper.

Electrical Characteristics (T_J=25℃, 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	-25	-	-	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-20V, V_{GS}=0V	-	-	-1	μA
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±30	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1	-	-2.5	V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-4A	-	32	50	mΩ
		V_{GS}=-4.5V, I_D=-3A	-	50	80	
g_{FS}	Forward Transconductance	V_{DS}=-10V, I_D=-4A	-	5	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	-	830	-	pF
C_{oss}	Output Capacitance		-	100	-	
C_{rss}	Reverse Transfer Capacitance		-	75	-	
Q_g	Total Gate Charge	V_{DS}=-15V, I_D=-4A V_{GS}=-10V	-	13.5	-	nC
Q_{gs}	Gate-Source Charge		-	2.2	-	
Q_{gd}	Gate-Drain Charge		-	2.7	-	
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V, I_D=-1A V_{GS}=-10V, Rg=3.3Ω	-	8	-	ns
t_r	Turn-On Rise Time		-	5	-	
$t_{d(off)}$	Turn-Off Delay Time		-	22	-	
t_f	Turn-Off Fall Time		-	5	-	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A	-	-	-1.2	V

Typical Performance Characteristics

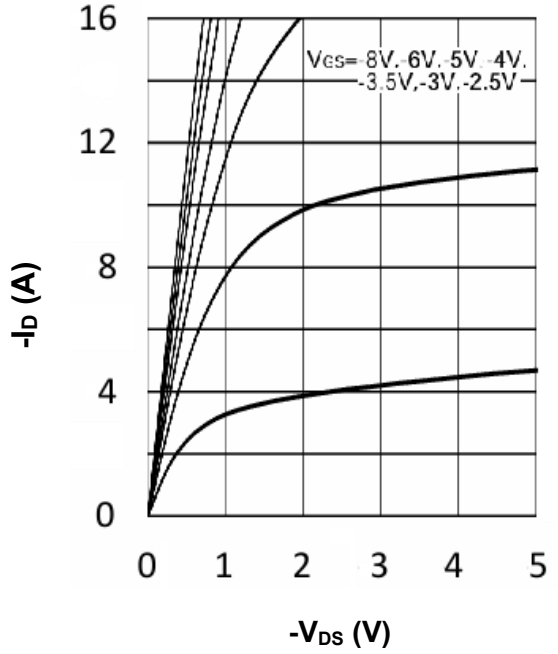


FIG.1 Output Characteristics

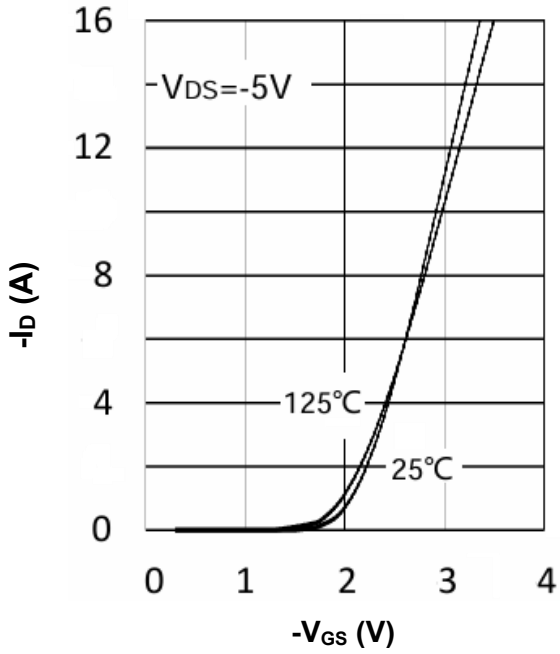


FIG.2 Transfer Characteristics

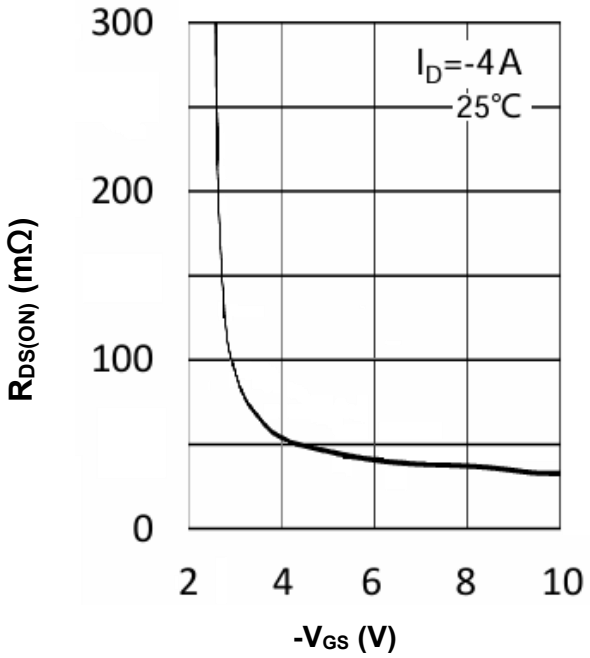


FIG.3 On-Resistance vs. Gate Voltage

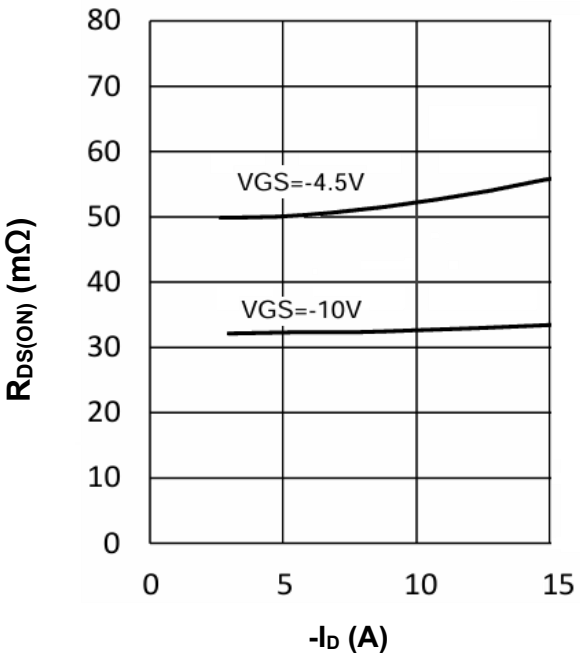


FIG.4 On-Resistance vs. Drain Current

Typical Performance Characteristics

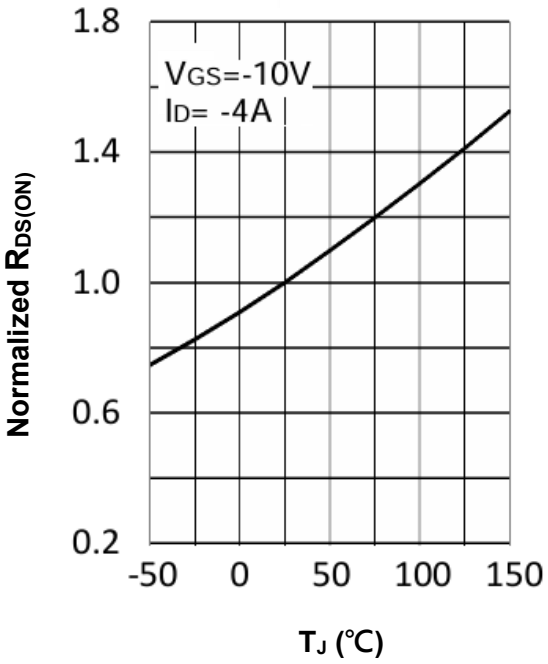


FIG.5 Normalized On-Resistance vs. T_J

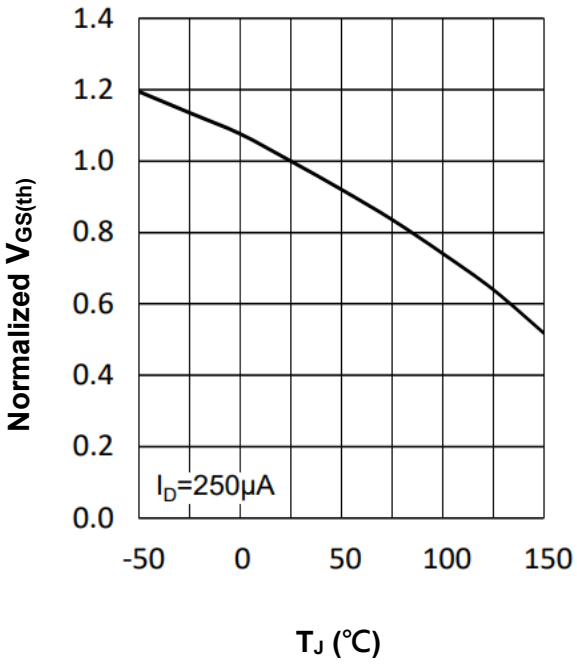


FIG.6 Normalized $V_{GS(th)}$ vs. T_J

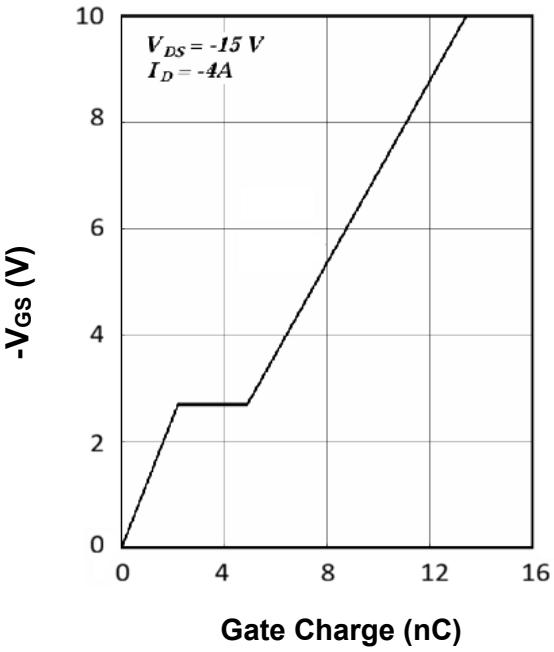


FIG.7 Gate Charge Characteristics

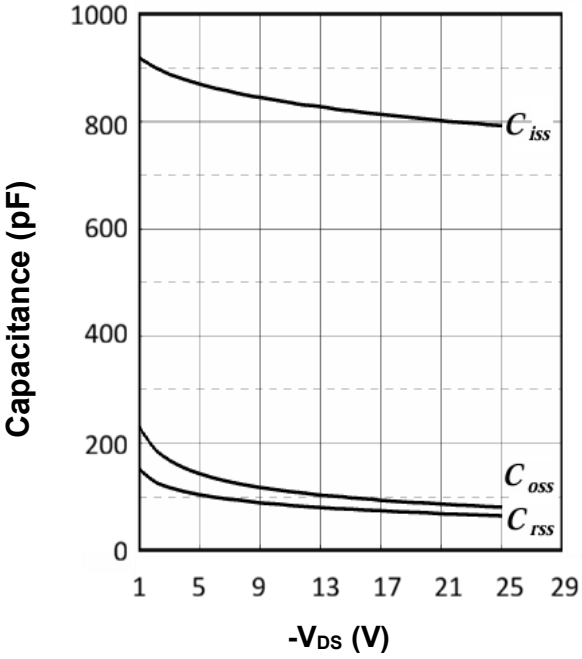


FIG.8 Capacitance Characteristics

Typical Performance Characteristics

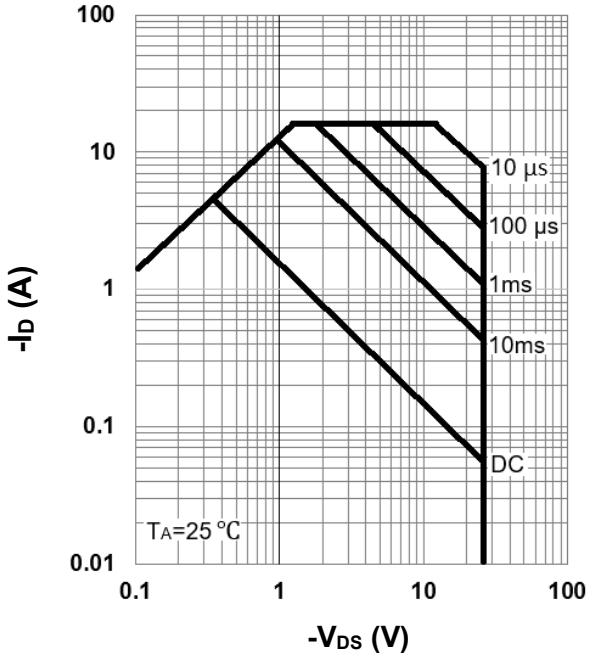


FIG.9 Maximum Safe Operation Area

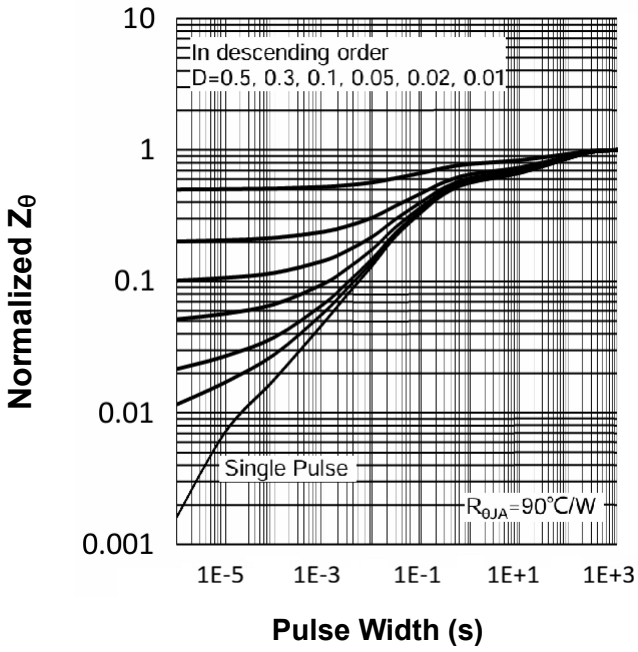
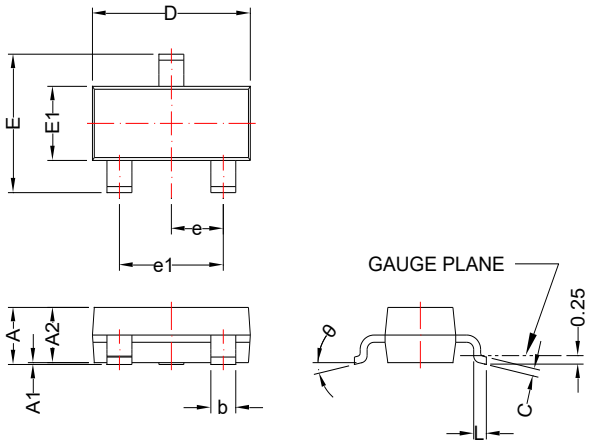


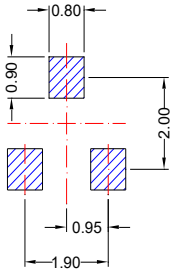
FIG.10 Normalized Transient Impedance

SOT-23

Package Dimension (2)



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.75	1.17	0.030	0.046
A1	0.01	0.15	0.000	0.006
A2	0.70	1.02	0.028	0.040
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.3	0.6	0.012	0.024
θ	0°	8°	0°	8°

NOTE:

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

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