GSMBSS139W

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

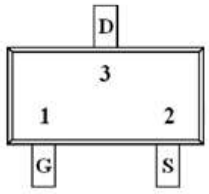
- 60V, 0.24A, $R_{DS(ON)}$=2.5Ω@V_{GS}=4.5V
- Improved dv/dt Capability
- Fast Switching
- Green Device Available
- SOT-323 Package Design
- ESD Protected : 1500V

Applications

- Notebook
- Load Switch
- LED Applications

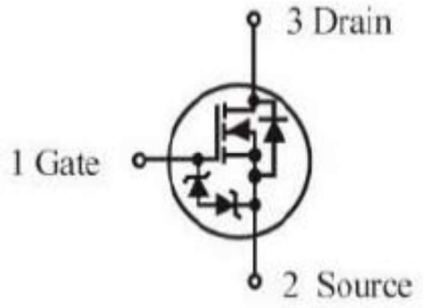
Packages & Pin Assignments

GSMBSS139WX5F (SOT-323)

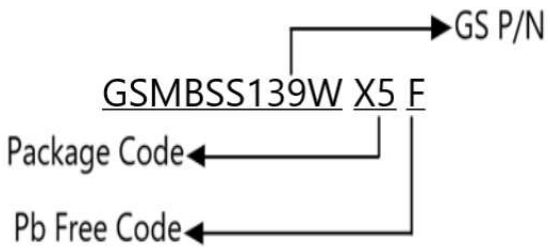


Top Views

Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information

Part Number	Package	Part Marking	Quantity
GSMBSS139WX5F	SOT-323	J2XM	3000pcs

Absolute Maximum Ratings

T_A=25ºC 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℃	0.24	A
I_{DM}	Pulsed Drain Current	0.8	A
P_D	Power Dissipation T_A=25℃	0.23	W
T_J	Operating Junction Temperature Range	-55 to +150	℃
T_{STG}	Storage Temperature Range	-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	556	℃/W
TL	Maximum Lead Temperature for Soldering Purpose, for 10 Seconds	260	℃

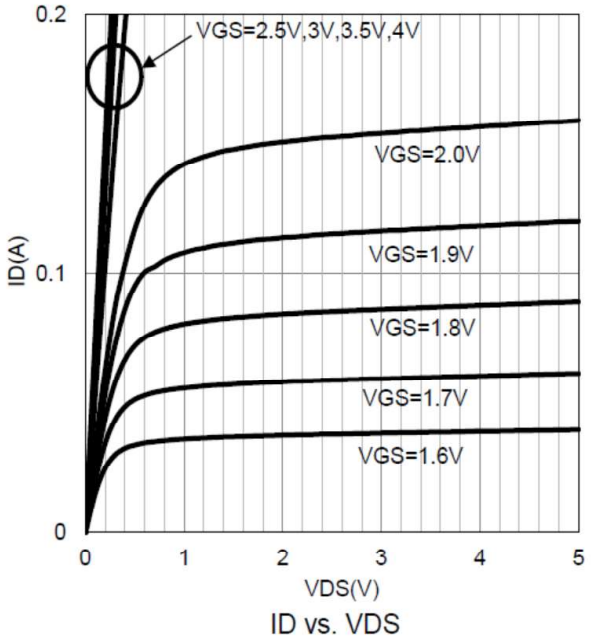
Electrical Characteristics

T_A=25℃ Unless otherwise noted

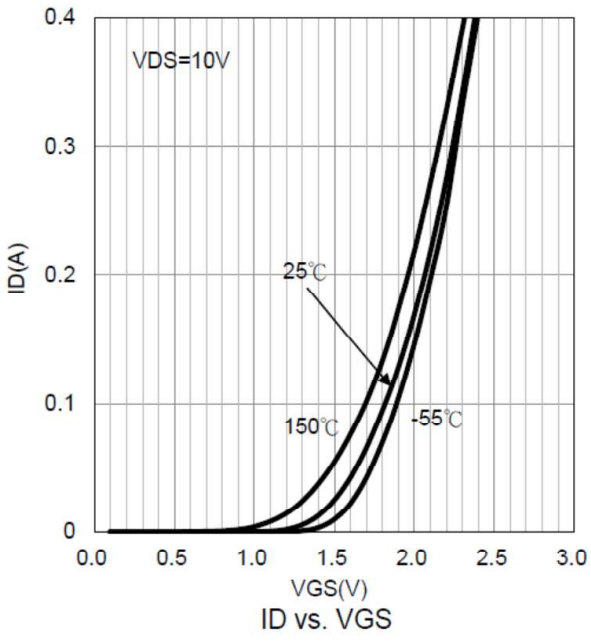
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.8	-	1.5	V
I_{GSSF}	Gate Leakage Current，Forward	V_{DS}=0V,V_{GS}=20V			10	μA
I_{GSSR}	Gate Leakage Current，Reverse	V_{DS}=0V,V_{GS}=-20V			-10	μA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=250V,V_{GS}=0V			0.1	uA
		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=25Ω		3.8		ns
$t_{d(off)}$	Turn-Off Time			19		

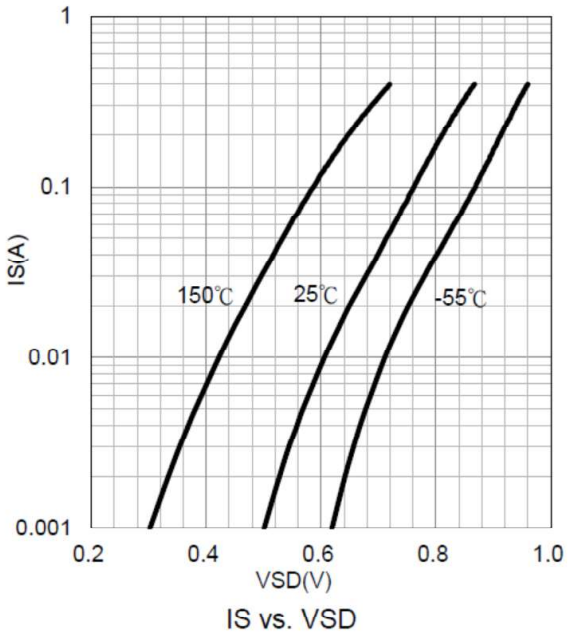
Typical Performance Characteristics



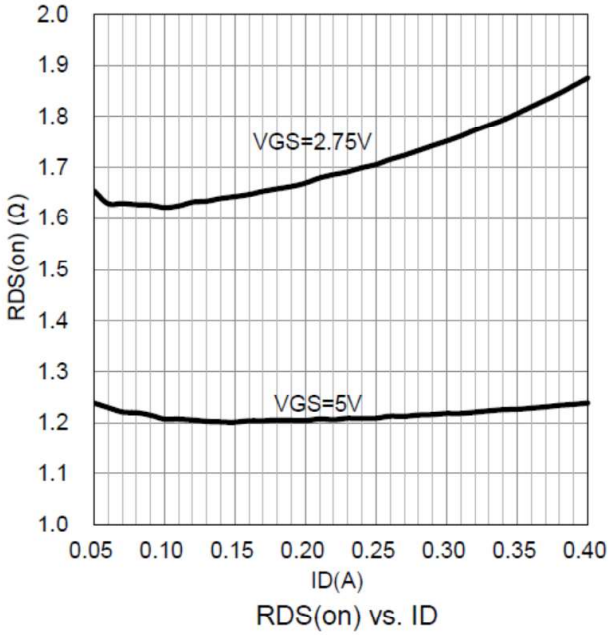
ID vs. VDS



ID vs. VGS

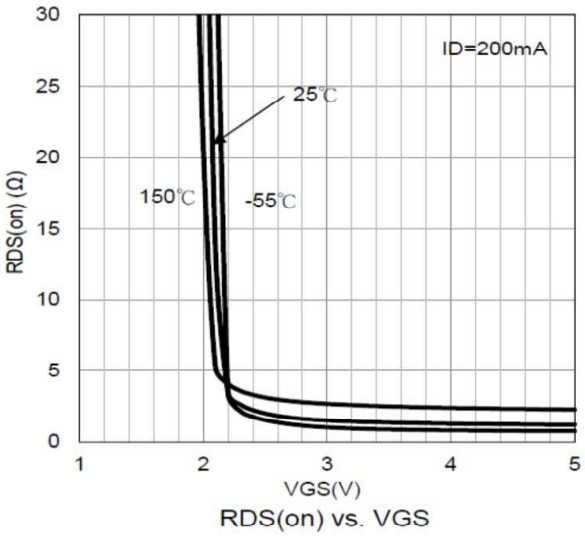


IS vs. VSD

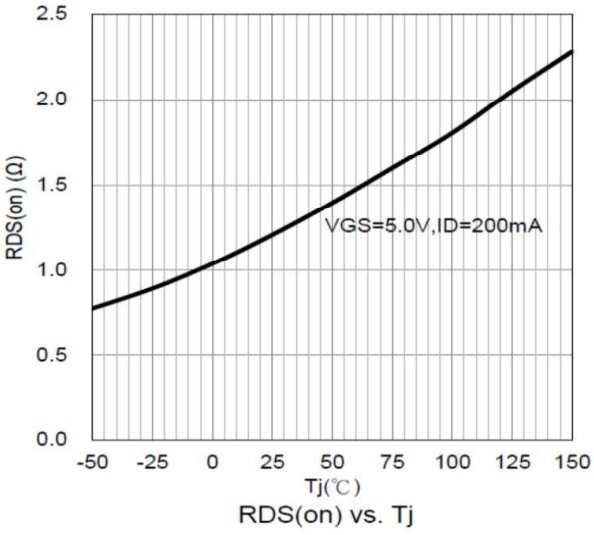


RDS(on) vs. ID

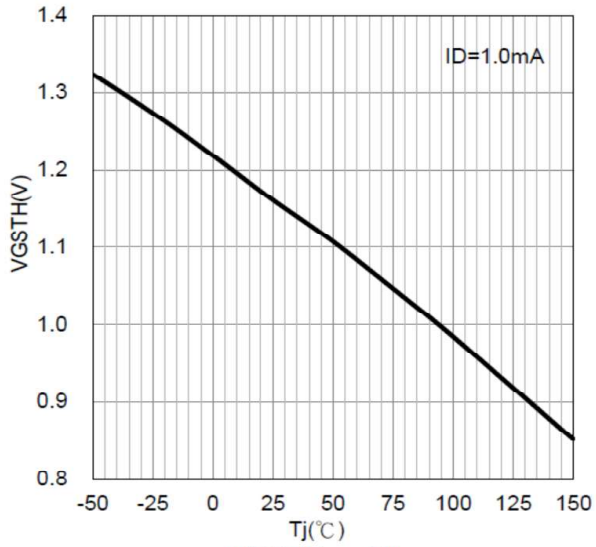
Typical Performance Characteristics (Continue)



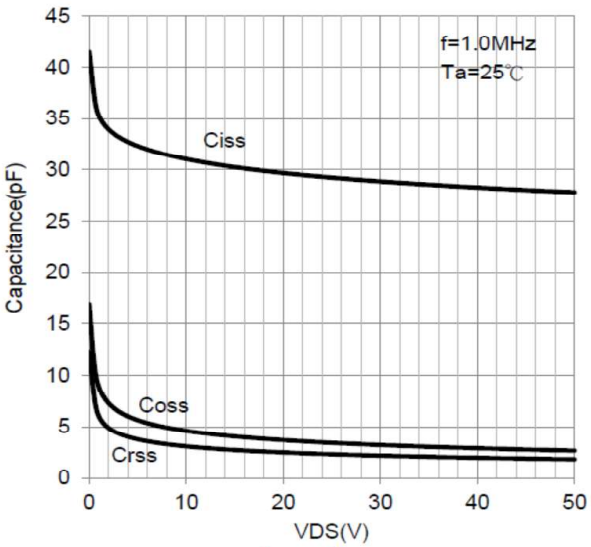
RDS(on) vs. VGS



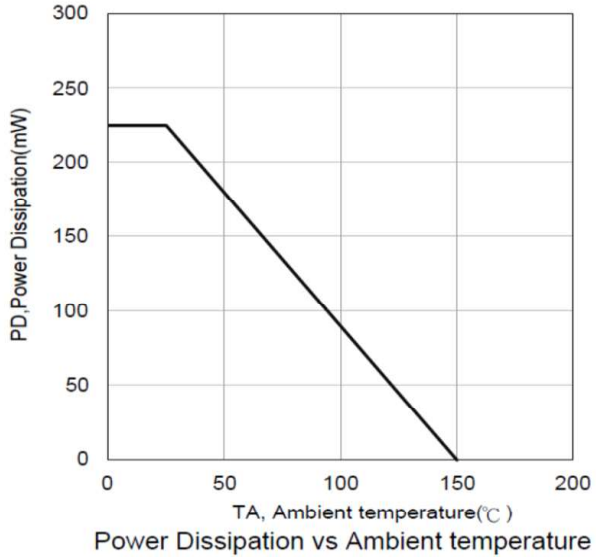
RDS(on) vs. Tj



VGSTH vs. Tj



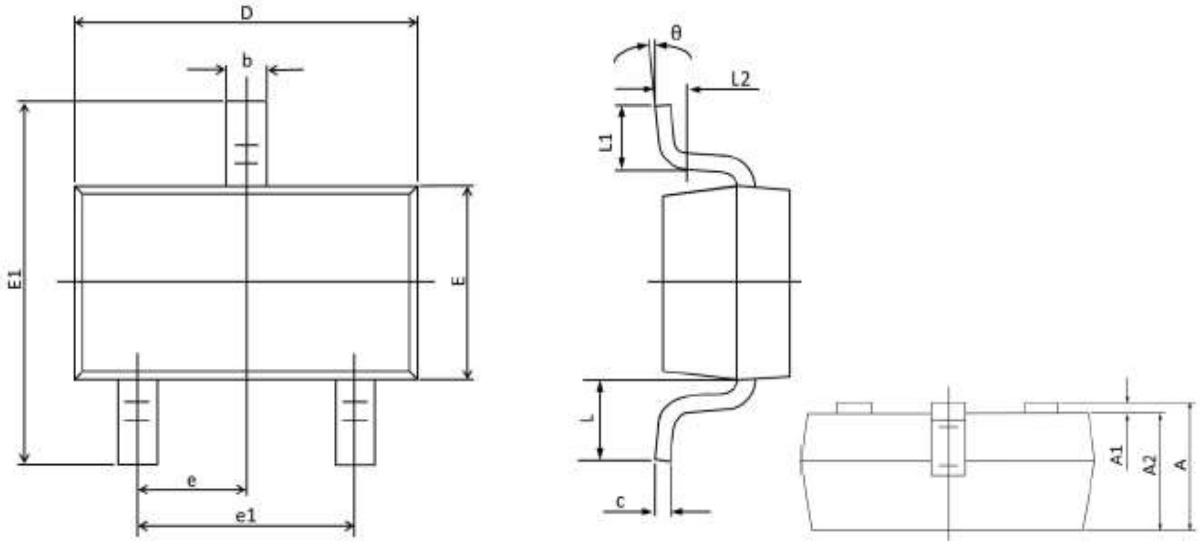
Capacitance



Power Dissipation vs Ambient temperature

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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