GSM3153JZF

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM3153, P-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, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

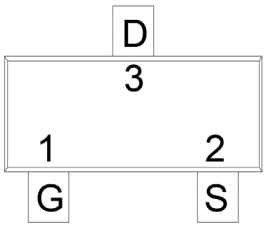
- -30V/-4.8A $R_{DS(ON)}$=54mΩ@V_{GS}=-10V
- -30V/-3.8A $R_{DS(ON)}$=72mΩ@V_{GS}=-4.5V
- -30V/-3.0A $R_{DS(ON)}$=120mΩ@V_{GS}=-2.5V
- Suit for -2.5V Gate Drive Applications

Applications

- Notebook
- LED Display
- DC-DC System
- LCD Panel

Packages & Pin Assignments

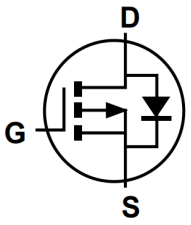
SOT-23



Top Views

Pin	Description
1	Gate
2	Source
3	Drain

Equivalent Circuit



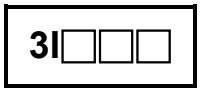
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM3153JZF	SOT-23	3I□□□	3,000 PCS

GSM3153 1 2

- **Product Code:** GSM3153
- **Package Code:** 1 is **JZ** for SOT-23
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 3I
- **GS Code:** □□□

Absolute Maximum Ratings (T_A=25ºC unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current (T_J=150℃)	T_A=25ºC	-4.8	A
		T_A=70ºC	-3.8	
I_{DM}	Pulsed Drain Current		-19	A
I_S	Continuous Source Current (Diode Conduction)		-1	A
P_D	Power Dissipation	T_A=25ºC	1.92	W
		T_A=70ºC	1.23	
T_J	Operating Junction Temperature		-55 to +150	ºC
T_{STG}	Storage Temperature Range		-55 to +150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient (t ≤ 10s)		65	ºC/ W

Electrical Characteristics (T_A=25ºC unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.7		-1.3	
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V			-1	uA
		V_{DS}=-24V, V_{GS}=0V, T_J=85ºC			-30	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-4.8A		44	54	mΩ
		V_{GS}=-4.5V, I_D=-3.8A		62	72	
		V_{GS}=-2.5V, I_D=-3.0A		98	120	
V_{SD}	Diode Forward Voltage	I_S=-1.0A, V_{GS}=0V		-0.7	-1.0	V
Dynamic characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz		573		pF
C_{oss}	Output Capacitance			74		
C_{rss}	Reverse Transfer Capacitance			53		
Q_g	Total Gate Charge	V_{DS}=-15V, V_{GS}=-10V, I_D=-4.8A		13.6		nC
Q_{gs}	Gate-Source Charge			1.2		
Q_{gd}	Gate-Drain Charge			2.0		
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, R_L=10Ω, I_D=-1.0A, V_{GEN}=-10V, R_G=6.0Ω		6.9		ns
T_r				12.3		
$t_{d(off)}$	Turn-Off Time			25		
T_f				13		

Typical Performance Characteristics

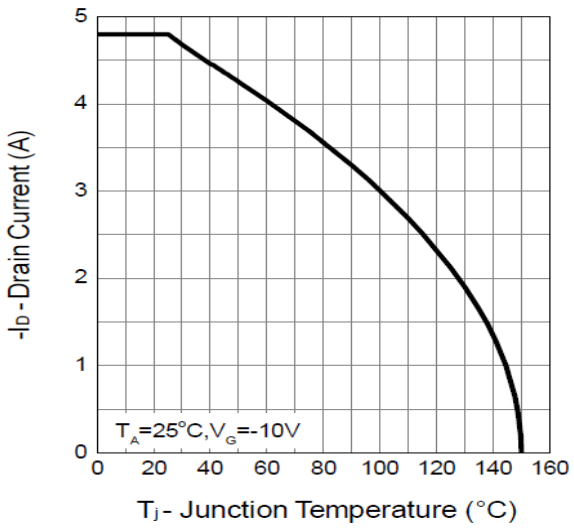


Figure 1. Drain Current vs. Temperature

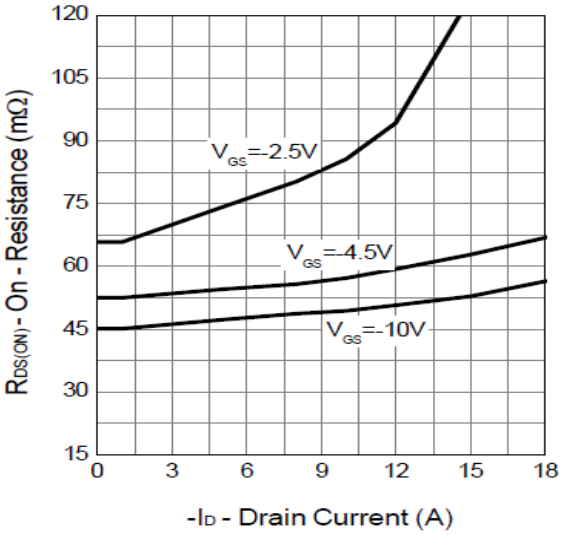


Figure 2. On-Resistance vs. Drain Current

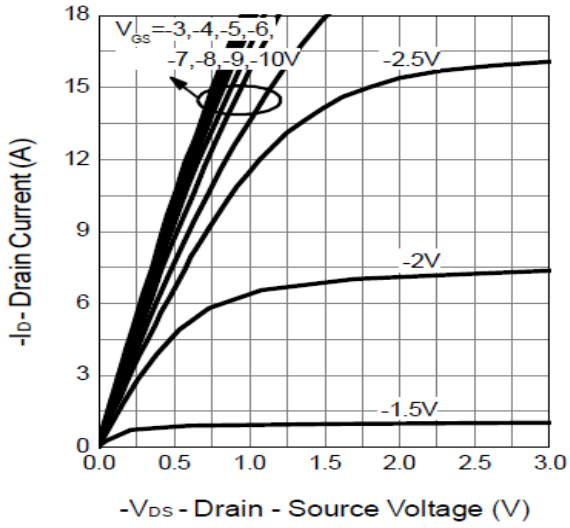


Figure 3. Output Characteristics

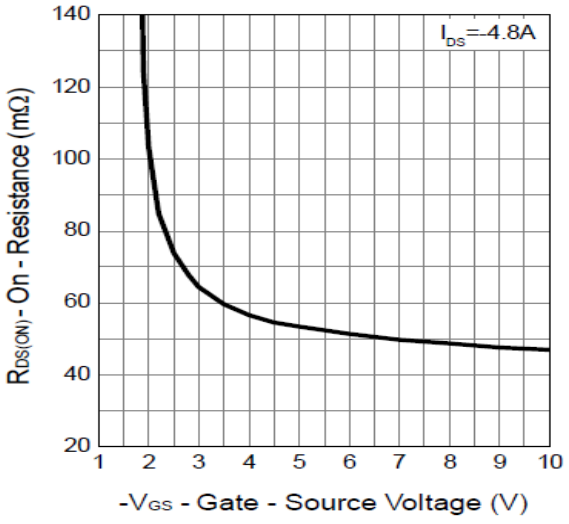


Figure 4. On-Resistance vs. Gate-Source Voltage

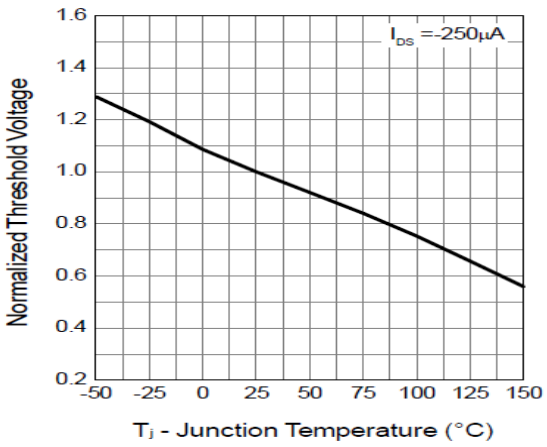


Figure 5. Threshold Voltage

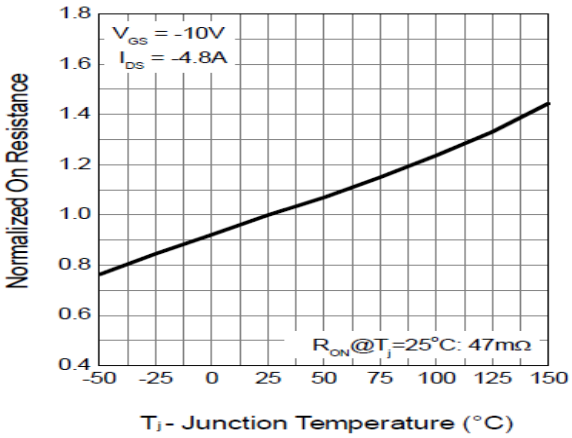


Figure 6. On-Resistance vs. Gate-Source Voltage

Typical Performance Characteristics (continue)

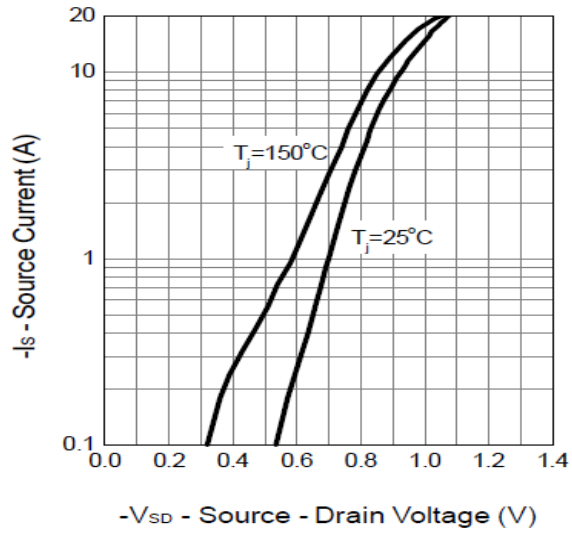


Figure 7. Source-Drain Diode Foward Voltage

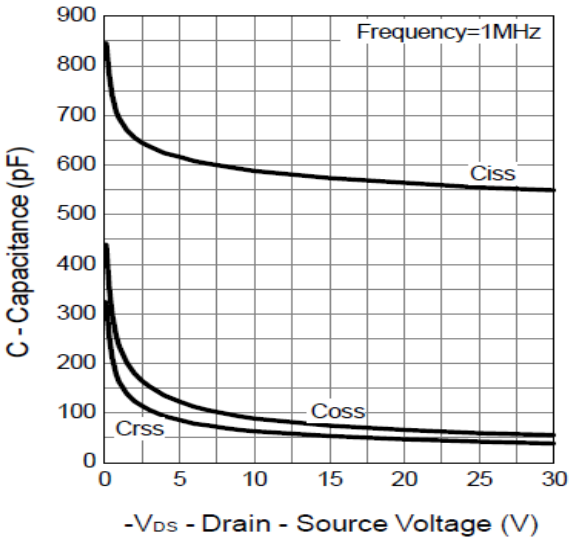


Figure 8. Capacitance

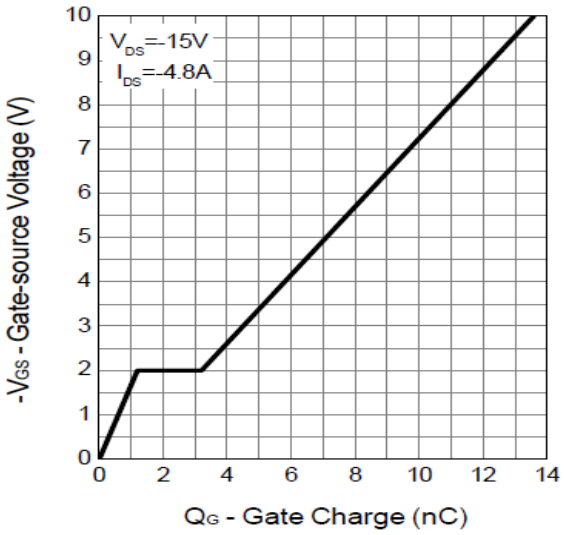


Figure 9. Gate Charge

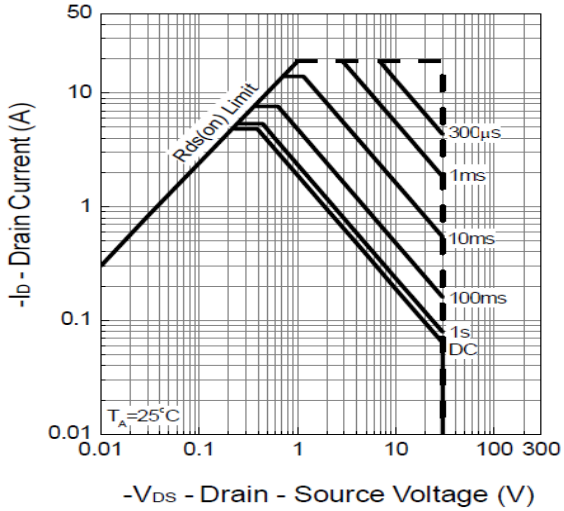


Figure 10. Safe Operation Area

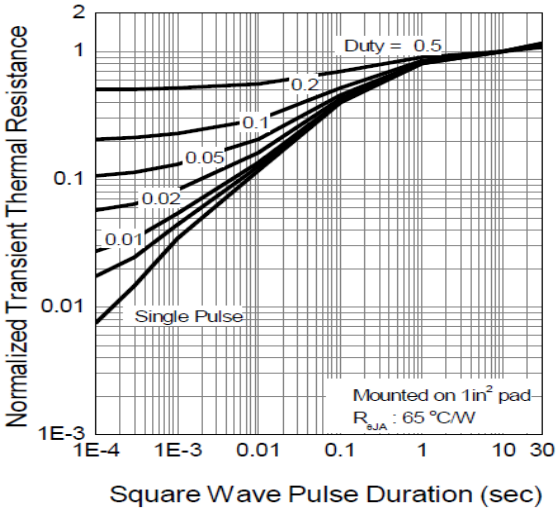
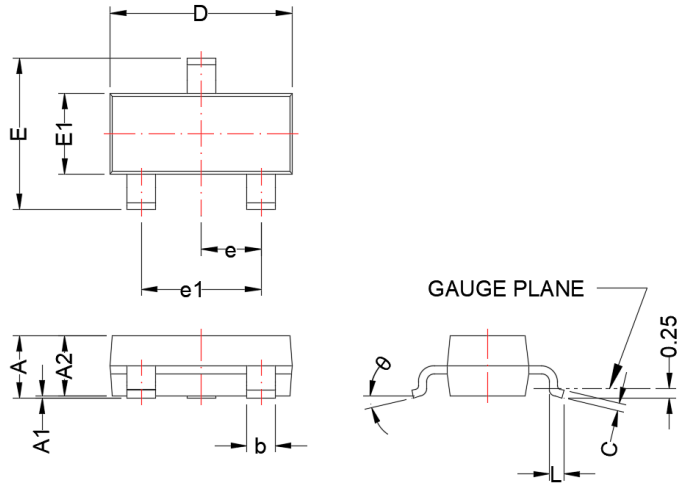


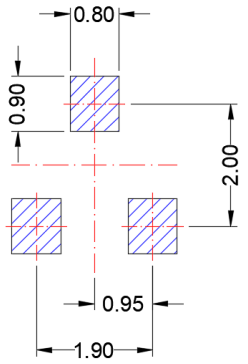
Figure 11. Normalized Thermal Transient Impedance

SOT-23

Package Dimension



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	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

NOTE:

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

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