GSM2130JZF

20V N-Channel MOSFET

Product Description

GSM2130JZF, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

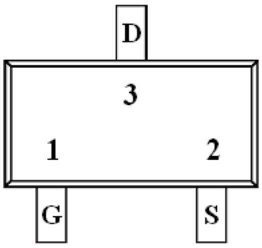
- 20V/5.4A, $R_{DS(ON)}$=30mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

Applications

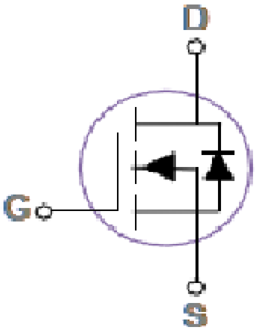
- Portable Equipment
- Battery Powered System
- Net Working System

Packages & Pin Assignments

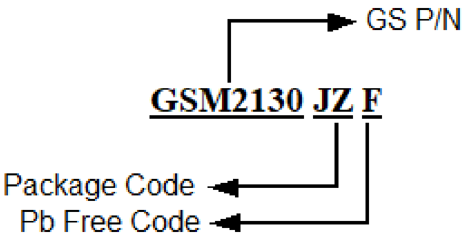
GSM2130JZF(SOT-23)



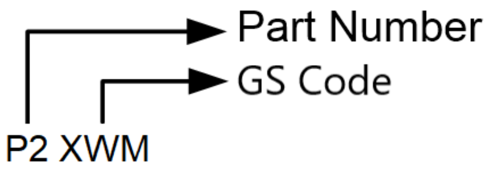
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM2130JZF	SOT-23	P2XWM	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		±12	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25ºC	5.4	A
		T_A=70ºC	4.3	
I_{DM}	Pulsed[1] Drain Current		21	A
P_D	Power Dissipation	T_A=25ºC	1.25	W
		T_A=70ºC	0.8	W
T_J	Operating Junction Temperature		-55/150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		100	ºC/W

Electrical Characteristics

T_A=25ºC 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
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.4		1	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V			1	uA
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=4A		21	30	mΩ
		V_{GS}=2.5V, I_D=3A		28	35	
		V_{GS}=1.8V, I_D=2A		40	55	
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=3A			10	S
Dynamic						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz		532		pF
C_{oss}	Output Capacitance			144		
C_{rss}	Reverse Transfer Capacitance			117		
Q_g	Total Gate Charge[1、2]	V_{DS}=10V, V_{GS}=4.5V, I_D≡5A		6.7		nC
Q_{gs}	Gate-Source Charge[1、2]			0.8		
Q_{gd}	Gate-Drain Charge[1、2]			3.0		
V_{SD}	Diode Forward Voltage	I_S=1A, V_{GS}=0V			1	V

Note :

1. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
2. Essentially independent of operating temperature.

Typical Performance Characteristics

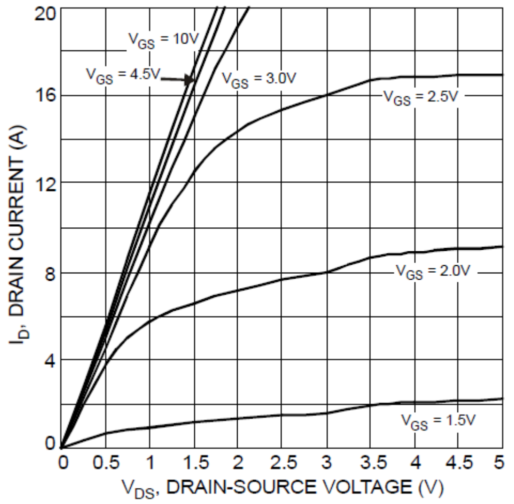


Fig. 1 Typical Output Characteristics

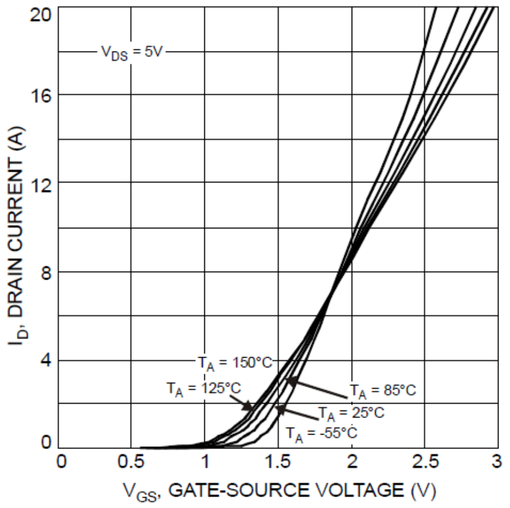


Fig. 2 Typical Transfer Characteristics

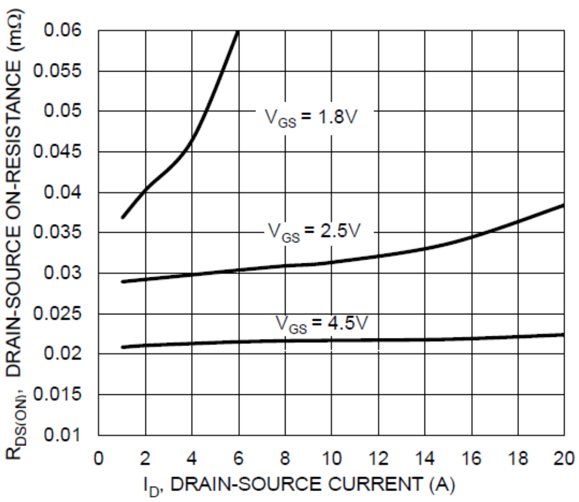


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

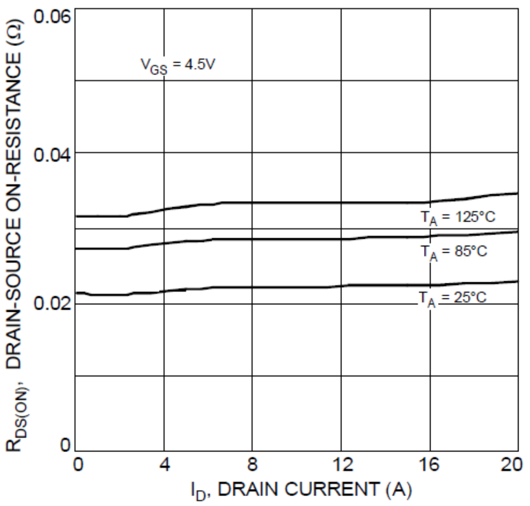


Fig. 4 Typical Drain-Source On Resistance
vs. I_D and T_A

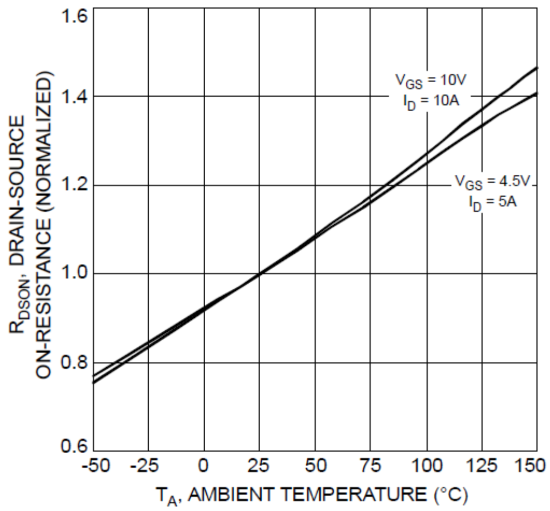


Fig. 5 On-Resistance Variation with T_A

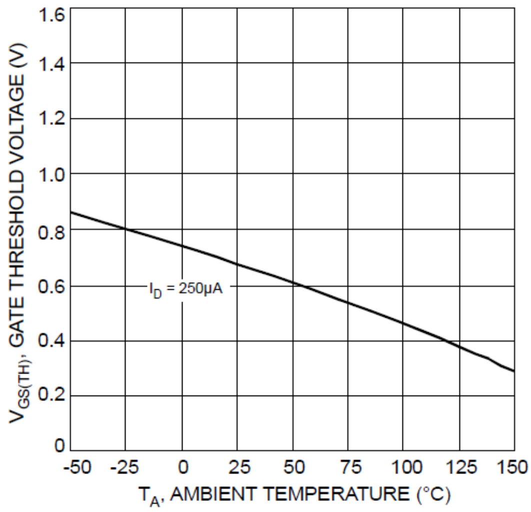


Fig. 6 Gate Threshold Variation with T_A

Typical Performance Characteristics **(Continue)**

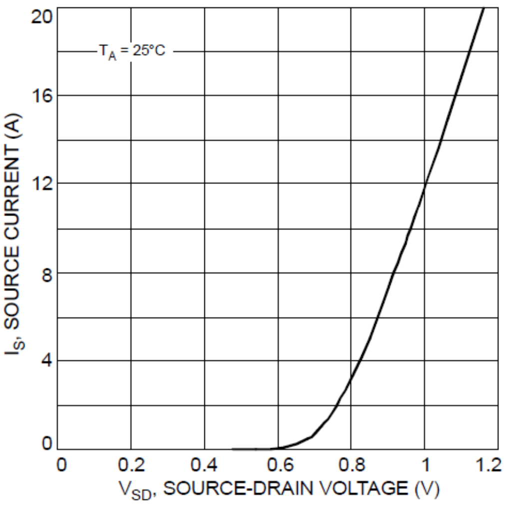


Fig. 7 Diode Forward Voltage vs. Current

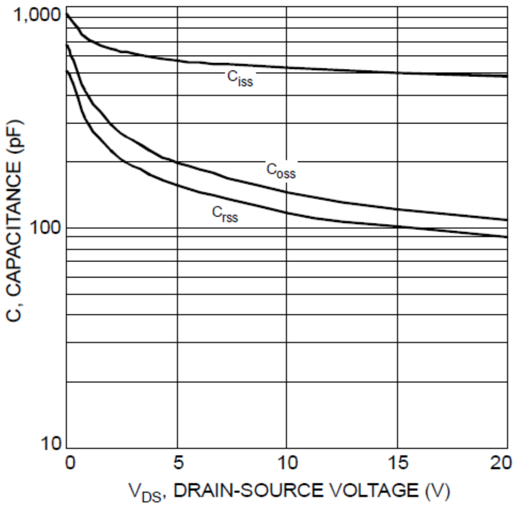


Fig.8 Typical Capacitance

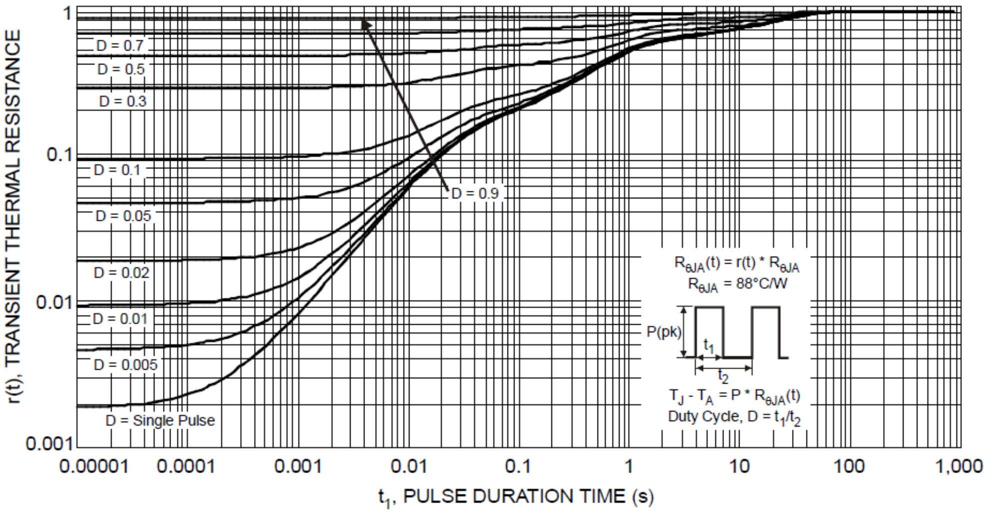
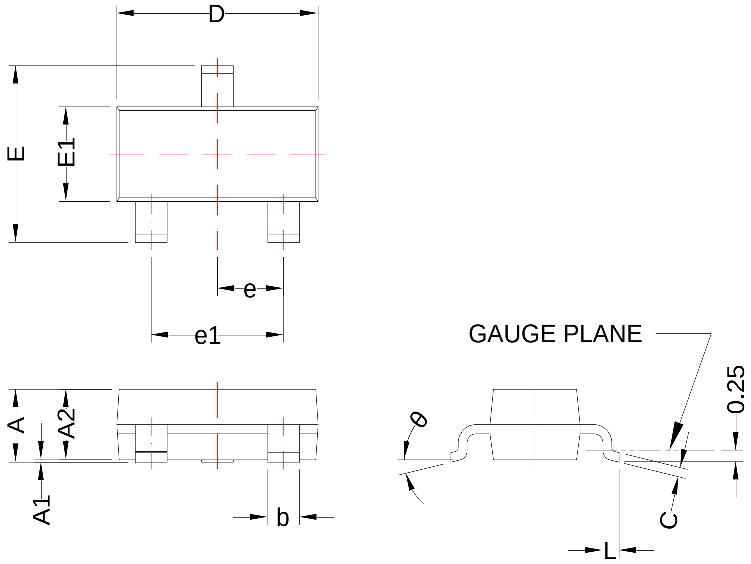


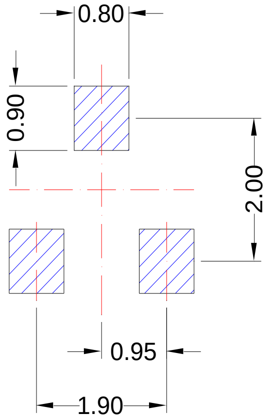
Fig.9 Transient Thermal Response

SOT-23

Package Dimension



Recommended Land Pattern



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:
DIMENSION D DOES NOT INCLUDE MOLD FLASH,PROTRUSIONS OR GATE BURRS.MOLD FLASH,PROTRUSIONS OR GATE BURRS SHALL HOT EXCEED 0.25mm

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.

- 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

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