

GSM3401S

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM3401S, 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.

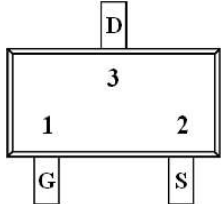
Features

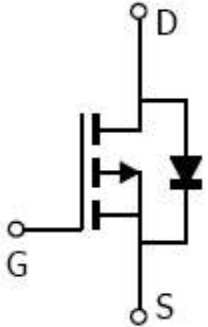
- -30V/-4.0A $R_{DS(ON)}=65m\Omega@V_{GS}=-10V$
- -30V/-3.2A $R_{DS(ON)}=80m\Omega@V_{GS}=-4.5V$
- -30V/-1.0A $R_{DS(ON)}=105m\Omega@V_{GS}=-2.5V$
- Suit for -2.5V Gate Drive Applications

Applications

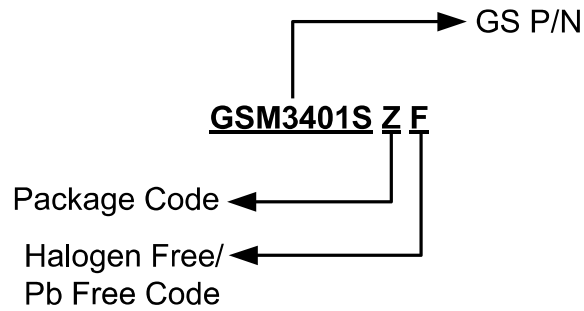
- Notebook
- LED Display
- DC-DC System
- LCD Panel

Packages & Pin Assignments

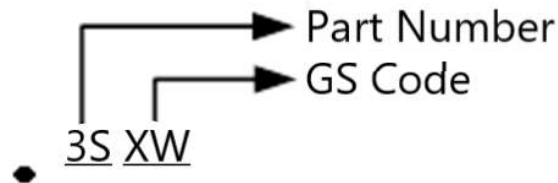
GSM3401SZF(SOT-23)	
	
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM3401SZF	SOT-23	3SXW	3000PCS

Absolute Maximum Ratings

T_A=25°C unless otherwise noted

Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	-30	V
V _{GSS}	Gate-Source Voltage	±12	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	-4.0
		T _A =70°C	-2.8
I _{DM}	Pulsed Drain Current	-15	A
I _S	Continuous Source Current(Diode Conduction)	-1.5	A
P _D	Power Dissipation	T _A =25°C	1.25
		T _A =70°C	0.8
T _J	Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	100	°C/W

Electrical Characteristics

T_A=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.4		-1.1	
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	μA
		V _{DS} =-24V, V _{GS} =0V, T _A =85°C			-30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10.0V, I _D =-4.0A		55	65	mΩ
		V _{GS} =-4.5V, I _D =-3.2A		65	80	
		V _{GS} =-2.5V, I _D =-1.0A		82	105	
g _{FS}	Forward Transconductance	V _{DS} =-5.0V, I _D =-2.8A		5.4		S
V _{SD}	Diode Forward Voltage	I _S =-1.0A, V _{GS} =0V		-0.7	-1.3	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz		810		pF
C _{oss}	Output Capacitance			85		
C _{rss}	Reverse Transfer Capacitance			50		
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _D =-4.0A		10	18	nC
Q _{gs}	Gate-Source Charge			1.6		
Q _{gd}	Gate-Drain Charge			3.0		
t _{d(on)}	Turn-On Time	V _{DD} =-15V, R _L =15Ω, I _D =-1.0A, V _{GEN} =-10V, R _G =6.0Ω		8	18	ns
T _r				19.4	37	
t _{d(off)}	Turn-Off Time			45.9	87	
T _f				12.4	84	

Typical Performance Characteristics

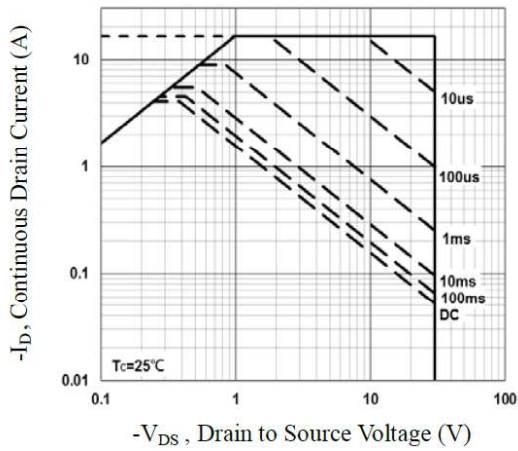


Figure 1. Maximum Safe Operation Area

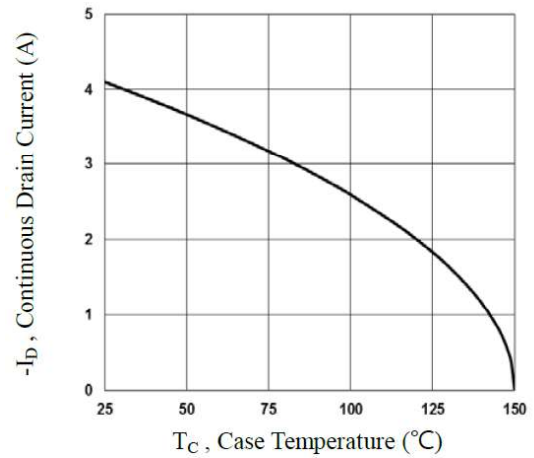


Figure 2. Drain Current vs. T_C

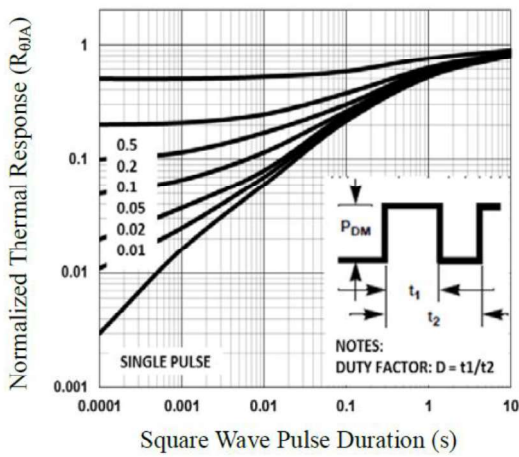


Figure 3. Normalized Transient Impedance

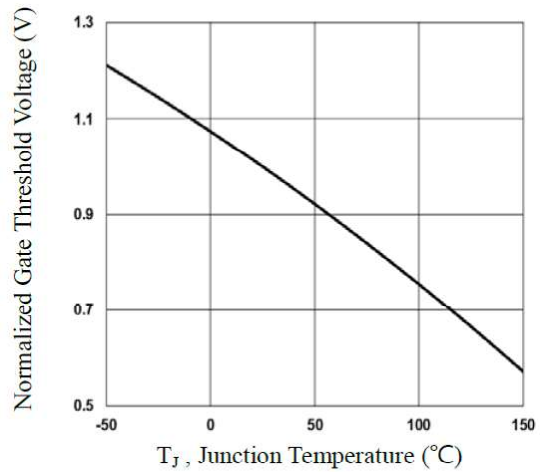


Figure 4. Normalized V_{th} vs. T_J

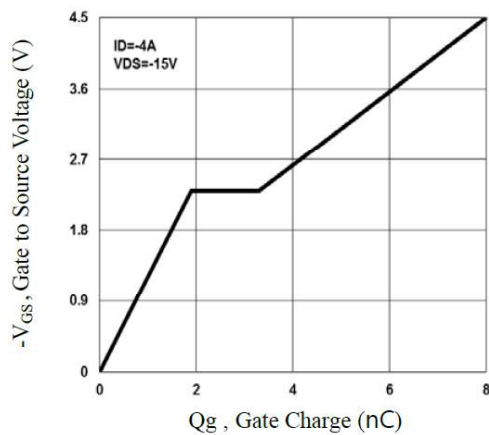


Figure 5. Gate Charge Waveform

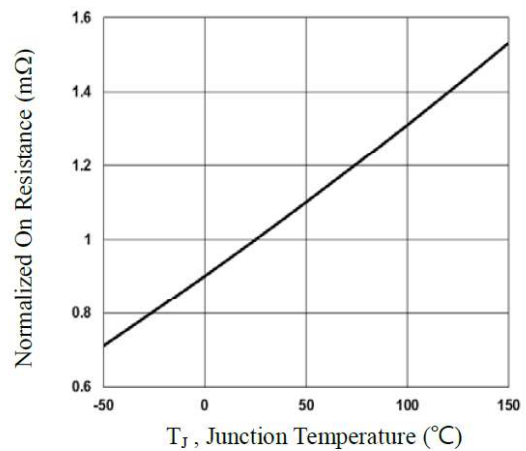
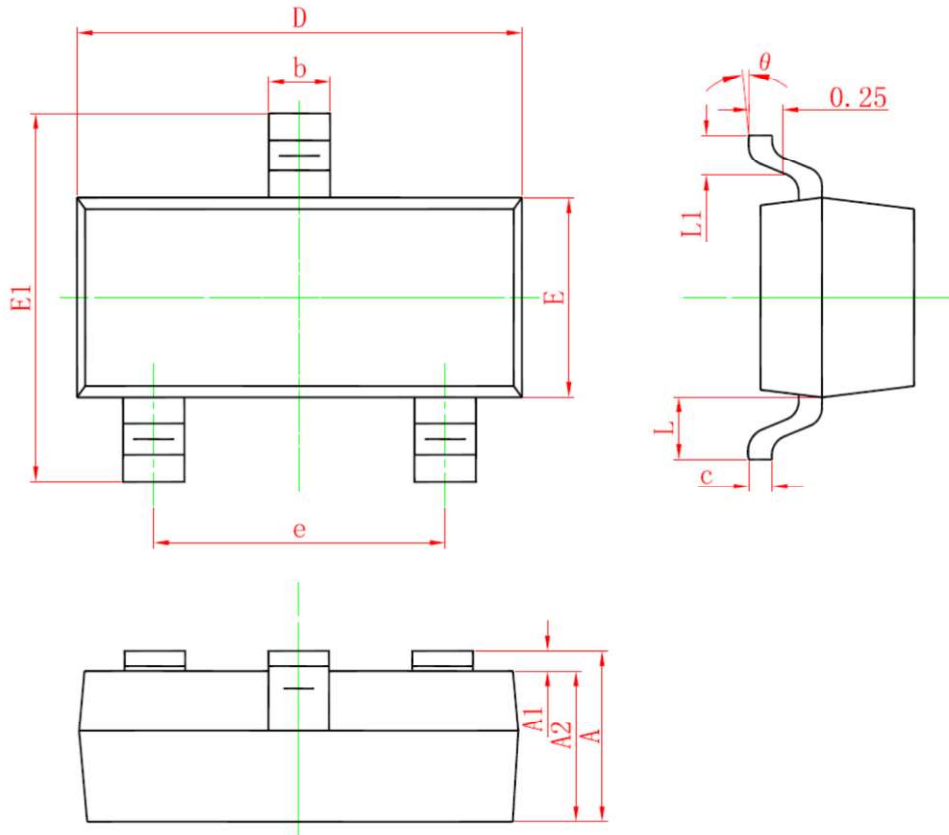


Figure 6. Normalized $R_{DS(on)}$ vs. T_J

Package Dimension

SOT-23







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	1.100	0.035	0.043
b	0.300	0.500	0.012	0.020
c	0.132	0.202	0.005	0.008
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	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°	8°

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