

GSM7002SW

60V N-Channel Enhancement Mode MOSFET

Product Description

GSM7002SW, N-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.

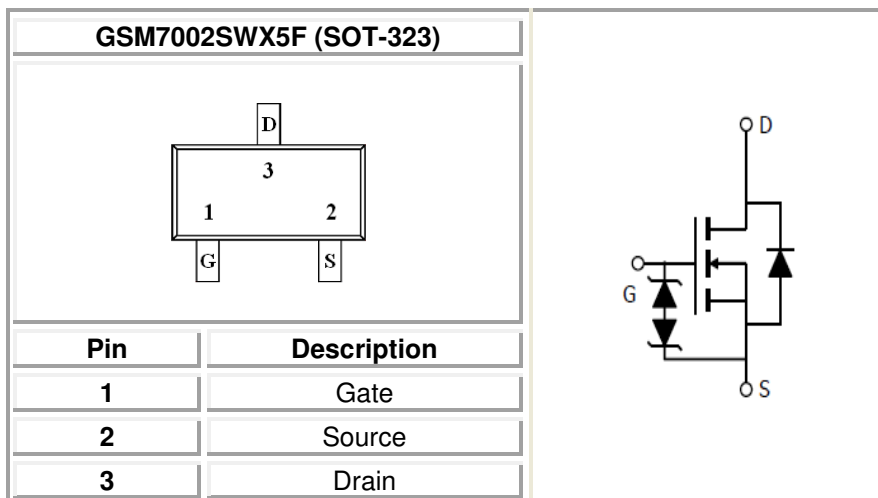
Features

- 60V/0.5A, $R_{DS(ON)}=3.0\Omega@V_{GS}=10V$
- 60V/0.3A, $R_{DS(ON)}=4.0\Omega@V_{GS}=4.5V$
- Fast switching
- ESD Protected up to 2KV
- Green Device Available

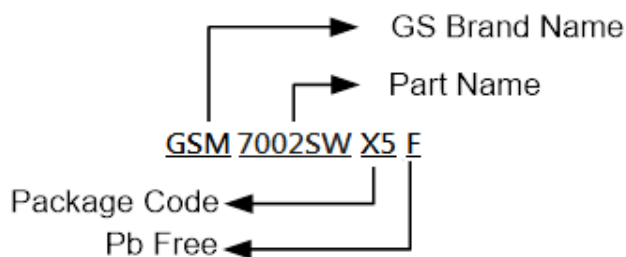
Applications

- load switch
- Notebook
- Battery Protection
- Hand-held Instruments

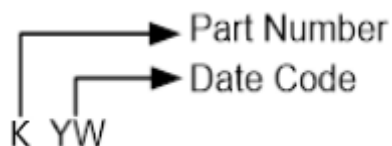
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM7002SWX5F	SOT-323	KYW	3000 PCS

Absolute Maximum Ratings

T_C=25°C Unless otherwise noted

Symbol	Parameter	Typical	Unit
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current-Continuous (T _C = 25°C)	500	mA
	Drain Current-Continuous (T _C = 70°C)	300	mA
I _{DM}	Pulsed Drain Current (Note1)	1.2	A
P _D	Power Dissipation T _C = 25°C	300	mW
	Power Dissipation T _C = 70°C	200	mW
R _{θJA}	Thermal Resistance-Junction to Ambient	417	°C/W
T _J	Junction Temperature Range	-55 to 150	°C
T _{STG}	Storage Temperature Range	-55 to 150	°C

Electrical Characteristics

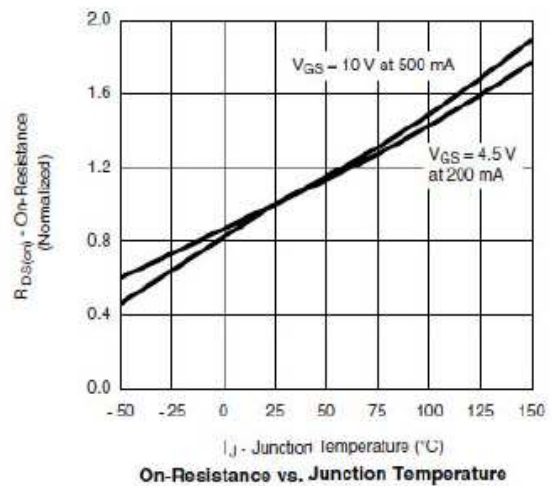
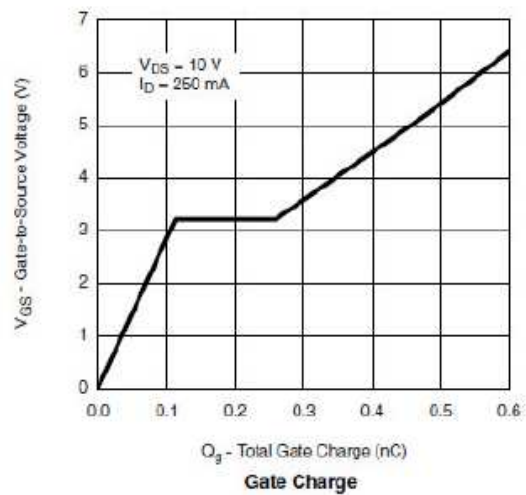
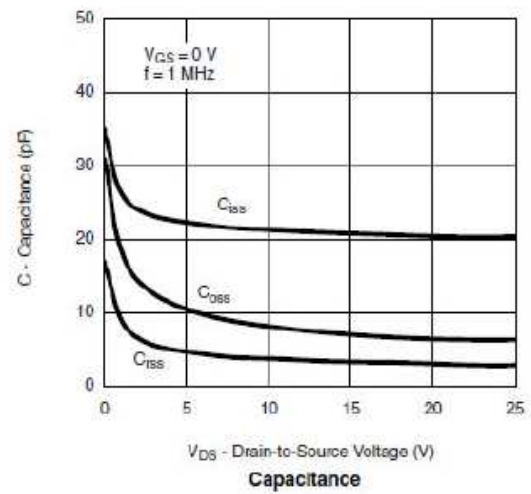
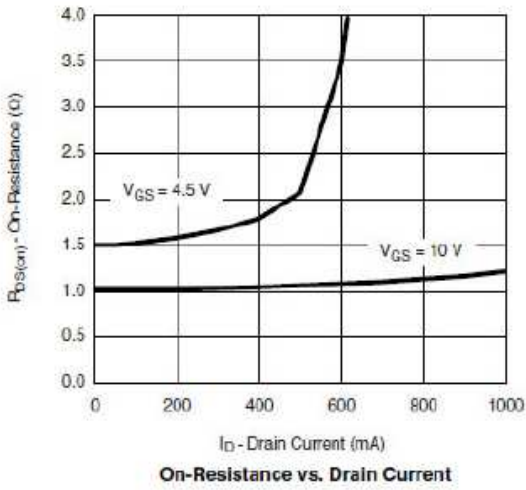
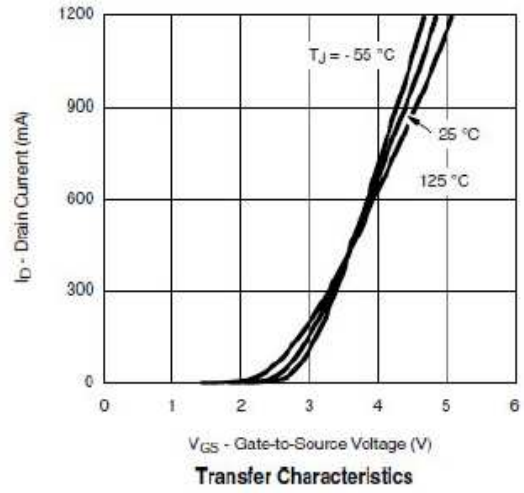
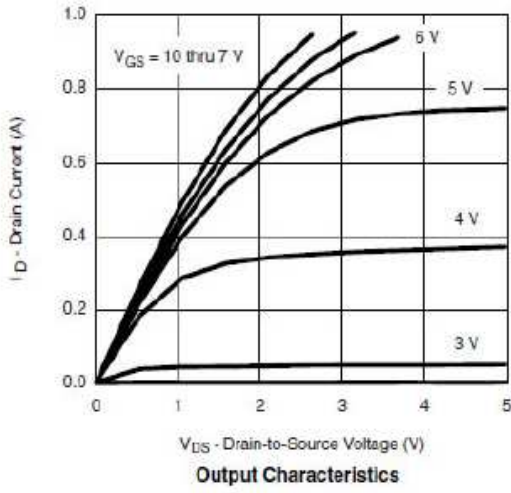
$T_J=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1		2	V
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V,$	-	-	± 10	μA
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	1	μA
		$V_{DS}=60V, V_{GS}=0V, T_J=85^{\circ}\text{C}$	-	-	30	
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=500mA$	-	1.9	3	Ω
		$V_{GS}=4.5V, I_D=300mA$	-	2.4	4	
Dynamic						
C_{iss}	Input Capacitance	$V_{DS}=25V,$ $f=1MHz, V_{GS}=0V$	-	30		pF
C_{oss}	Output Capacitance		-	8		
C_{rss}	Reverse Transfer Capacitance		-	5		
Q_g	Total Gate Charge	$V_{DD}=10V, I_D=0.25A,$ $V_{GS}=4.5V$		500		pC
Q_{gs}	Gate-Source Charge			100		
Q_{gd}	Gate-Drain Charge			150		
$t_{d(on)}$	Turn-On Time	$V_{DD}=30V, I_D=0.2A,$ $R_G=10\Omega, V_{GEN}=4.5V,$ $R_L=150\Omega$		10	20	ns
t_r				35	50	
$t_{d(off)}$	Turn-Off Time			20	30	
t_f				40	60	
V_{SD}	Diode Forward Voltage		$I_S=0.2A, V_{GS}=0V$	-	0.7	
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=0.2A$		0.2		S
I_S	Continuous Source Current	$V_G = V_D = 0V, \text{Force Current}$	-	-	450	mA

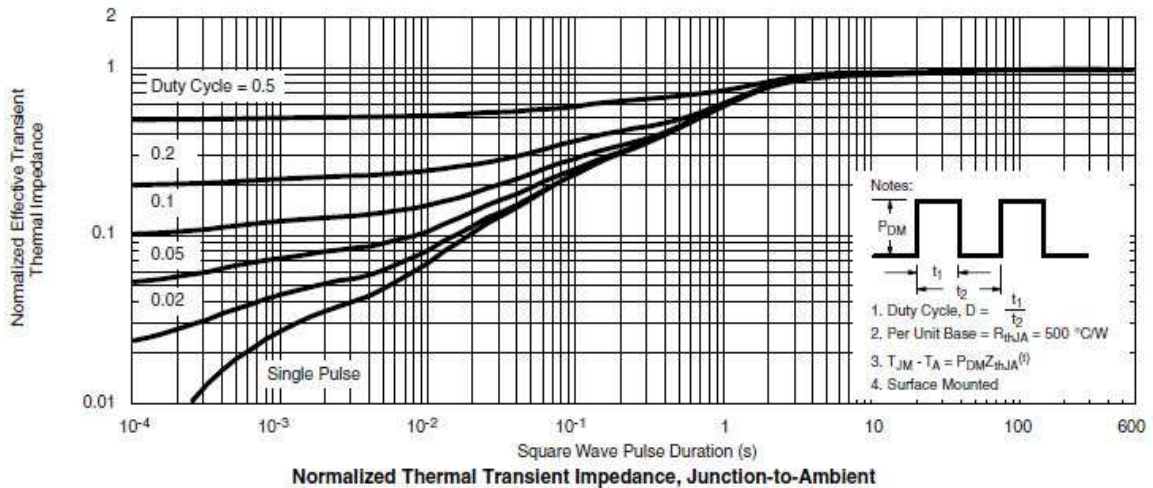
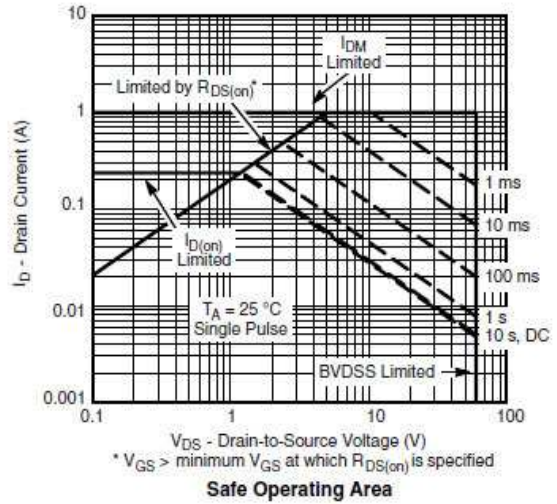
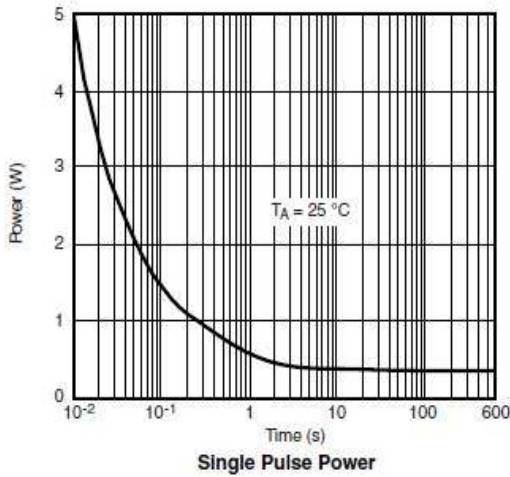
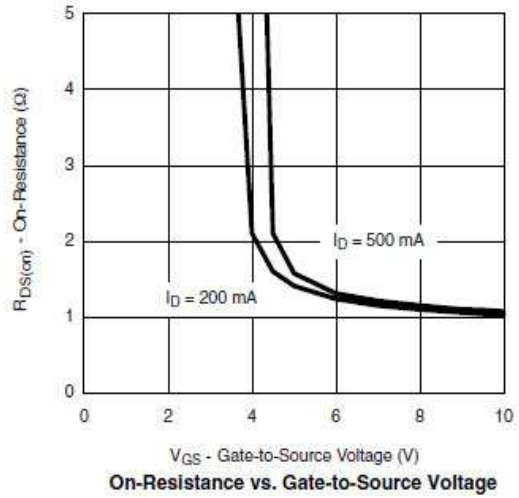
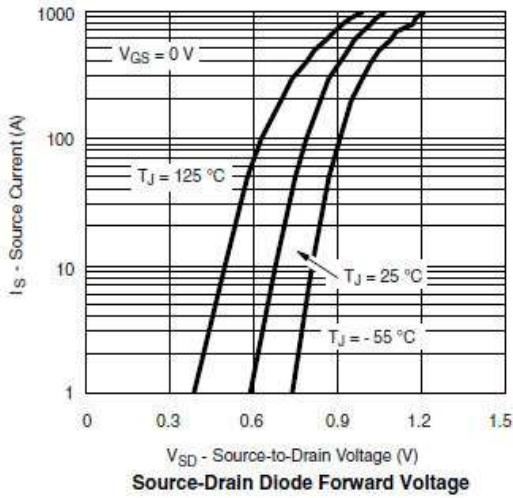
Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Performance Characteristics

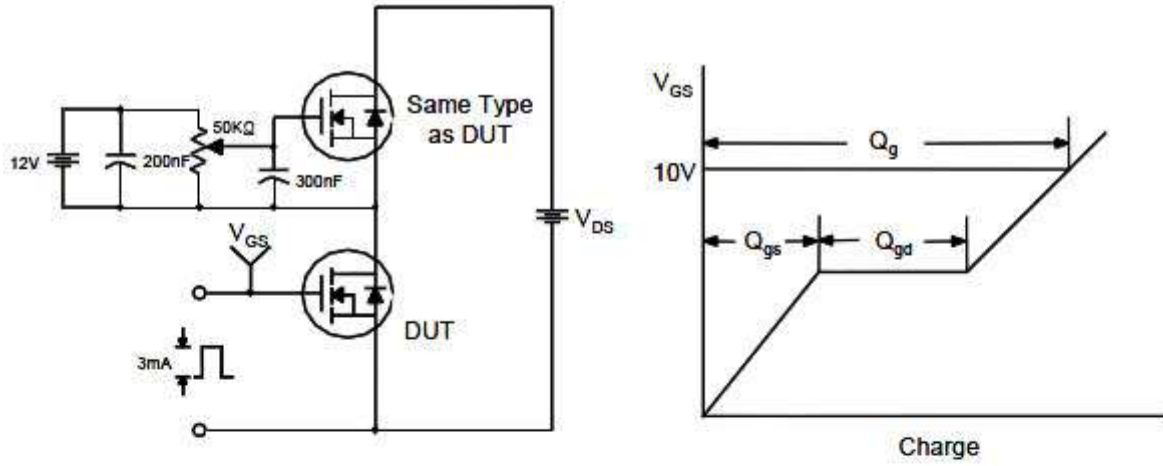


Typical Performance Characteristics (Continue)

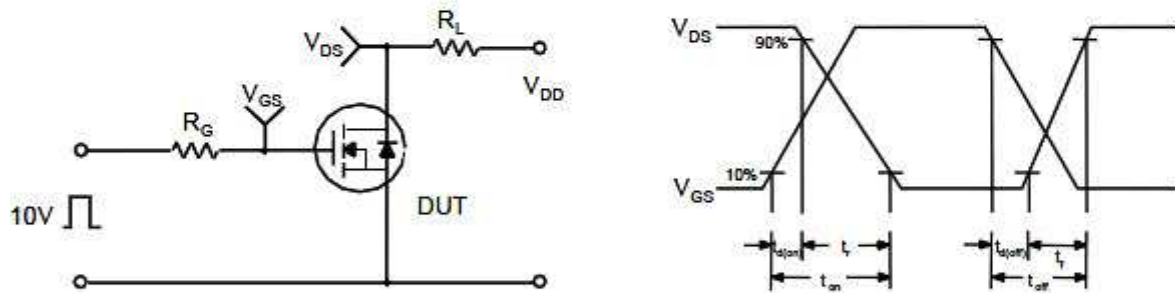


Typical Characteristics

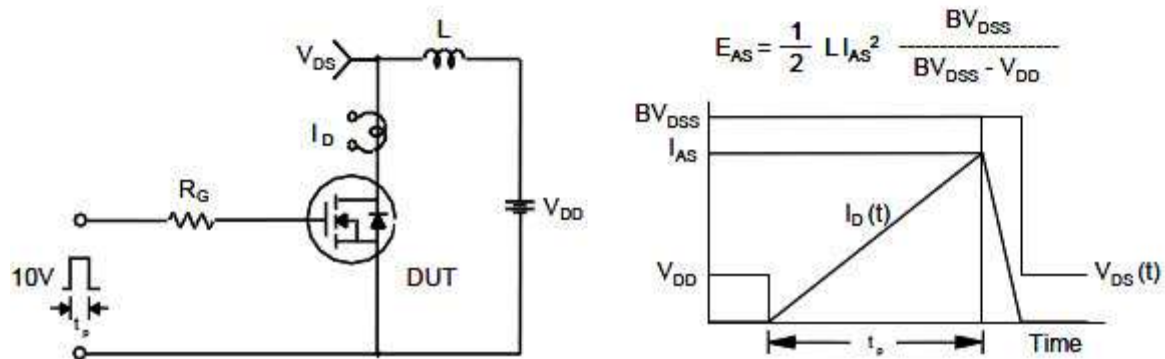
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

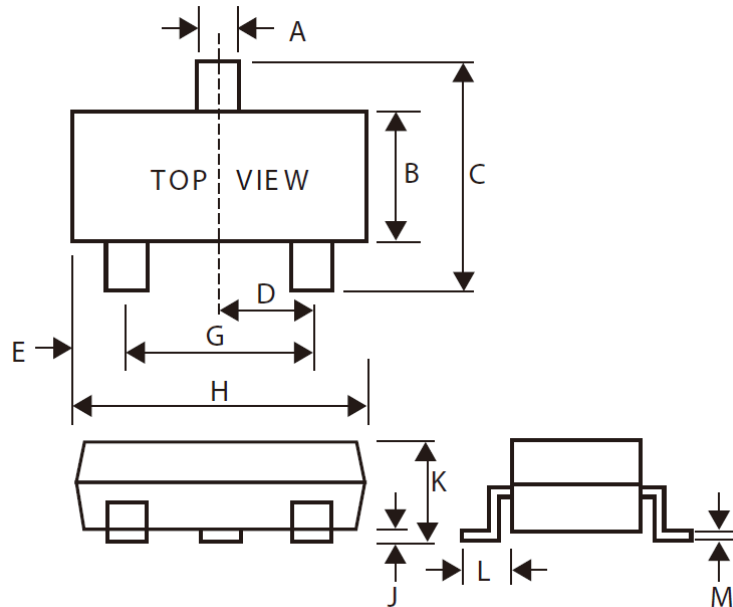


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOT-323







Dimensions



SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.300	0.400	0.011	0.015
B	1.150	1.350	0.045	0.053
C	2.000	2.400	0.078	0.094
D	-	0.650	-	0.025
E	0.300	0.400	0.011	0.015
G	1.200	1.400	0.047	0.055
H	1.800	2.200	0.070	0.086
J	0.000	0.100	0.000	0.003
K	0.800	1.000	0.031	0.039
L	0.420	0.530	0.016	0.020
M	0.100	0.250	0.003	0.009

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