GSM2313P

20V 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

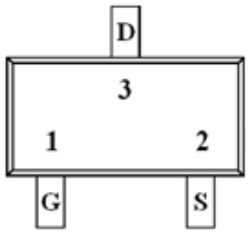
- -20V, -4.1A, $R_{DS(ON)}$=65mΩ@V_{GS}=-4.5V
- Improved dv/dt capability
- Fast switching
- Suit for -1.8V Gate Drive Applications
- Green Device Available
- SOT-23 package design

Applications

- Notebook
- Load Switch
- Hand-held Instruments

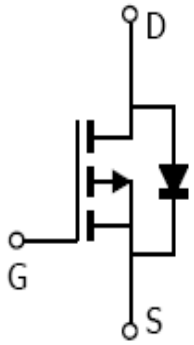
Packages & Pin Assignments

GSM2313PJZF (SOT-23)

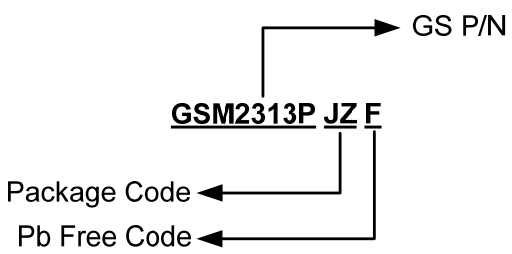


Top Views

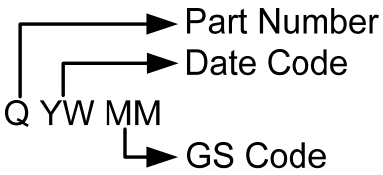
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM2313PJZF	SOT-23	QYWMM	3000pcs

Absolute Maximum Ratings

T_A=25ºC Unless otherwise noted

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		-20	V
V_{GS}	Gate-Source Voltage		±10	V
I_D	Continuous Drain Current	T_A=25℃	-4.1	A
		T_A=100℃	-2.6	
I_{DM}	Pulsed Drain Current		-16.4	A
P_D	Power Dissipation (T_A=25℃)		1.56	W
	Power Dissipation (Derate above 25℃)		0.012	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		80	℃/W

Electrical Characteristics

T_A=25℃ Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	-20			V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃, I_D=-1mA		-0.02		V/℃
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-0.4	-0.6	-0.8	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient			2		mV/℃
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±10V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V,V_{GS}=0V			-1	uA
		V_{DS}=-16V,V_{GS}=0V, T_J=125℃			-10	
I_S	Continuous Source Current	V_G=V_D=0V, Force Current			-4.1	A
I_{SM}	Pulsed Source Current				-16.4	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-4.5V,I_D=-3A		52	65	mΩ
		V_{GS}=-2.5V,I_D=-2A		73	85	
		V_{GS}=-1.8V,I_D=-1.5A		105	130	
g_{FS}	Forward Transconductance	V_{DS}=-10V,I_D=-3A		5.5		S
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=-1A			-1	V
Dynamic						
Q_g	Total Gate Charge	V_{DS}=-10V,V_{GS}=-4.5V, I_D=-3A		6.4	9	nC
Q_{gs}	Gate-Source Charge			0.9	1	
Q_{gd}	Gate-Drain Charge			1.6	3	
C_{iss}	Input Capacitance	V_{DS}=-10V,V_{GS}=0V, f=1MHz		515	745	pF
C_{oss}	Output Capacitance			55	80	
C_{rss}	Reverse Transfer Capacitance			20	30	
$t_{d(on)}$	Turn-On Time	V_{DD}=-10V,I_D=-1A, V_{GS}=-4.5V,R_G=25Ω		5	9	ns
t_r				17.4	33	
$t_{d(off)}$	Turn-Off Time			40.7	80	
t_f				11.4	23	

Typical Performance Characteristics

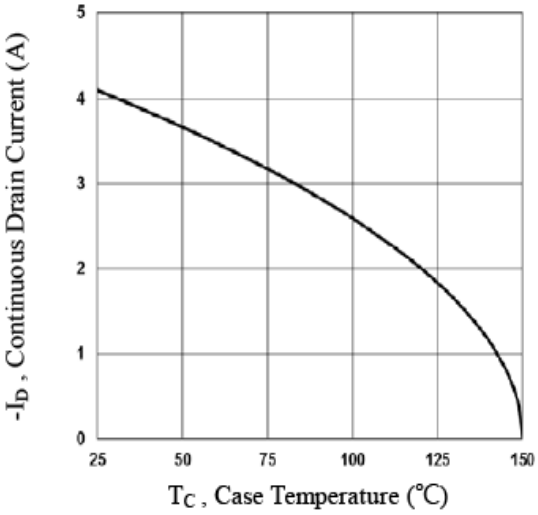


Fig.1 Continuous Drain Current vs. T_c

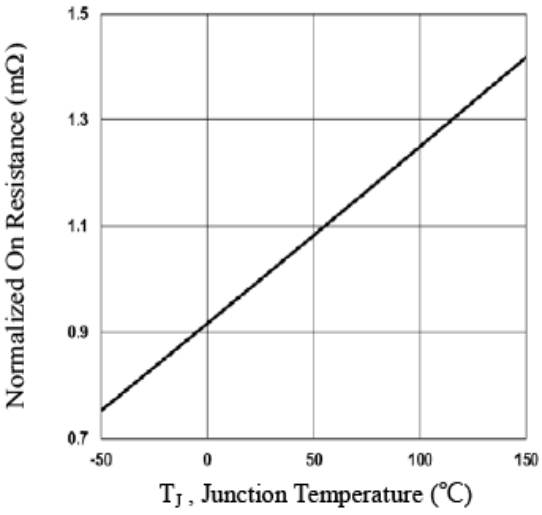


Fig.2 Normalized RDSON vs. T_J

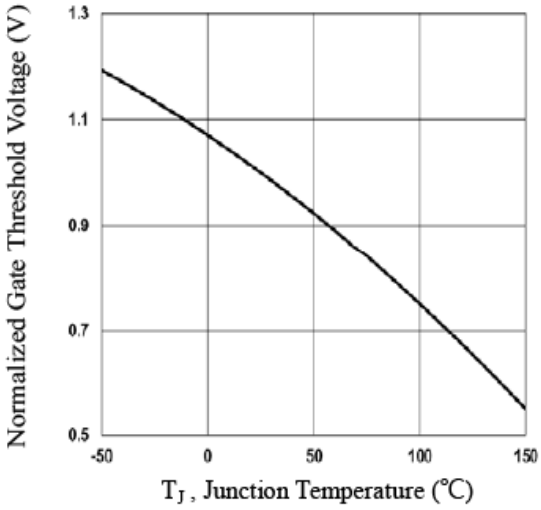


Fig.3 Normalized V_{th} vs. T_J

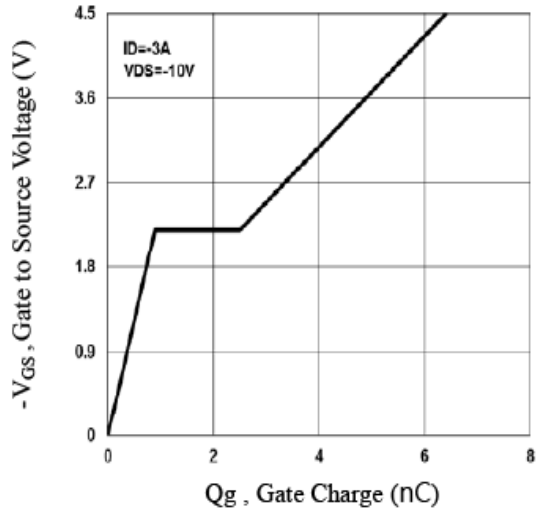


Fig.4 Gate Charge Waveform

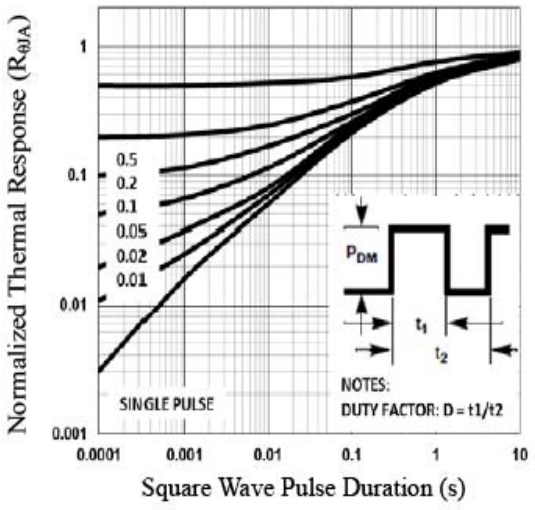


Fig.5 Normalized Transient Impedance

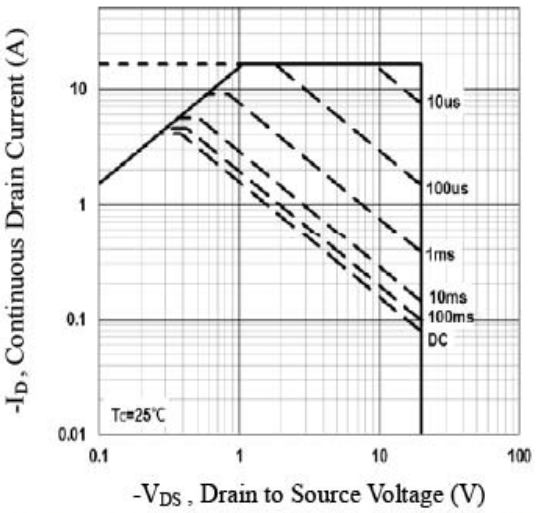
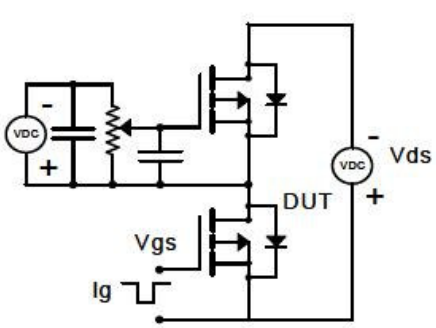
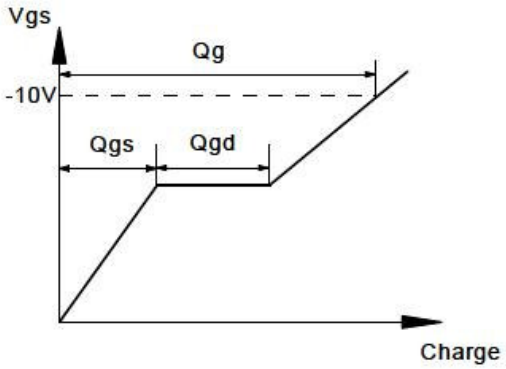


Fig.6 Maximum Safe Operation Area

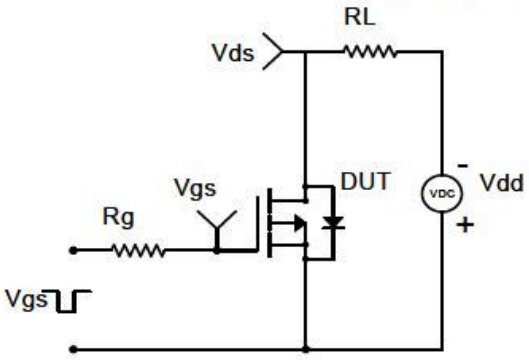
Typical Performance Characteristics (Continue)

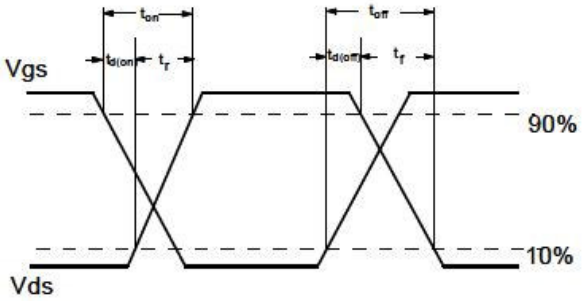
Gate Charge Test Circuit & Waveform



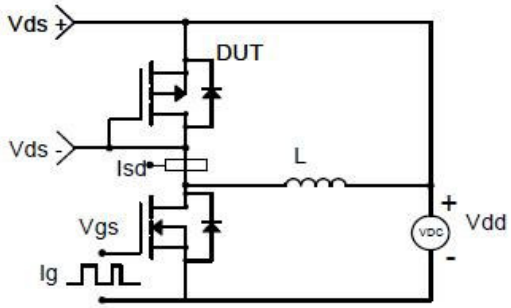


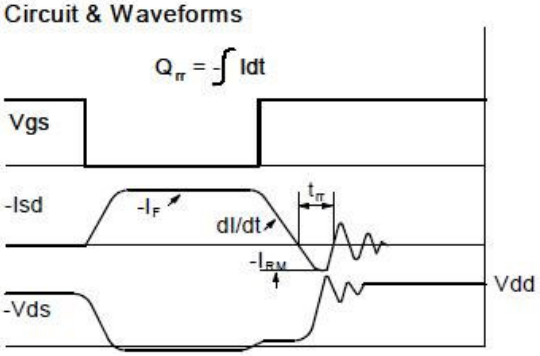
Resistive Switching Test Circuit & Waveforms





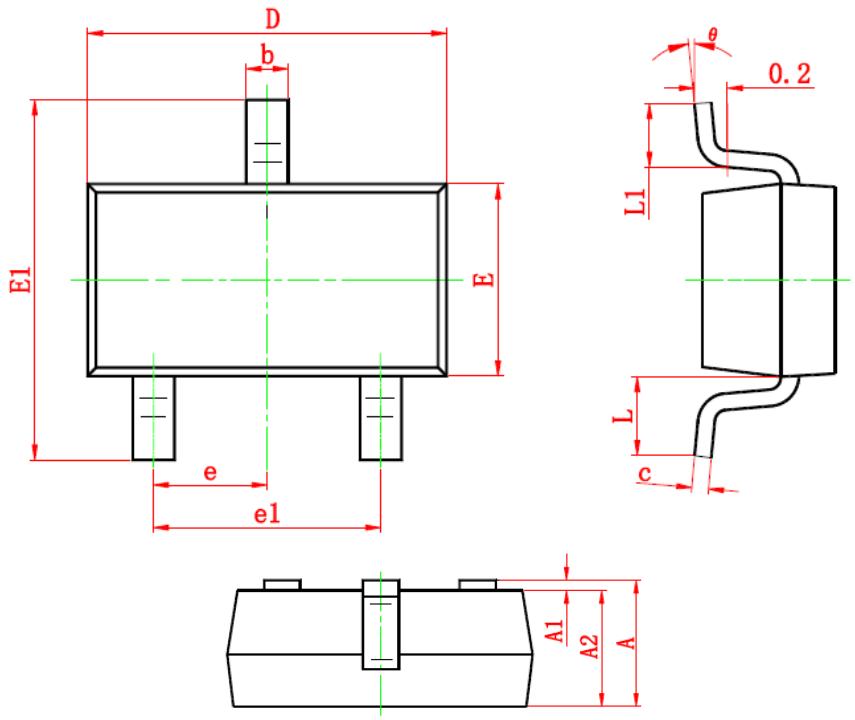
Diode Recovery Test Circuit & Waveforms





Package Dimension

SOT-23



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

NOTICE

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,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Shenzhen Branch(China)	
	1113 B Building, Happiness Washington, Baoan Nan Road, Luohu District, Shenzhen City, China
	0755-22208941
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587