GSMBSS139KX7F

60V N-Channel Enhancement Mode MOSFET

Product Description

This N-Channel Enhancement Mode Power Field Effect Transistor is 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.

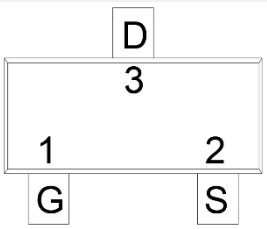
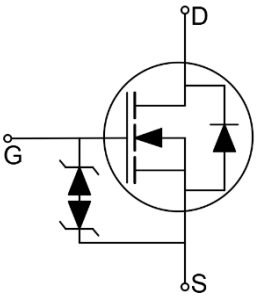
Features

- $R_{DS(ON)}$=2.5Ω@V_{GS}=10V
- $R_{DS(ON)}$=2.5Ω@V_{GS}=4.5V
- Improved dv/dt Capability
- Fast Switching
- Green Device Available
- SOT-523 Package Design
- ESD Protected : 1500V

Applications

- Notebook
- Load Switch
- LED Applications

Packages & Pin Assignments

GSMBSS139KX7F (SOT-523)	Equivalent Circuit
 Top Views	

Pin	Description
1	Gate
2	Source
3	Drain

Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSMBSS139KX7F	SOT-523	J2□□	3,000 PCS

GSMBSS139 1 2

- **Product Code:** GSMBSS139K
- **Package Code:** 1 is **X7** for SOT-523
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information

J2□□

- **Product Code:** J2
- **GS Code:** □□

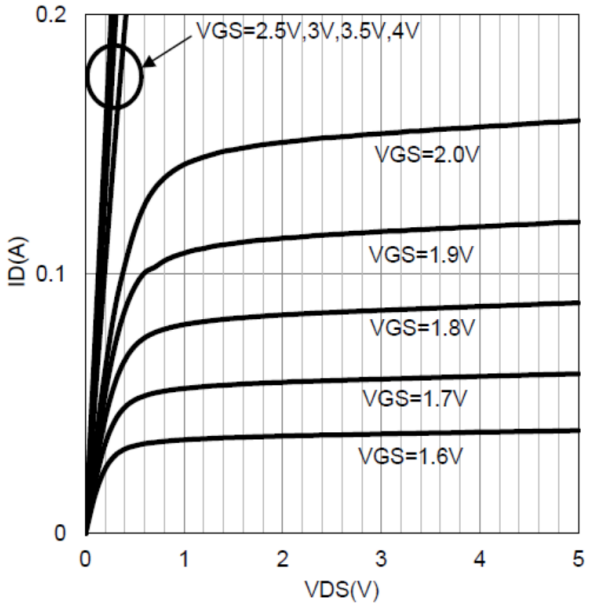
Absolute Maximum Ratings (T_A=25ºC Unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current T_A=25℃	0.2	A
I_{DM}	Pulsed Drain Current	0.8	A
P_D	Power Dissipation (T_A=25℃)	0.225	W
	Power Dissipation (Derate above 25℃)	0.0018	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	℃

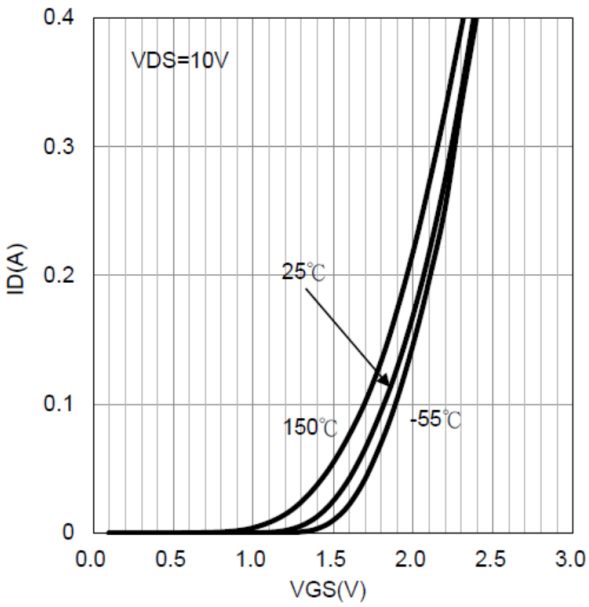
Electrical Characteristics (T_A=25℃ Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
$V_{(BR)DSS}$	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	0.85	-	1.45	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}=25V, V_{GS}=0V			0.1	uA
		V_{DS}=50V, V_{GS}=0V,			0.5	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=0.2A		-	2.25	Ω
		V_{GS}=2.5V, I_D=0.1A	-	-	4.05	
g_{FS}	Forward Transconductance	V_{DS}=25V, I_D=0.2A	100	-	-	mS
Dynamic characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V,V_{GS}=0V, f=1MHz		22.8		pF
C_{oss}	Output Capacitance			3.5		
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		

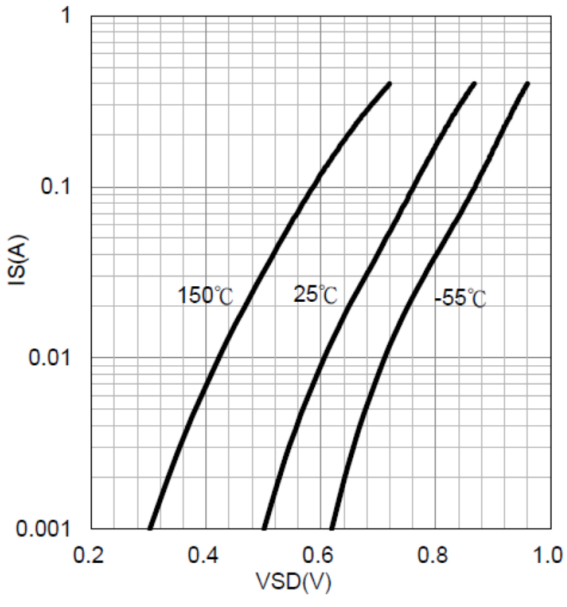
Typical Performance Characteristics



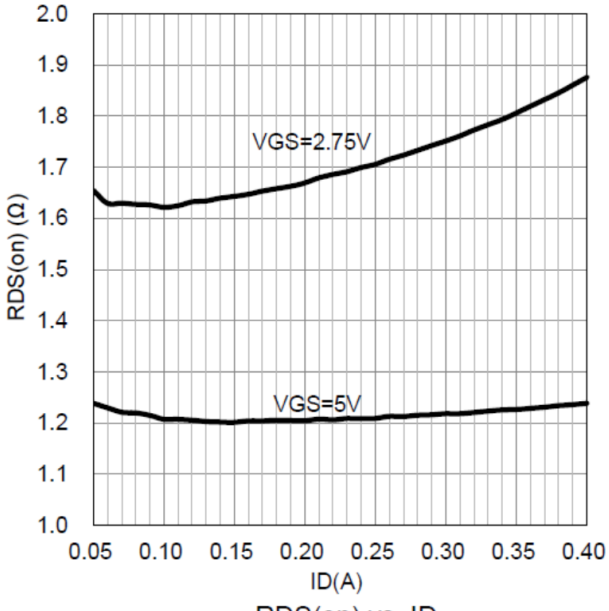
ID vs. VDS



ID vs. VGS

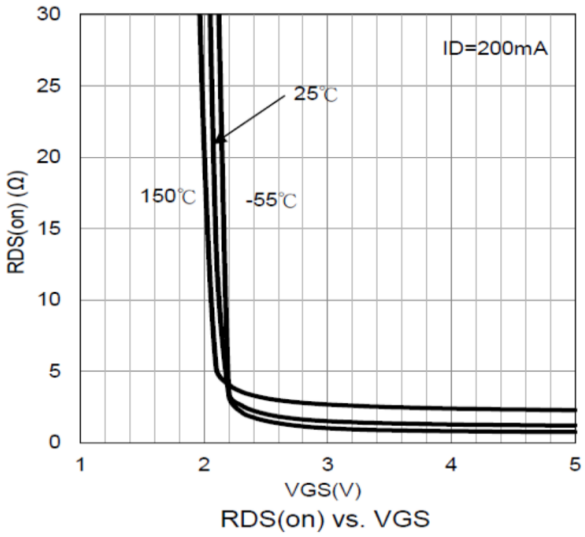


IS vs. VSD

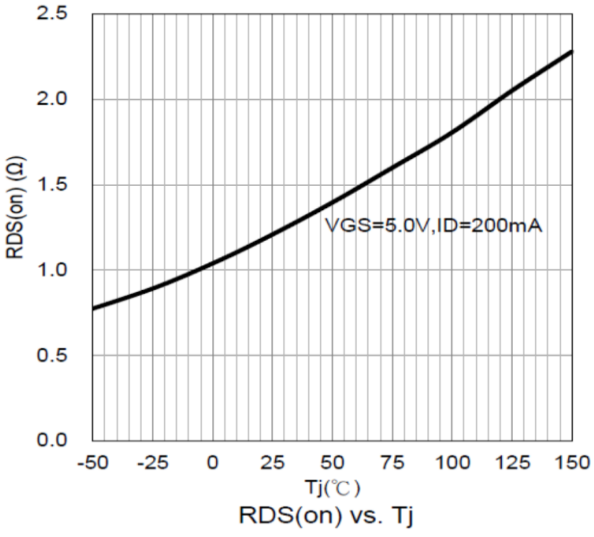


RDS(on) vs. ID

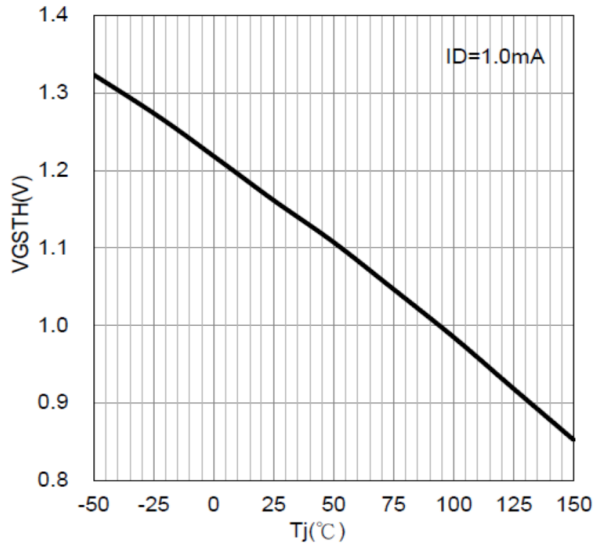
Typical Performance Characteristics (Continue)



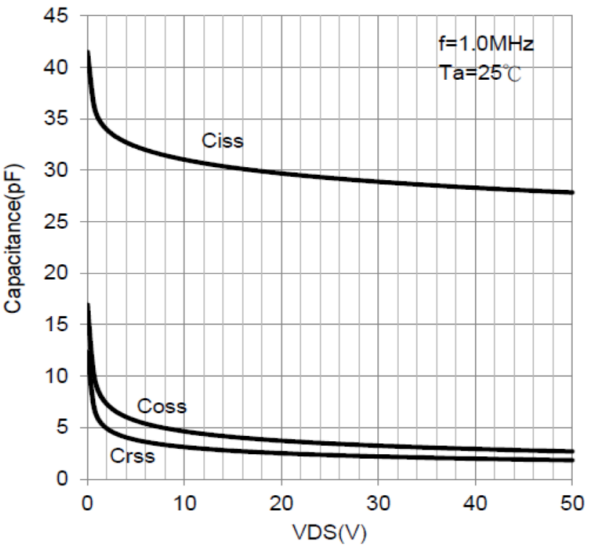
RDS(on) vs. VGS



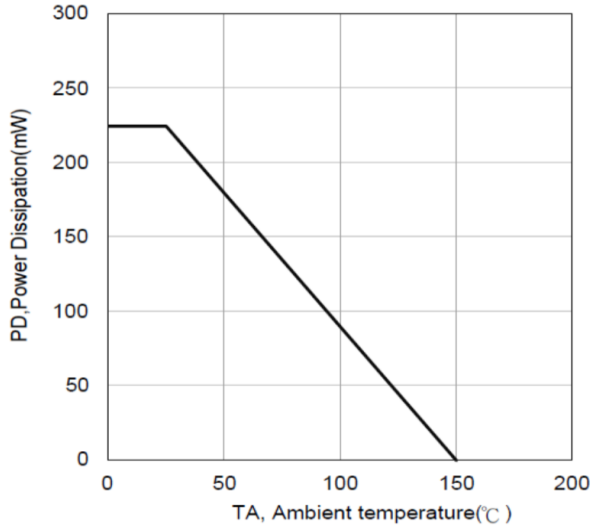
RDS(on) vs. Tj



VGSTH vs. Tj



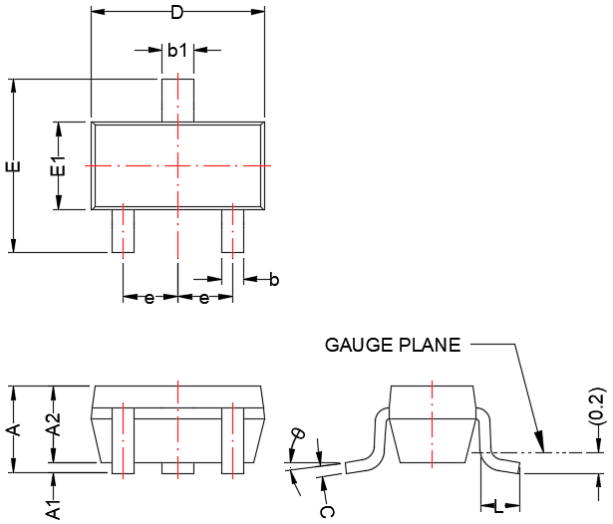
Capacitance



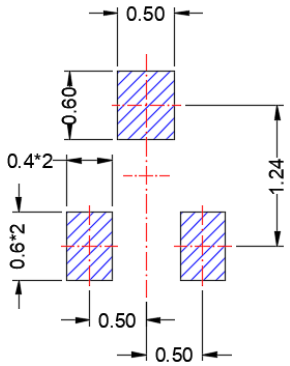
Power Dissipation vs Ambient temperature

SOT-523

Package Dimension



Recommended Land Pattern



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.60	0.95	0.024	0.037
A1	0.00	0.10	0.000	0.004
A2	0.60	0.85	0.024	0.033
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.25	0.003	0.010
D	1.40	1.80	0.055	0.071
E	1.40	1.80	0.055	0.071
E1	0.70	0.90	0.028	0.035
e	0.50 BSC		0.020 BSC	
L	0.26	0.46	0.010	0.018
θ	0°	8°	0°	8°

Note:

- Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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