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

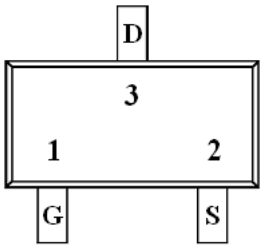
- 20V/5.4A, $R_{DS(ON)}$=30mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

Applications

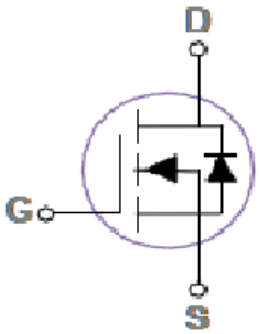
- Portable Equipment
- Battery Powered System
- Net Working System

Packages & Pin Assignments

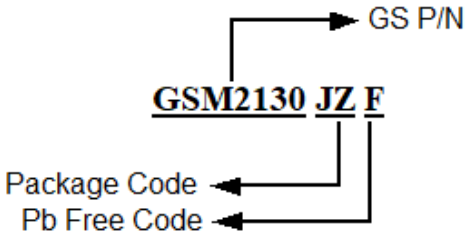
GSM2130JZF(SOT-23)



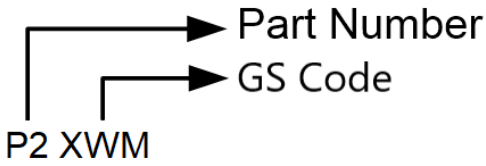
Pin	Description
1	Gate
2	Source
3	Drain



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

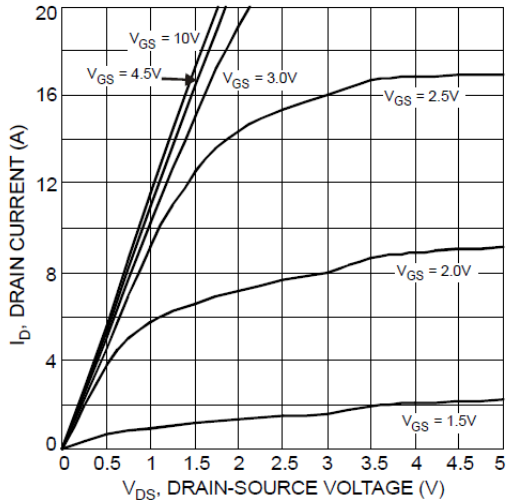


Fig. 1 Typical Output Characteristics

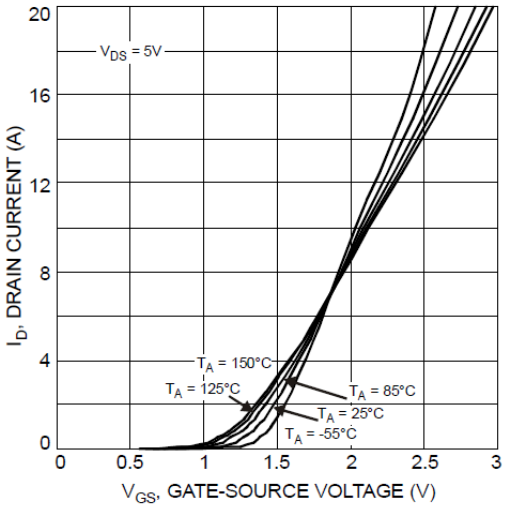


Fig. 2 Typical Transfer Characteristics

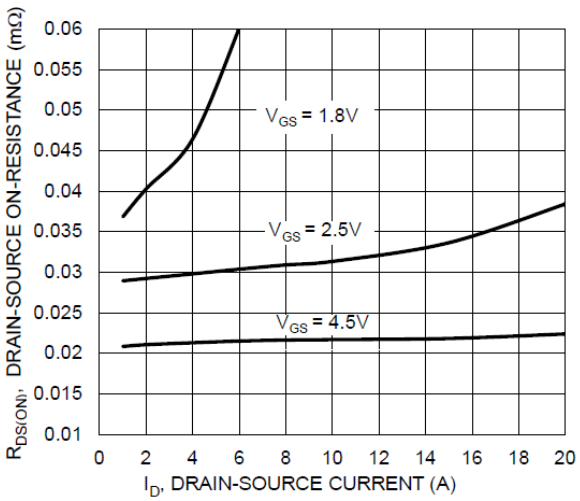


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

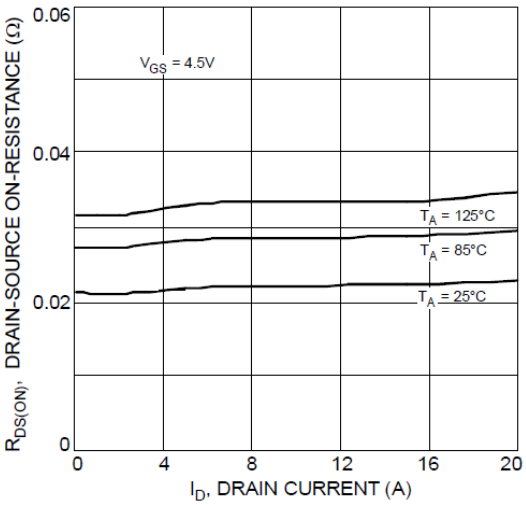


Fig. 4 Typical Drain-Source On Resistance vs. I_D and T_A

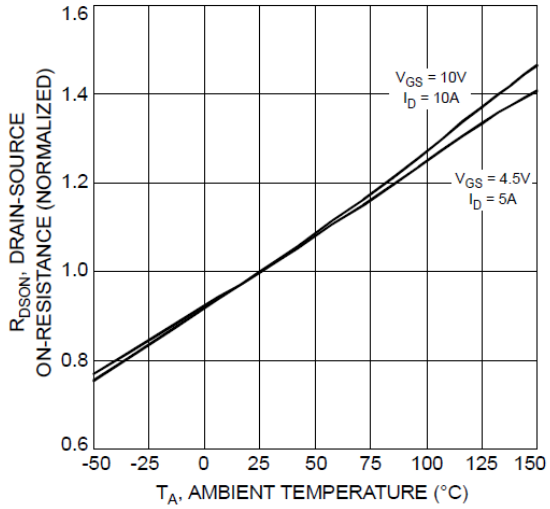


Fig. 5 On-Resistance Variation with T_A

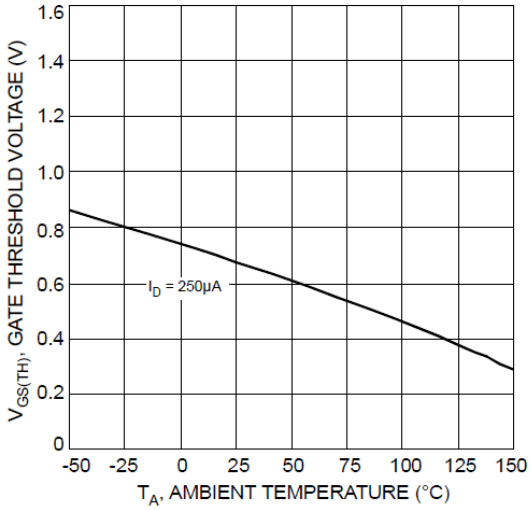


Fig. 6 Gate Threshold Variation with T_A

Typical Performance Characteristics (Continue)

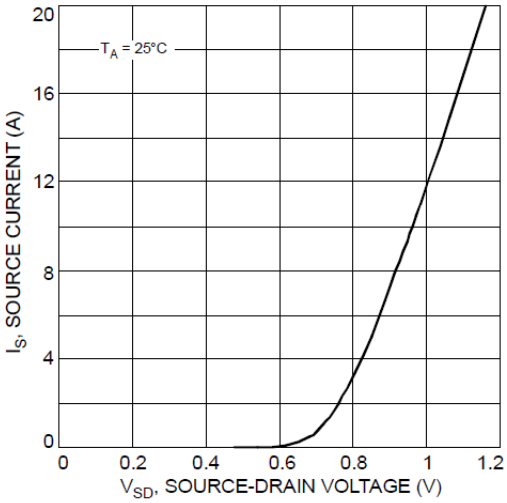


Fig. 7 Diode Forward Voltage vs. Current

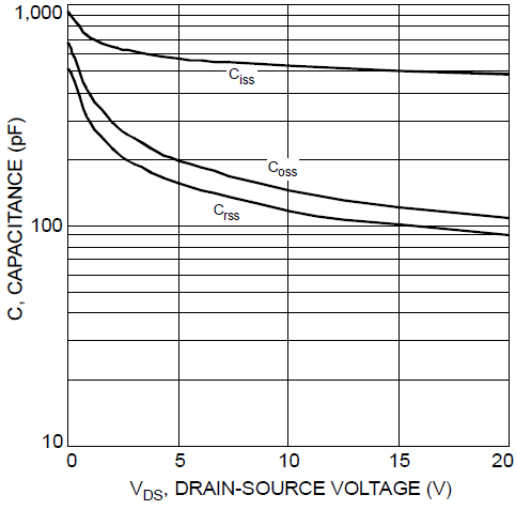


Fig.8 Typical Capacitance

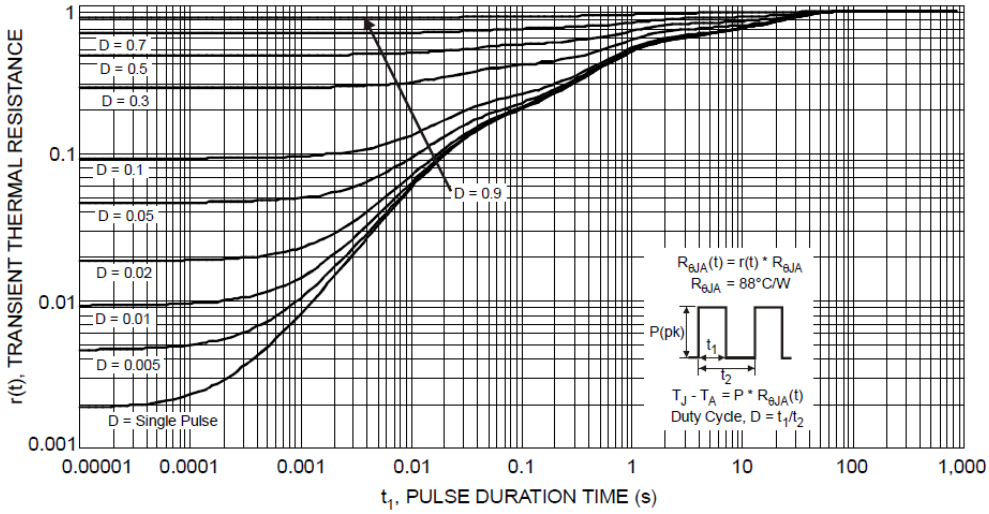
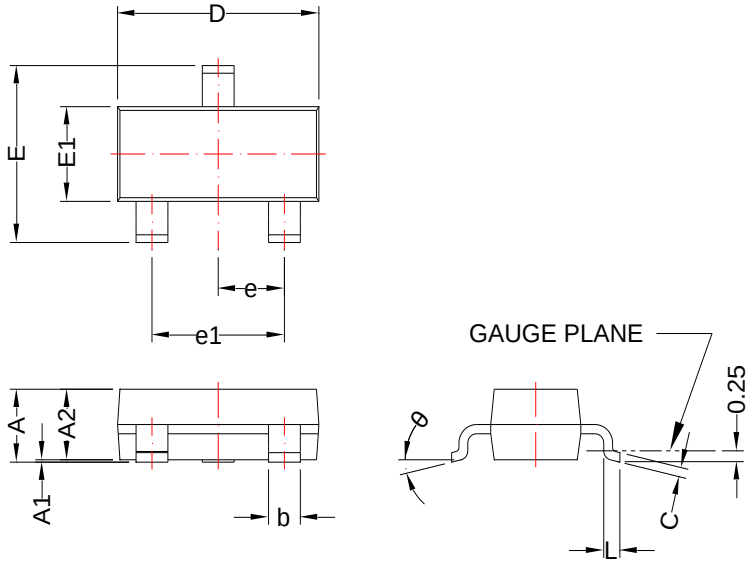


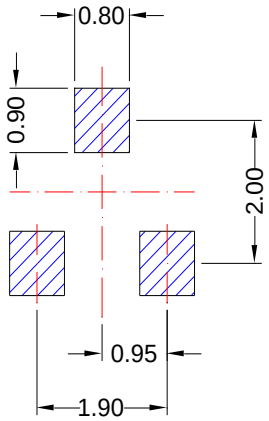
Fig.9 Transient Thermal Response

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

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