

GSM2301AS

20V P-Channel Enhancement Mode MOSFET

Product Description

GSM2301AS, 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, 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.

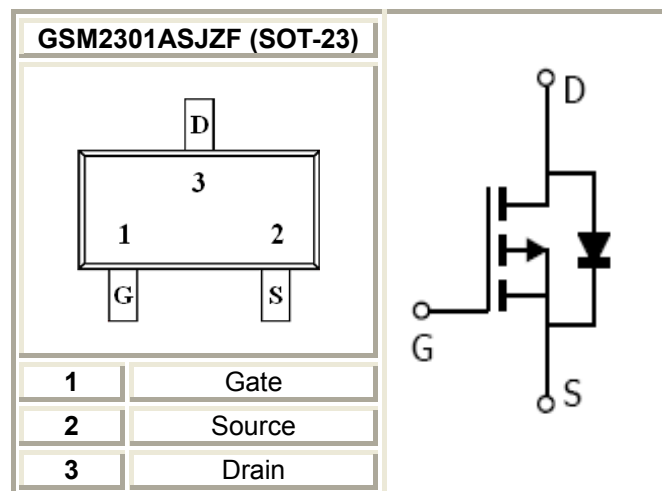
Features

- -20V/-2.4A, $R_{DS(ON)}=125m\Omega@V_{GS}=-4.5V$
- -20V/-2.0A, $R_{DS(ON)}=170m\Omega@V_{GS}=-2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design
- RoHS Compliant, 100%Pb & Halogen Free

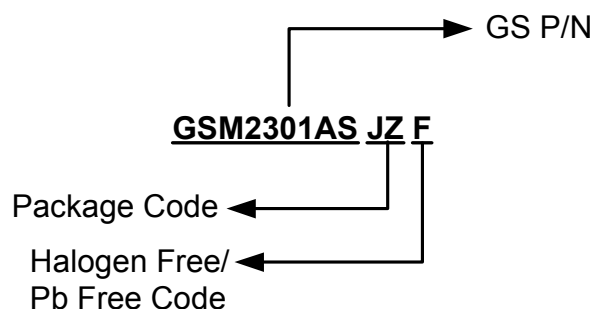
Applications

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Net Working System

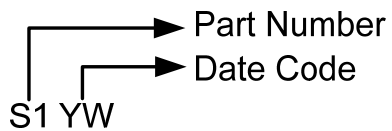
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM2301ASJZF	SOT-23	S1YW	3000PCS

Absolute Maximum Ratings

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

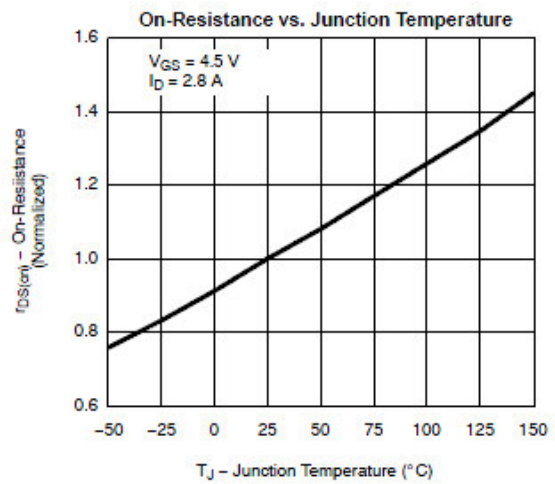
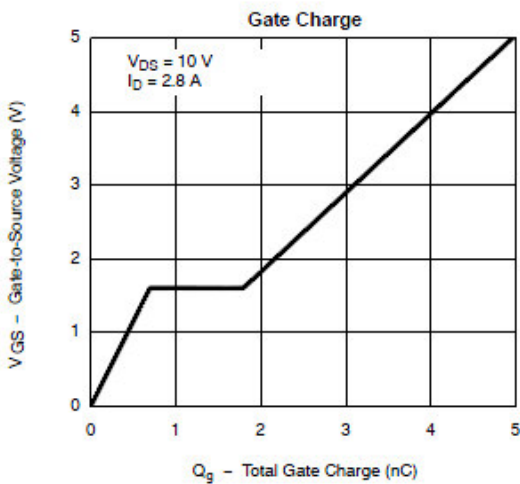
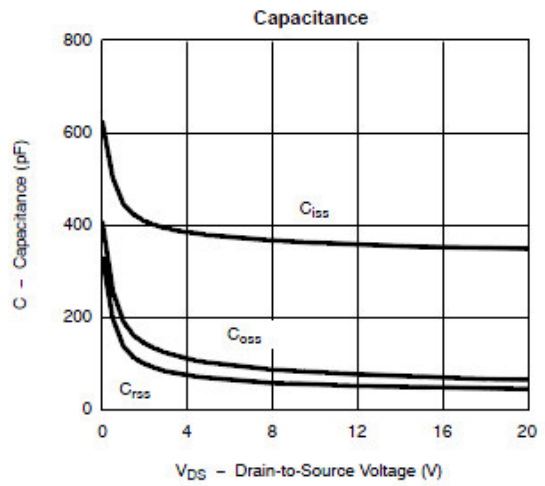
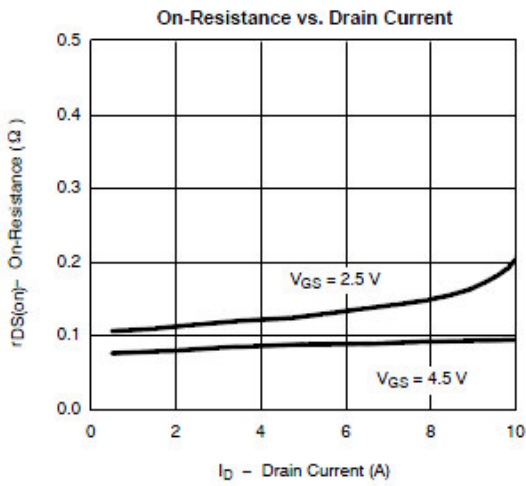
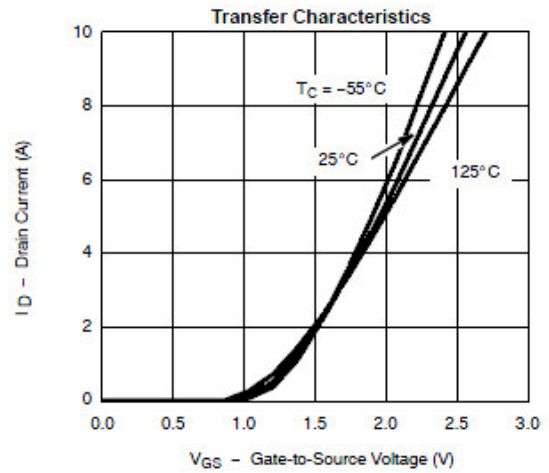
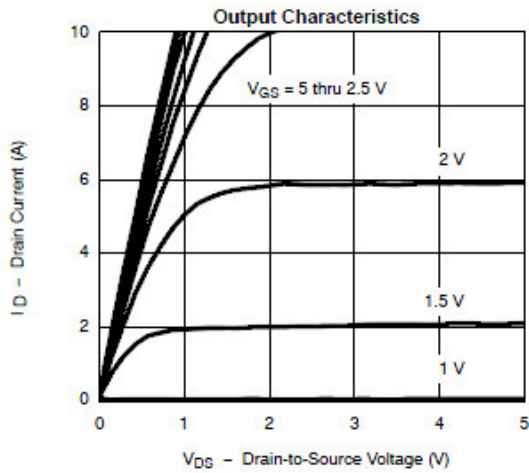
Symbol	Parameter	Typical	Unit
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate -Source Voltage	± 12	V
I_D	Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_A=25^{\circ}\text{C}$	-2.4
		$T_A=70^{\circ}\text{C}$	-2.0
I_{DM}	Pulsed Drain Current	-10	A
I_S	Continuous Source Current(Diode Conduction)	-1.6	A
P_D	Power Dissipation	$T_A=25^{\circ}\text{C}$	1.25
		$T_A=70^{\circ}\text{C}$	0.8
T_J	Operating Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55/150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	120	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

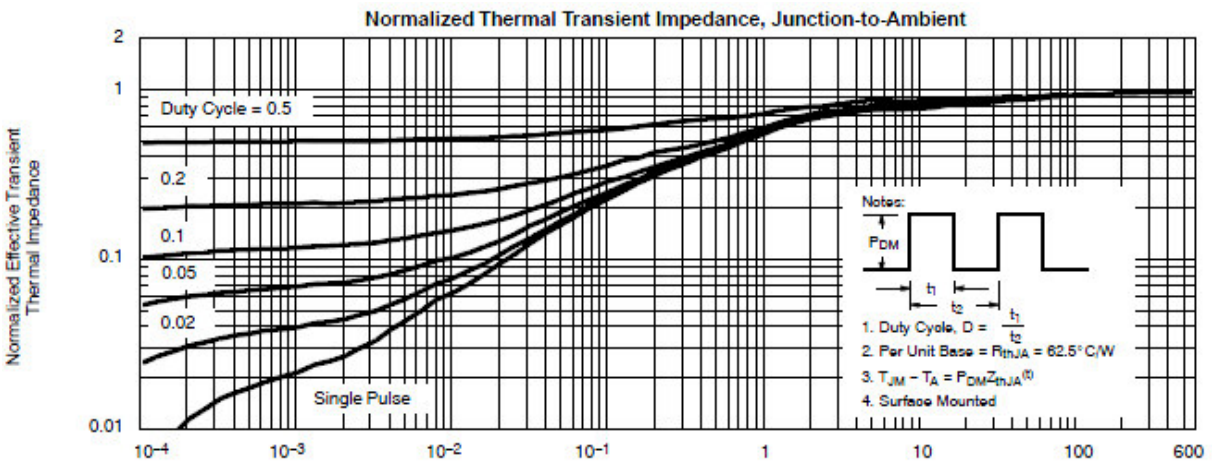
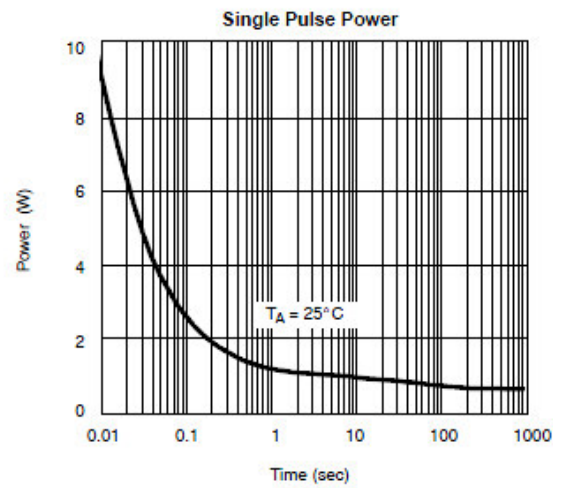
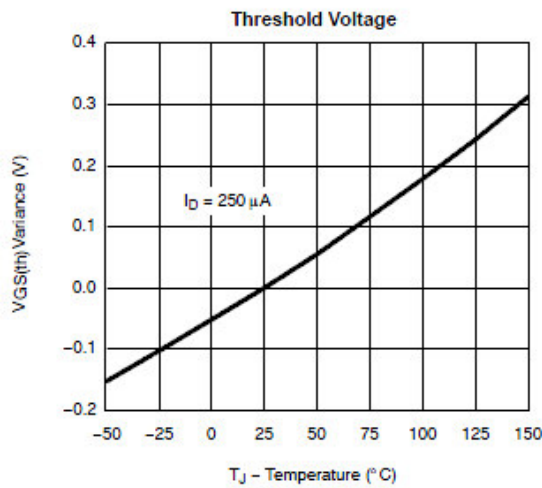
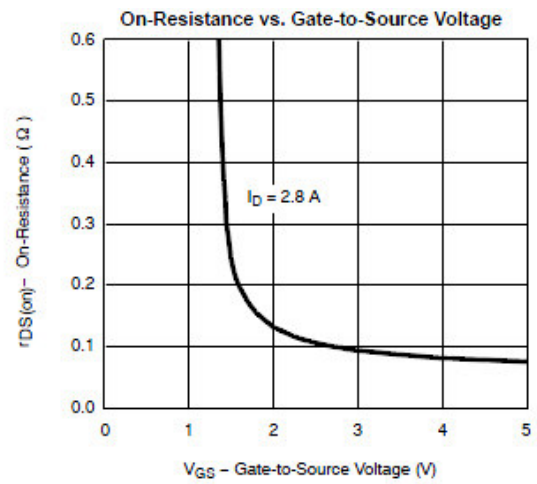
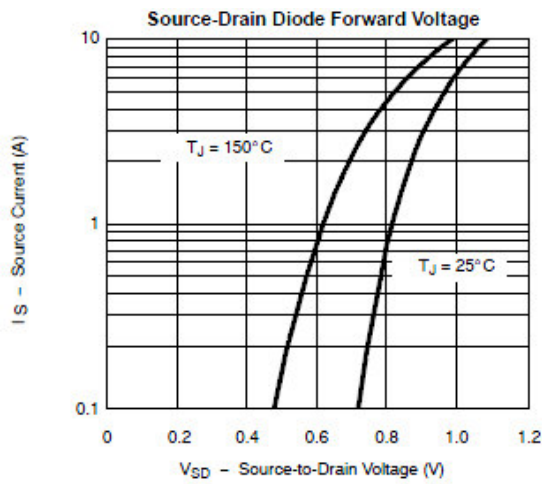
T_A=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.5		-1.0	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V			-1	uA
		V _{DS} =-16V, V _{GS} =0V, T _J =85°C			-30	
I _{D(on)}	On-State Drain Current	V _{DS} ≤-5V, V _{GS} =-4.5V	-6			A
		V _{DS} ≤-5V, V _{GS} =-2.5V	-3			
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-2.4A		110	125	mΩ
		V _{GS} =-2.5V, I _D =-2.0A		150	170	
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-2.8A		6.5		S
V _{SD}	Diode Forward Voltage	I _S =1.25A, V _{GS} =0V		-0.75	-1.3	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =-6V, V _{GS} =0V, f=1MHz		415		pF
C _{oss}	Output Capacitance			223		
C _{rss}	Reverse Transfer Capacitance			87		
Q _g	Total Gate Charge	V _{DS} =-6V, V _{GS} =-4.5V, I _D =-2.8A		5.8	10	nC
Q _{gs}	Gate-Source Charge			0.85		
Q _{gd}	Gate-Drain Charge			1.7		
t _{d(on)}	Turn-On Time	V _{DD} =-6V, R _L =6Ω, I _D =-1.0A, V _{GEN} =-4.5V, R _G =6Ω		13	25	ns
t _r				36	60	
t _{d(off)}	Turn-Off Time			42	70	
t _f				34	60	

Typical Performance Characteristics

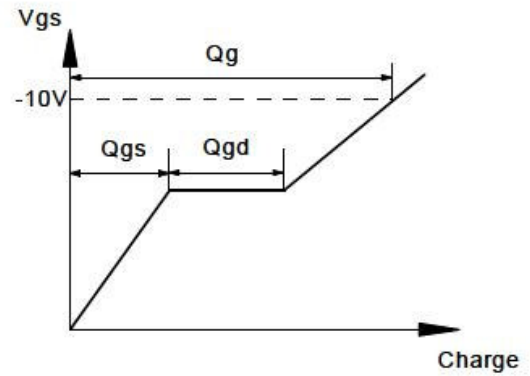
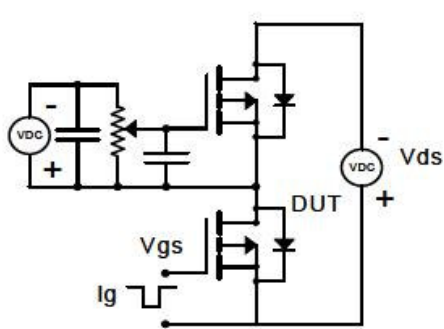


Typical Performance Characteristics (continue)

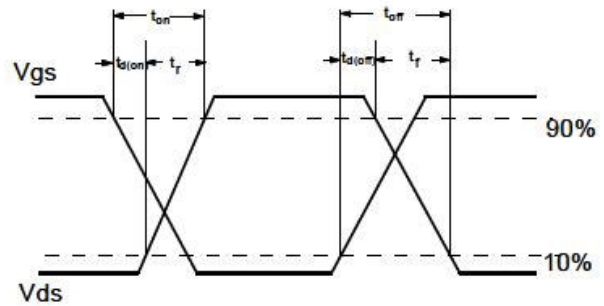
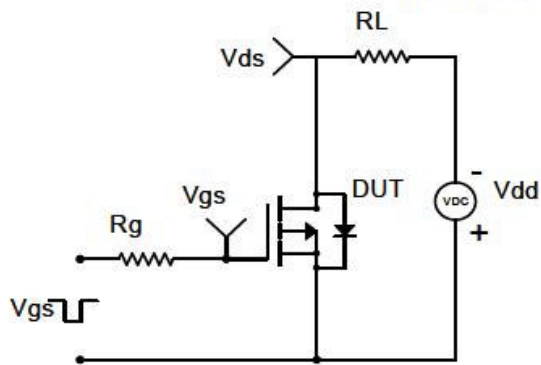


Typical Performance Characteristics (continue)

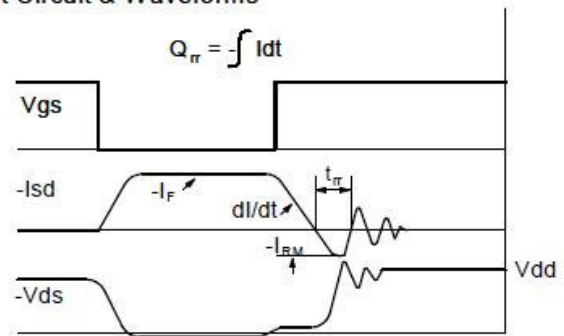
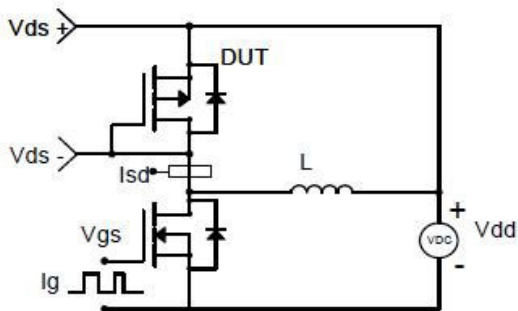
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

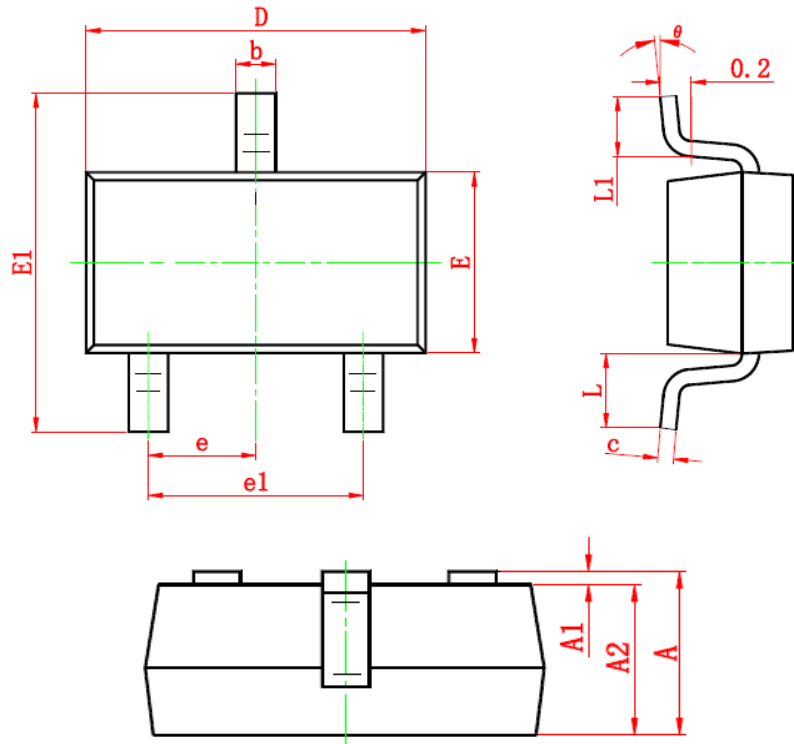


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOT-23







Dimensions





Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
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	0.950 TYP		0.037 TYP	
e1	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°	6°



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