

GSM02P15JZF

150V P-Channel MOSFETs Preliminary Datasheet

General 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.

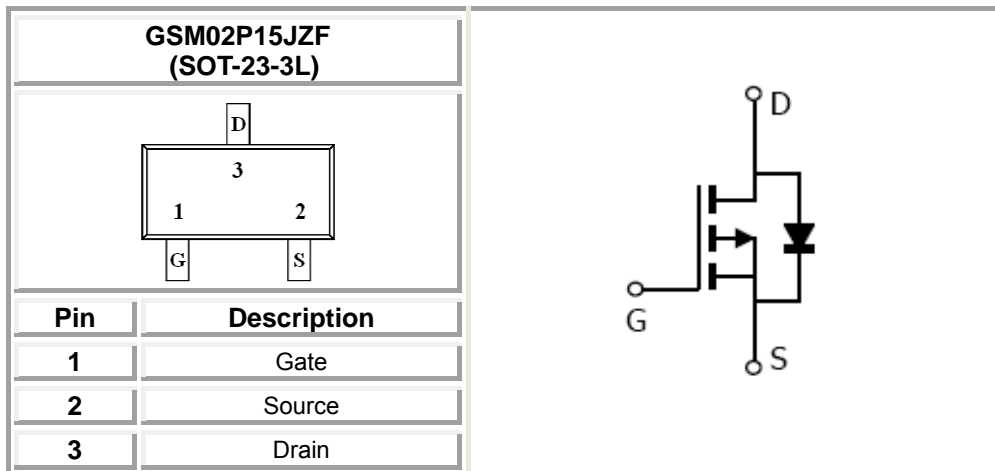
Features

- -150V/-1A, $R_{DS(ON)}=750m\Omega@V_{GS}=-1V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

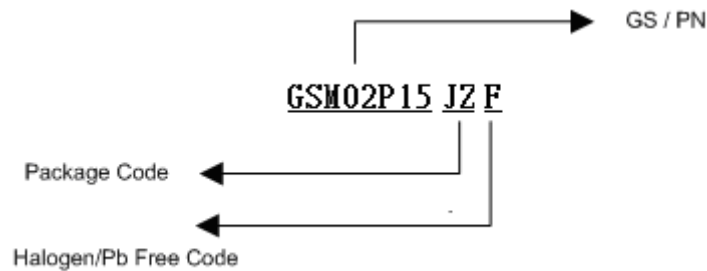
Applications

- Networking
- Load Switch
- LED applications

Packages & Pin Assignments

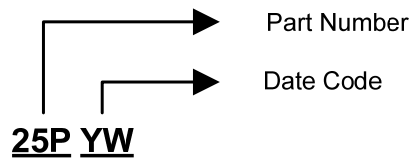


Ordering Information



Part Number	Package	Quantity Reel
GSM02P15JZF	SOT-23-3L	3000 PCS

Marking Information



Absolute Maximum Ratings

($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Typical	Unit
V_{DS}	Drain-Source Voltage	-150	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current- Continuous ($T_A=25^\circ\text{C}$)	-1	A
	Drain Current- Continuous ($T_A=100^\circ\text{C}$)	-0.63	A
I_{DM}	Drain Current- Pulsed	-4	A
P_D	Power Dissipation ($T_A=25^\circ\text{C}$)	1.56	W
	Power Dissipation -Derate above 25°C	0.012	W/ $^\circ\text{C}$
T_J	Operating Junction Temperature Range	-50 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-50 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typ.	Max	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to ambient	---	80	$^\circ\text{C}/\text{W}$

Electrical Characteristics (T_A=25°C unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	-150	---	---	V
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-2	-3	-4	
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V	---	---	±100	nA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-150V, V _{GS} =0V, T _J =25°C	---	---	-1	uA
		V _{DS} =-120V, V _{GS} =0V, T _J =125°C	---	---	-10	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =-1A	---	650	800	mΩ
		V _{GS} =6V, I _D =-0.5A	---	700	650	
V _{SD}	Diode Forward Voltage	I _S =-1A, V _{GS} =0V, T _J =25°C	---	---	-1	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, F=1MHz	---	430	700	pF
C _{oss}	Output Capacitance		---	38	60	
C _{rss}	Reverse Transfer Capacitance		---	28	56	
Q _g	Total Gate Charge	V _{DS} =-75V, V _{GS} =10V, I _D =-1A	---	4.4	8	nC
Q _{gs}	Gate-Source Charge		---	0.7	2	
Q _{gd}	Gate-Drain Charge		---	1.5	3	
t _{d(on)}	Turn-On Time	V _{DD} =-75V, V _{GS} =-10V, R _G =10Ω, I _D =-1A,	---	12.5	20	ns
t _r			---	8.9	18	
t _{d(off)}	Turn-Off Time		---	17.3	36	
t _f			---	11.5	24	

Typical Performance Characteristics

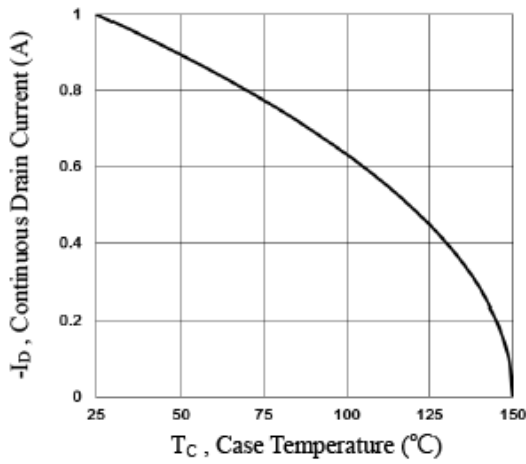


Fig.1 Continuous Drain Current vs. T_c

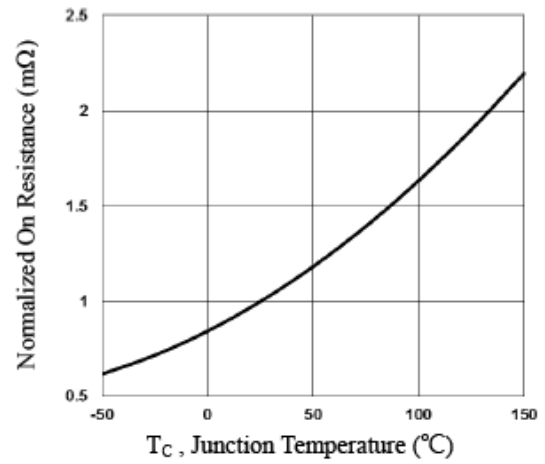


Fig.2 Continuous Drain Current vs. T_c

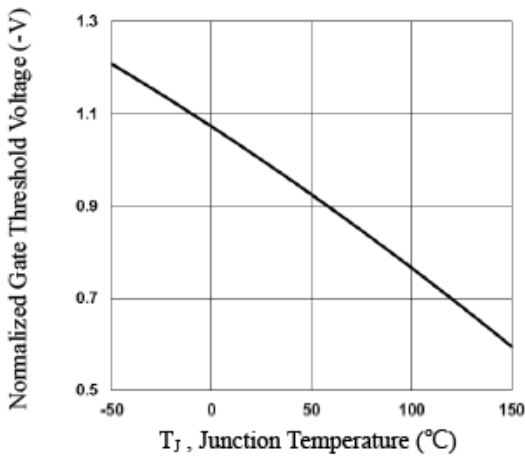


Fig.3 Normalized V_{th} vs. T_J

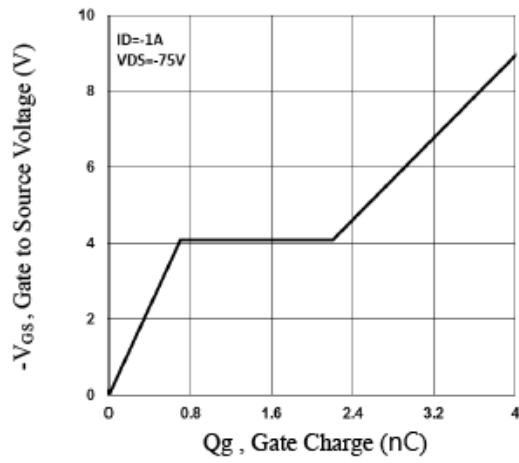


Fig.4 Gate Charge Waveform

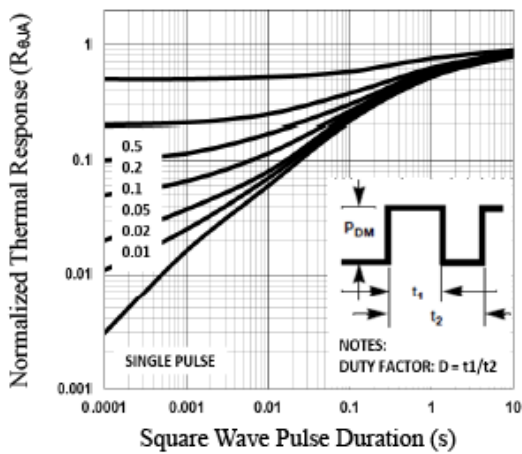


Fig.5 Normalized Transient Impedance

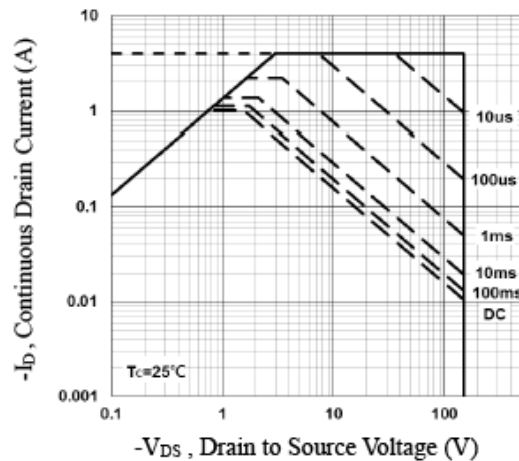


Fig.6 Maximum Safe Operation Area

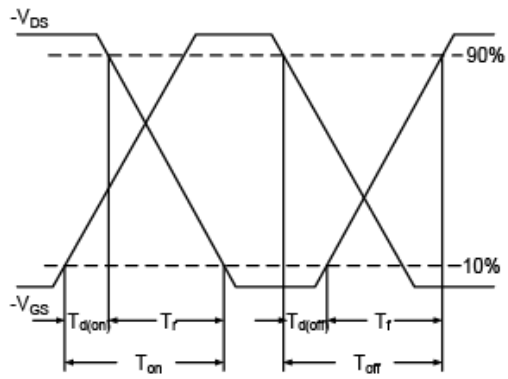


Fig.7 Switching Time Waveform

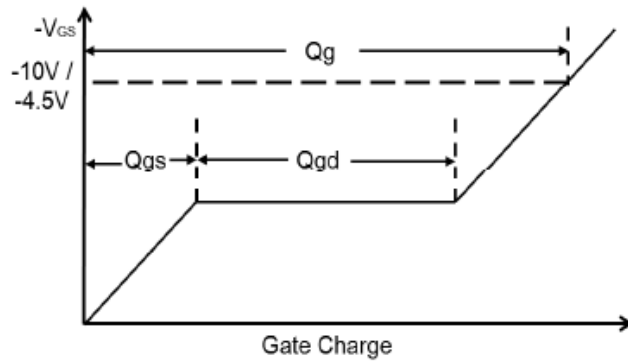
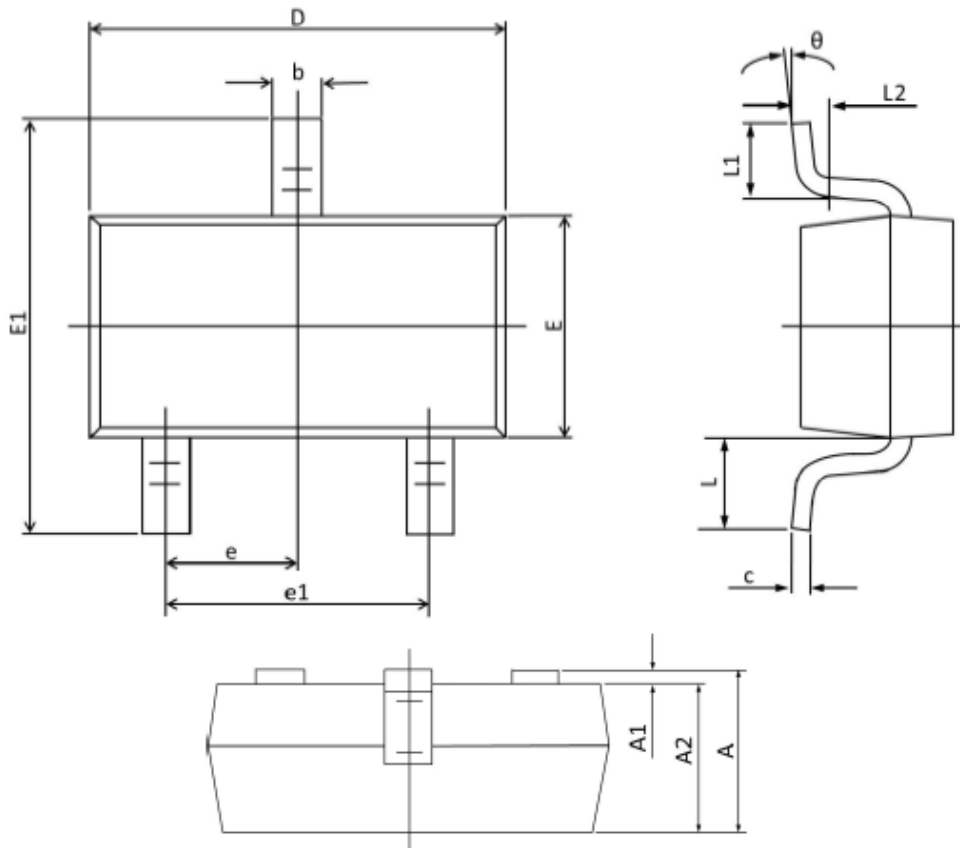


Fig.8 Gate Charge Waveform

Package Dimension

SOT23-3S PACKAGE INFORMATION









Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.008
D	2.800	3.000	0.110	0.006
E	1.200	1.400	0.047	0.118
E1	2.250	2.550	0.089	0.055
e	0.950 (TYP)		0.037 (TYP)	
e1	1.800	2.000	0.071	0.079
L	0.55(REF)		0.028 (REF)	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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