

G SMBSS139W

60V N-Channel MOSFETs

Product Description

These N-Channel Enhancement Mode Power Field Effect Transistors are Using Trench DMOS Technology. This Advanced Technology has been Especially Tailored to Minimize on-state Resistance, Provide Superior Switching Performance, and Withstand high Energy Pulse in the Avalanche and Commutation mode.

These Devices are well Suited for High Efficiency Fast Switching Applications.

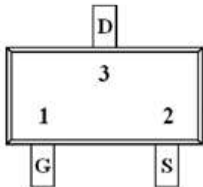
Features

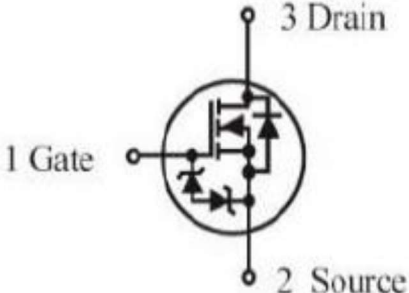
- 60V, 0.24A, $R_{DS(ON)}=2.5\Omega@V_{GS}=4.5V$
- Improved dv/dt Capability
- Fast Switching
- Green Device Available
- SOT-323 Package Design
- ESD Protected : 1500V

Applications

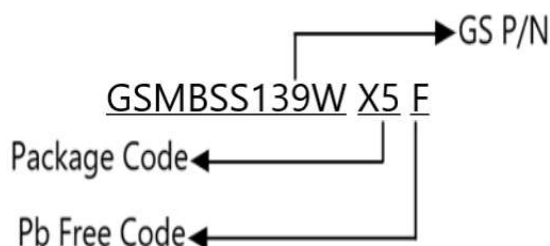
- Notebook
- Load Switch
- LED Applications

Packages & Pin Assignments

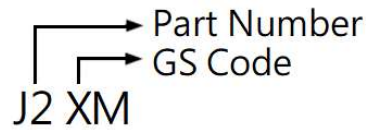
G SMBSS139WX5F (SOT-323)	
 <p>Top Views</p>	
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
G SMBSS139WX5F	SOT-323	J2XM	3000pcs

Absolute Maximum Ratings

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

Symbol	Parameter	Limits	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current $T_A=25^{\circ}\text{C}$	0.24	A
I_{DM}	Pulsed Drain Current	0.8	A
P_D	Power Dissipation $T_A=25^{\circ}\text{C}$	0.23	W
T_J	Operating Junction Temperature Range	-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	556	$^{\circ}\text{C/W}$
TL	Maximum Lead Temperature for Soldering Purpose, for 10 Seconds	260	$^{\circ}\text{C}$

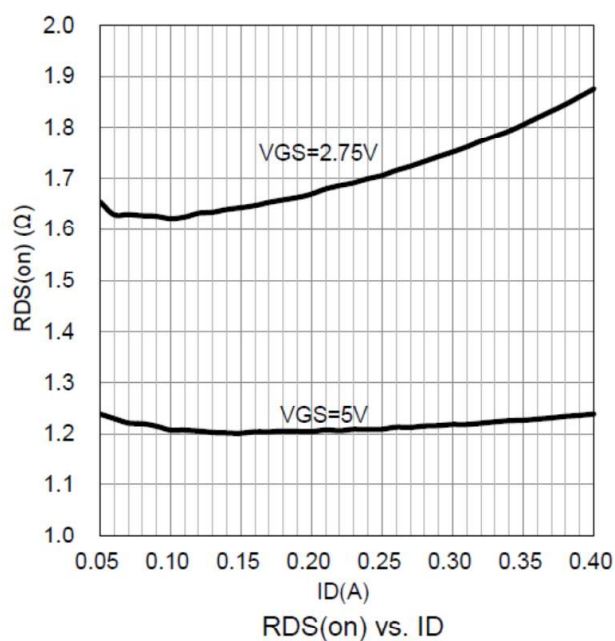
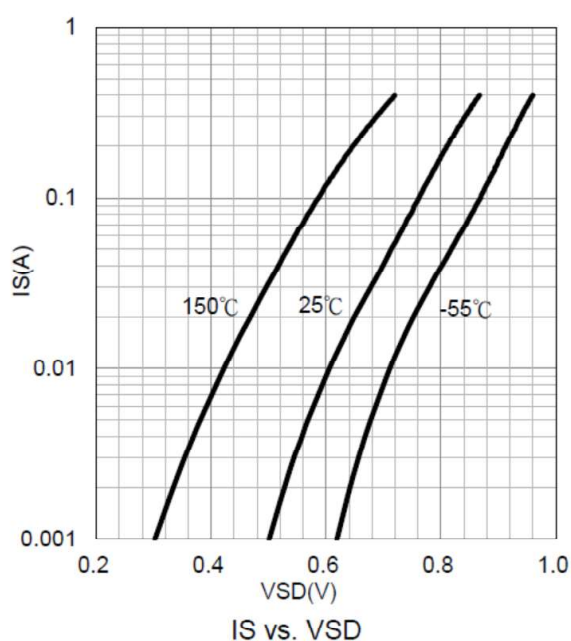
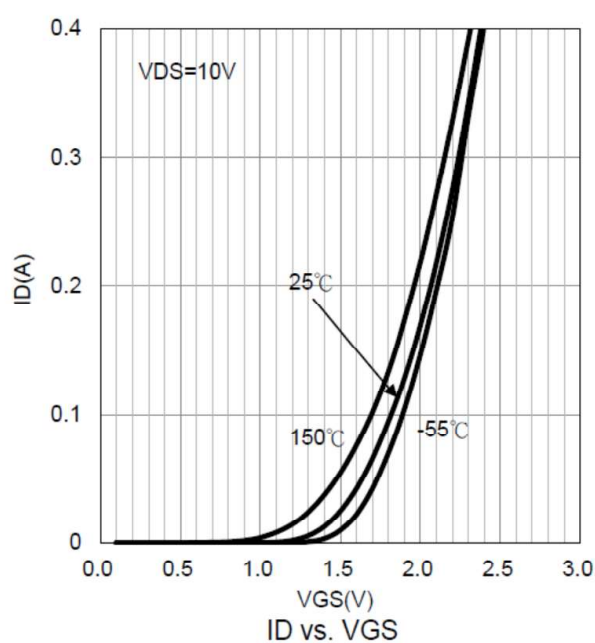
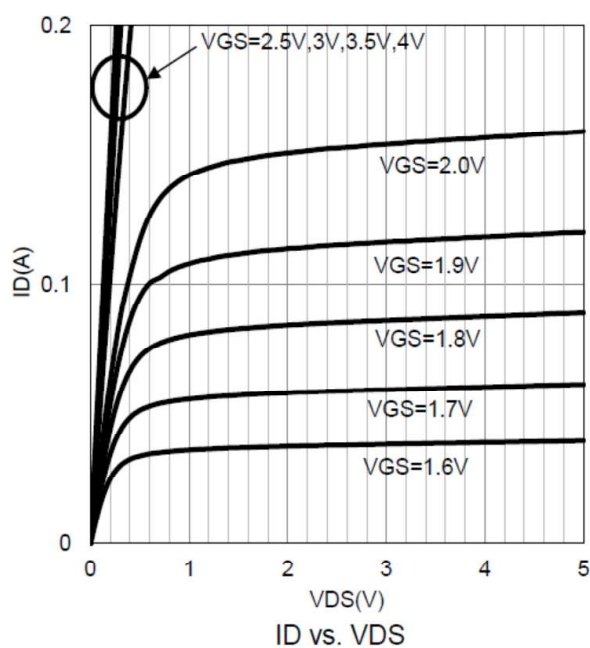
Electrical Characteristics

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

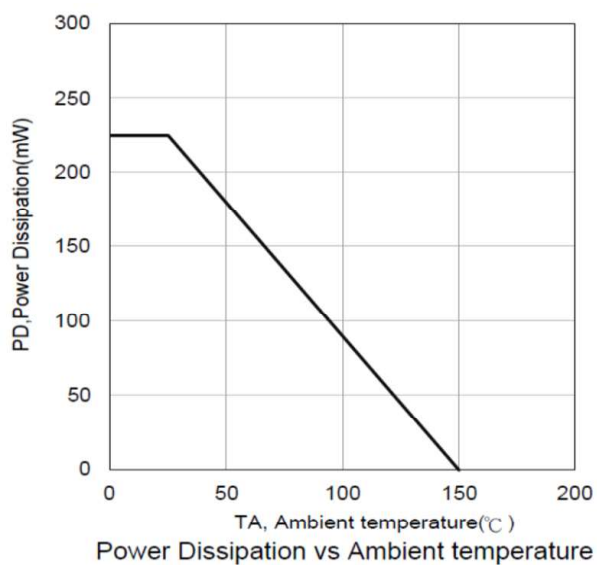
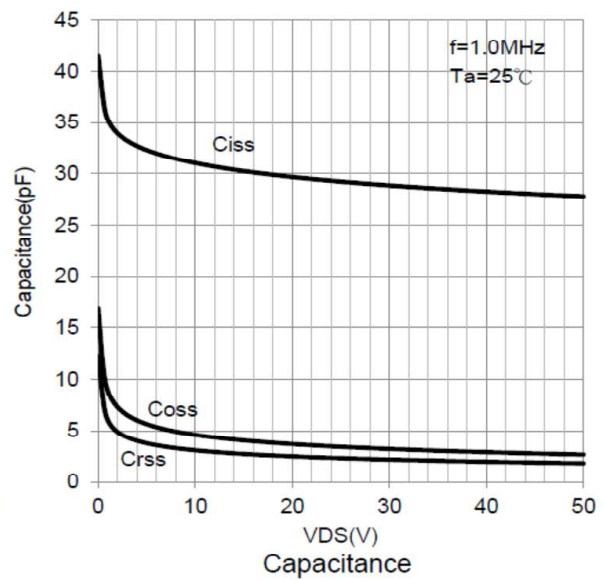
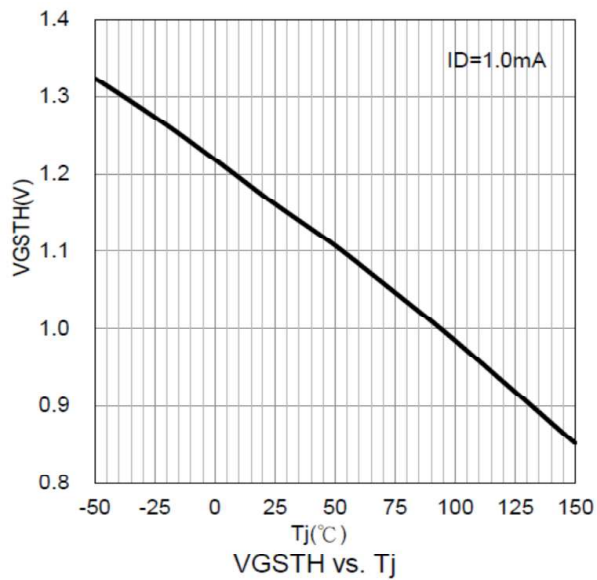
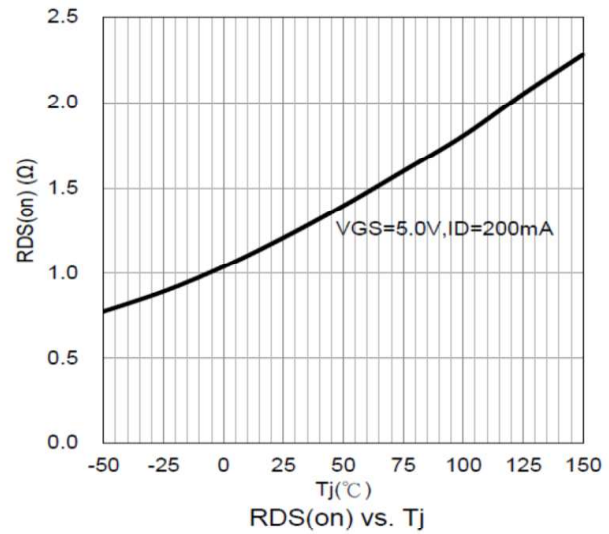
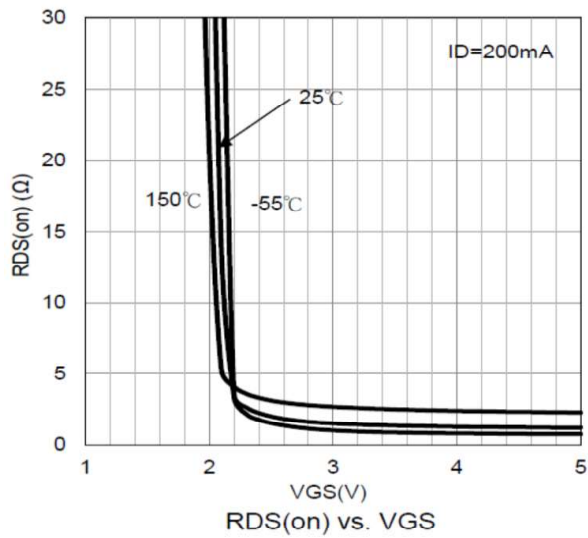
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	-	1.5	V
I_{GSSF}	Gate Leakage Current , Forward	$V_{DS}=0V, V_{GS}=20V$			10	μA
I_{GSSR}	Gate Leakage Current , Reverse	$V_{DS}=0V, V_{GS}=-20V$			-10	μA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=250V, V_{GS}=0V$			0.1	μA
		$V_{DS}=50V, V_{GS}=0V,$			0.5	
I_S	Continuous Source Current	$V_G=V_D=0V,$ Force Current			2	A
I_{SM}	Pulsed Source Current				8	
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=0.2A$		-	2.5	Ω
		$V_{GS}=2.5V, I_D=0.1A$	-	-	4	
g_{FS}	Forward Transconductance	$V_{DS}=25V, I_D=0.2A$	100	-	-	mS

Dynamic					
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V,$ $f=1MHz$		22.8	pF
C_{oss}	Output Capacitance			3.8	
C_{rss}	Reverse Transfer Capacitance			2.9	
$t_{d(on)}$	Turn-On Time	$V_{DD}=30V, I_D=1A,$ $V_{GS}=10V, R_G=25\Omega$		3.8	ns
$t_{d(off)}$	Turn-Off Time			19	

Typical Performance Characteristics

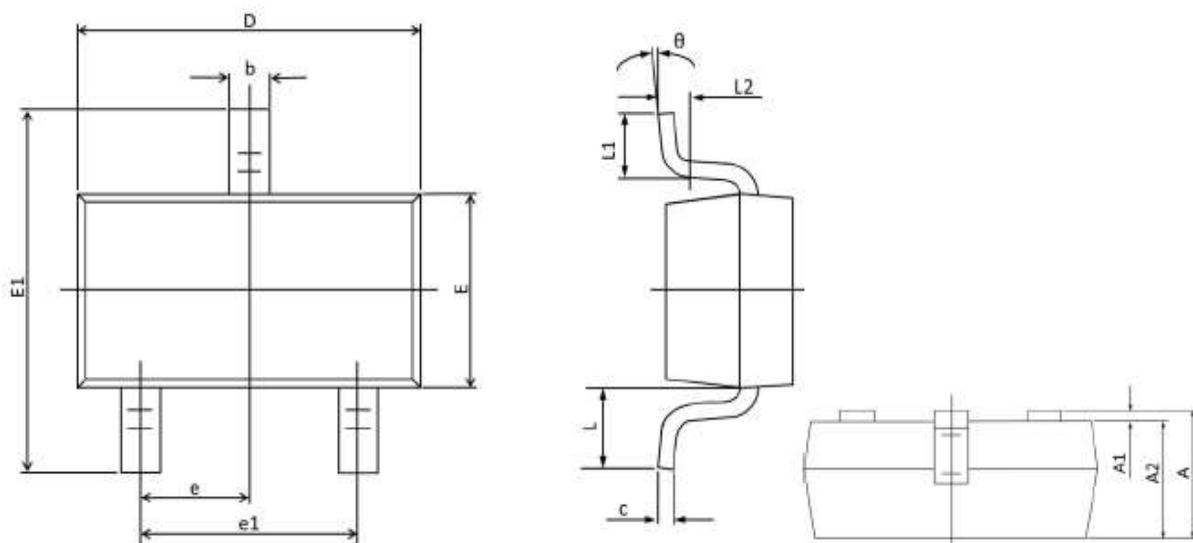


Typical Performance Characteristics (Continue)



Package Dimension

SOT-323









Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.250	0.003	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	1.800	2.450	0.071	0.096
e	0.650 (BSC)		0.026 (BSC)	
e1	1.200	1.40	0.047	0.055
L	0.525 (REF)		0.021 (REF)	
L1	0.150	0.460	0.006	0.018
L2	0.000	0.200	0.000	0.008
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

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