

GSM1303

20V P-Channel Enhancement Mode MOSFET

Product Description

GSM1303, 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.

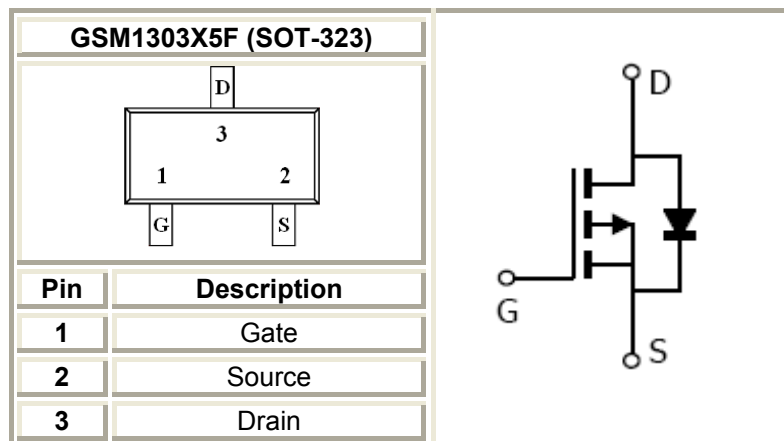
Features

- -20V/-0.45A , $R_{DS(ON)}= 600m\Omega@V_{GS}=-4.5V$
- -20V/-0.35A , $R_{DS(ON)}= 800m\Omega@V_{GS}=-2.5V$
- -20V/-0.25A , $R_{DS(ON)}= 1300m\Omega@V_{GS}=-1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-323(SC-70) package design

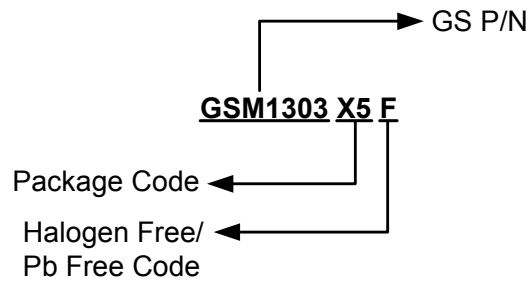
Applications

- Net Working System
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

Packages & Pin Assignments

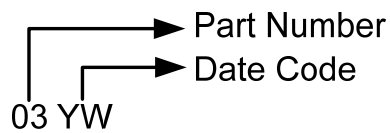


Ordering Information



Part Number	Package	Quantity
GSM1303X5F	SOT-323	3000 PCS

Marking Information



Absolute Maximum Ratings

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

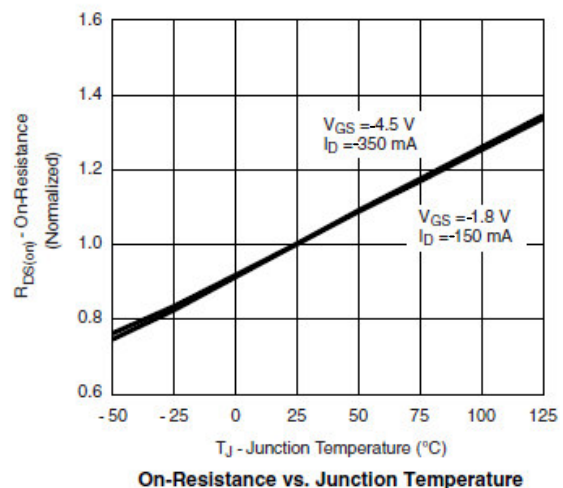
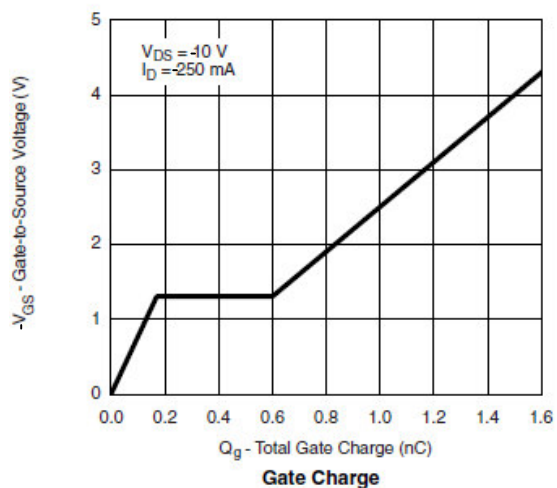
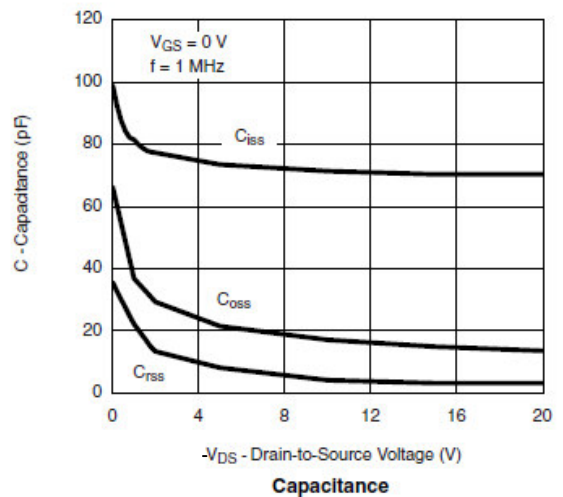
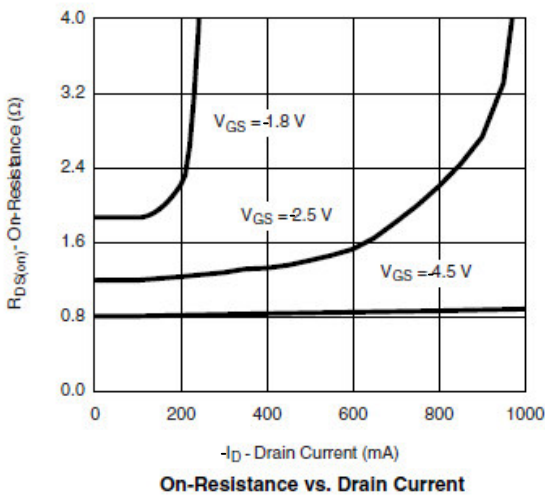
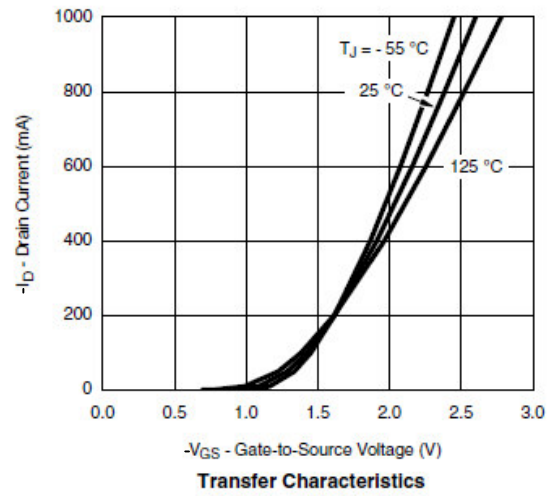
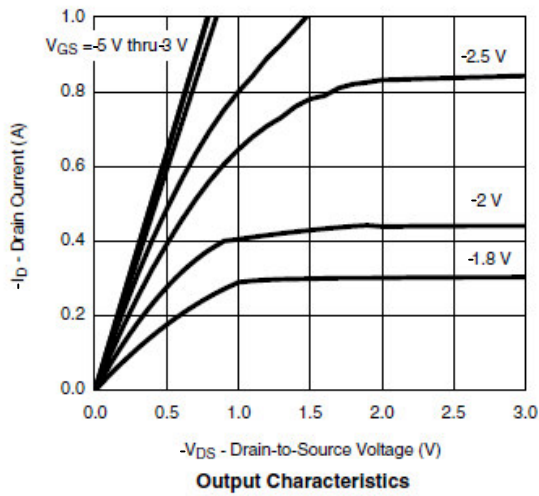
Symbol	Parameter	Typical	Unit
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_A=25^{\circ}\text{C}$	-1.0
		$T_A=70^{\circ}\text{C}$	-0.6
I_{DM}	Pulsed Drain Current	-6	A
I_S	Continuous Source Current(Diode Conduction)	-1	A
P_D	Power Dissipation	$T_A=25^{\circ}\text{C}$	0.35
		$T_A=70^{\circ}\text{C}$	0.22
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

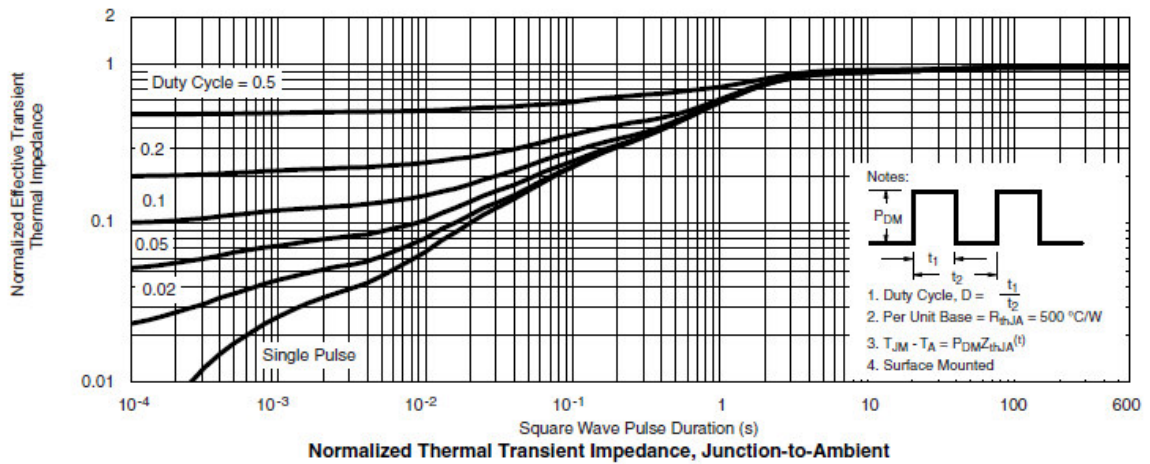
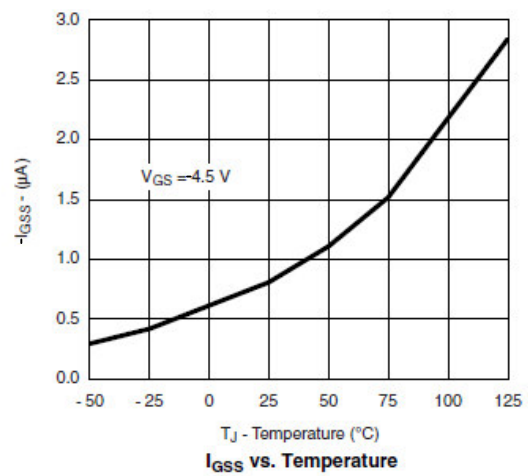
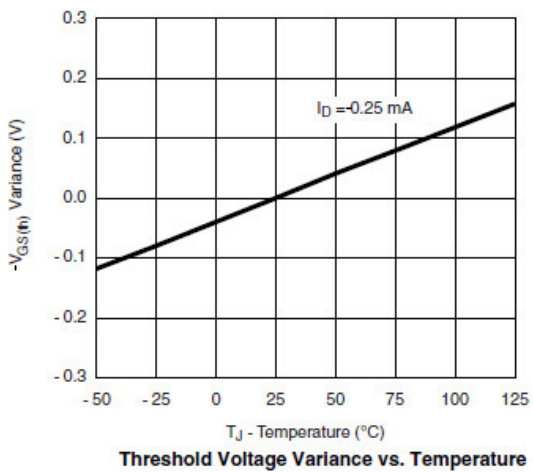
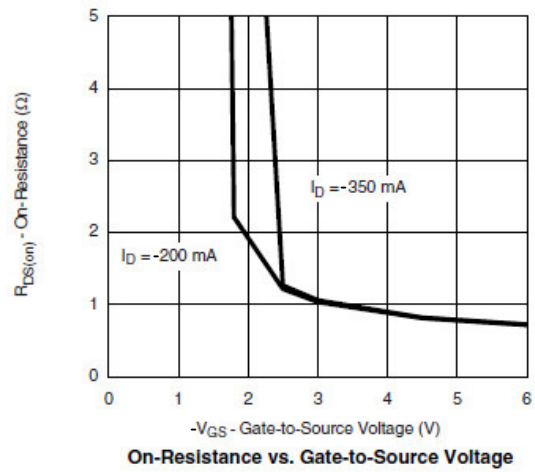
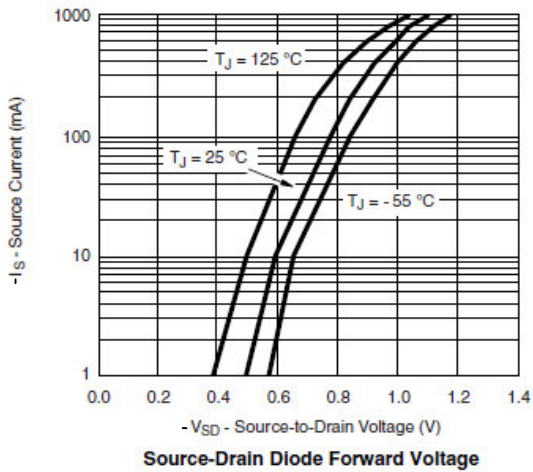
T_A=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.4		-1.0	
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	μA
		V _{DS} = -20V, V _{GS} =0V, T _J =85°C			-5	
I _{D(on)}	On-State Drain Current	V _{DS} ≤ -5V, V _{GS} =-4.5V	-0.7			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-0.45A		500	600	mΩ
		V _{GS} =-2.5V, I _D =-0.35A		700	800	
		V _{GS} =-1.8V, I _D =-0.25A		1000	1300	
g _{fs}	Forward Transconductance	V _{DS} =-10V, I _D =-0.4A		1		S
V _{SD}	Diode Forward Voltage	I _S =-0.15A, V _{GS} =0V		-0.65	-1.2	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz		70	100	pF
C _{oss}	Output Capacitance			20		
C _{rss}	Reverse Transfer Capacitance			10		
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-0.25A		1.0	1.3	nC
Q _{gs}	Gate-Source Charge			0.1		
Q _{gd}	Gate-Drain Charge			0.3		
t _{d(on)}	Turn-On Time	V _{DD} =-10V, R _L =30Ω, I _D =-0.2A, V _{GEN} =-4.5V, R _G =10Ω		10	15	ns
t _r				10	15	
t _{d(off)}	Turn-Off Time			40	60	
t _f				30	50	

Typical Performance Characteristics

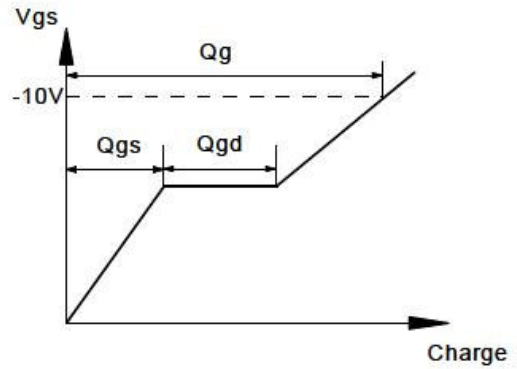
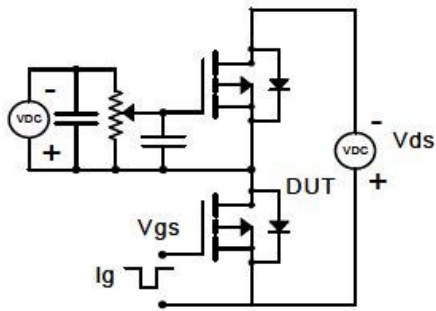


Typical Characteristics

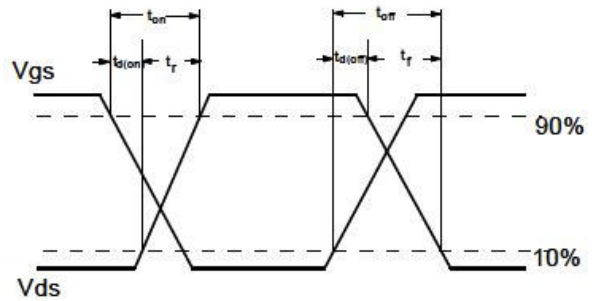
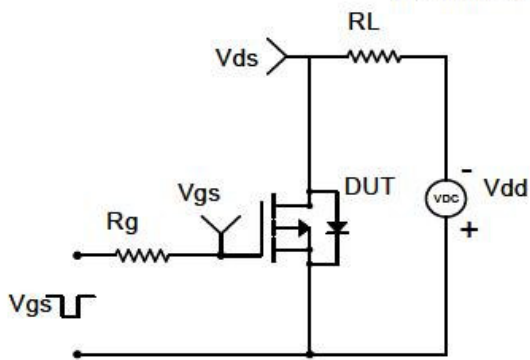


Typical Characteristics

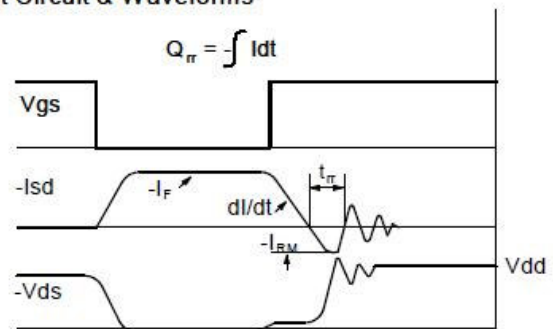
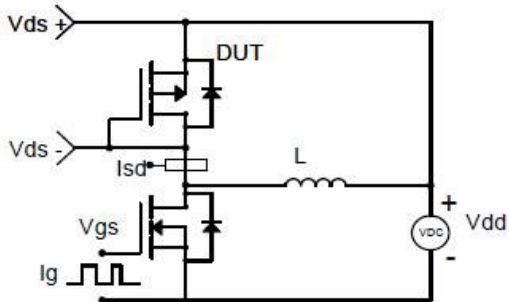
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

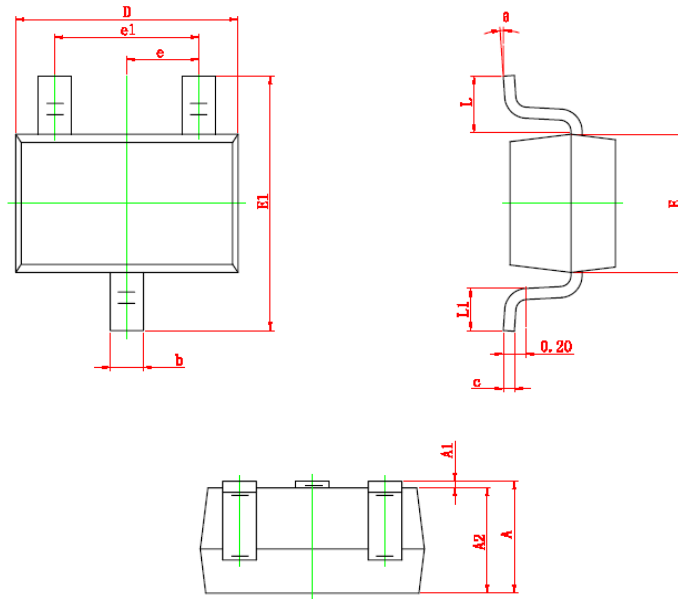


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOT-323 PLASTIC PACKAGE







Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd NeiHu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Wu-Xi Branch	
	No.21 Changjiang Rd., WND, Wuxi, Jiangsu, China (INFO. & TECH. Science Park Building A 210 Room)
	86-510-85217051
	86-510-85211238
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587