

GSMBSS139YX7F

60V Dual N-Channel Enhancement MOSFET

Product Description

These Dual 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.

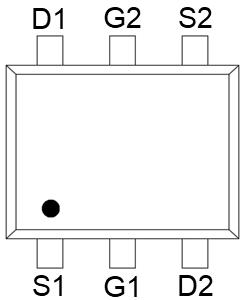
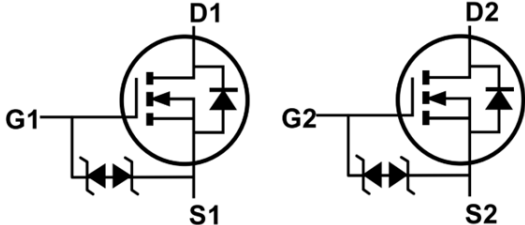
Features

- $R_{DS(ON)}=2.5\Omega@V_{GS}=4.5V$
- $R_{DS(ON)}=4\Omega@V_{GS}=2.5V$
- Improved dv/dt Capability
- Fast Switching
- SOT-563 Package Design
- ESD Protected : 1500V

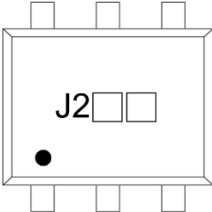
Applications

- Notebook
- Load Switch
- LED Applications

Packages & Pin Assignments

GSMBSS139YX7F (SOT-563)		Equivalent Circuit	
			
Pin	Description		
1	Source 1		
2	Gate 1		
3	Drain 2		
4	Source 2		
5	Gate 2		
6	Drain 1		

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSMBSS139YX7F	SOT-563	J2□□	3,000 PCS
GSMBSS139Y 1 2			
- Product Code: GSMBSS139Y		- Package Code: 1 is X7 for SOT-563	
		- Green Level: 2 is F for RoHS Compliant and Halogen Free	
Marking Information			
		- Product Code: J2	
		- GS Code: □□	

Absolute Maximum Ratings

T_A=25°C, unless otherwise specified

Symbol	Parameter	Value	Unit	
V _{DSS}	Drain-Source Voltage	60	V	
V _{GSS}	Gate-Source Voltage	±20	V	
I _D	Continuous Drain Current	T _A =25°C	0.2	A
I _{DM}	Pulsed Drain Current		0.8	A
P _D	Total Power Dissipation	T _A =25°C	0.225	W
T _J	Operating Junction Temperature Range		-55 to +150	°C
T _{STG}	Storage Temperature Range		-55 to +150	°C
R _{θJA}	Thermal Resistance, Junction to Ambient		556	°C/W

Electrical Characteristics

T_A=25°C, unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static characteristics						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.8	-	1.5	V
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±10	μA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =25V, V _{GS} =0V	-	-	0.1	μA
		V _{DS} =50V, V _{GS} =0V	-	-	0.5	
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	0.1	-	-	S
Dynamic characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	29	-	pF
C _{oss}	Output Capacitance		-	3.8	-	
C _{rss}	Reverse Transfer Capacitance		-	2.9	-	
Q _g	Total Gate Charge	V _{DS} =25V, V _{GS} =4.5V, I _D =0.2A	-	0.6	-	nC
Q _{gs}	Gate-Source Charge		-	0.22	-	
Q _{gd}	Gate-Drain Charge		-	0.2	-	
t _{d(on)}	Turn-On Delay Time	V _{DS} =25V, V _{GS} =10V, R _g =25Ω, I _D =0.2A	-	3.8	-	ns
t _r	Turn-On Rise Time		-	7.5	-	
t _{d(off)}	Turn-Off Delay Time		-	19	-	
t _f	Turn-Off Fall Time		-	15	-	

Typical Performance Characteristics

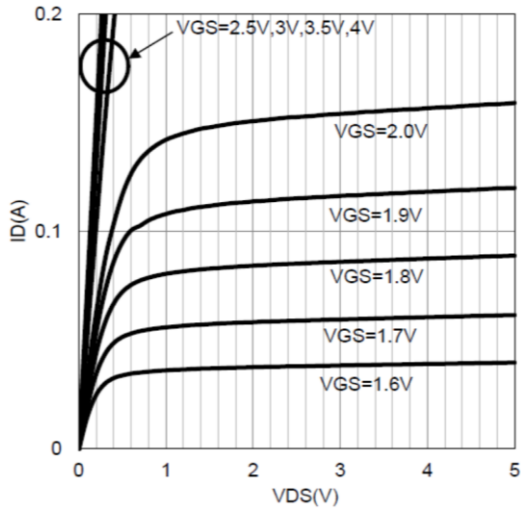


Figure 1. Typical Output Characteristics

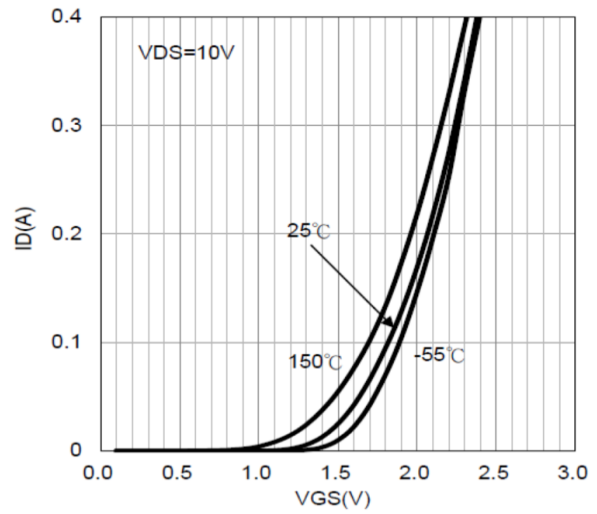


Figure 2. Typical Transfer Characteristics

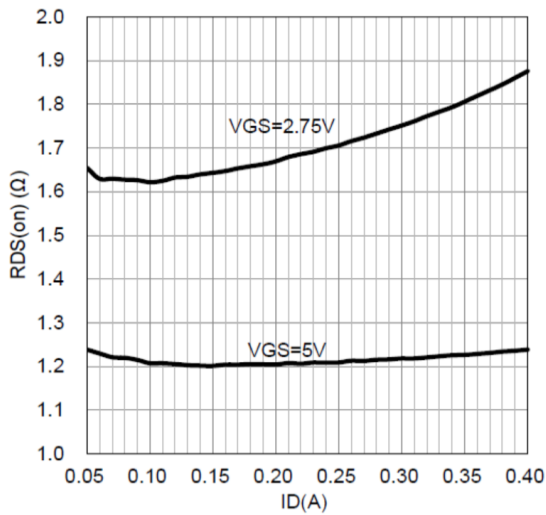


Figure 3. Drain-Source On-State resistance vs Drain Current

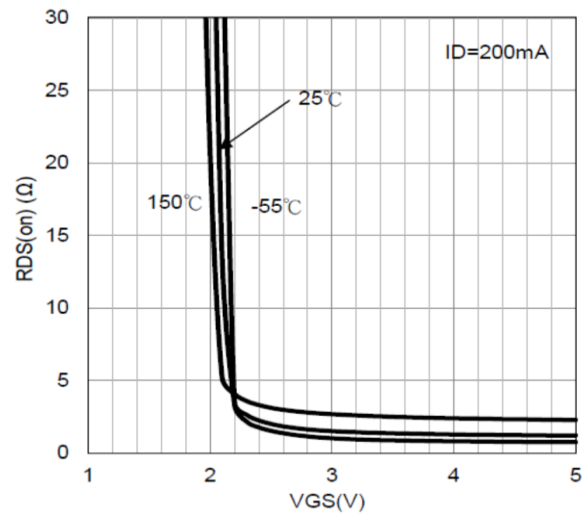


Figure 4. Drain-Source On-State Resistance vs Gate-Source Voltage

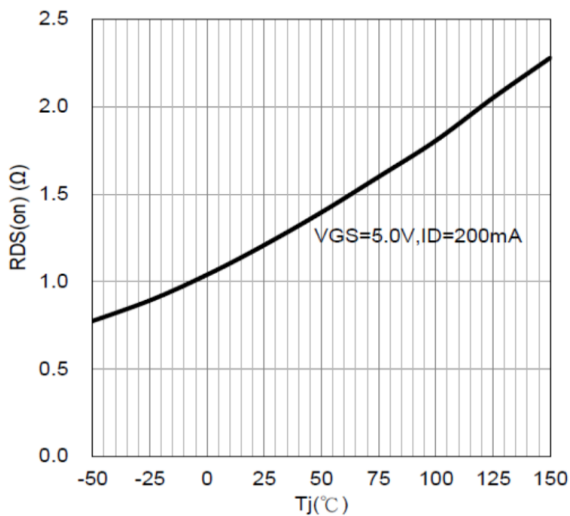


Figure 5. Drain-Source On-State Resistance vs Junction Temperature

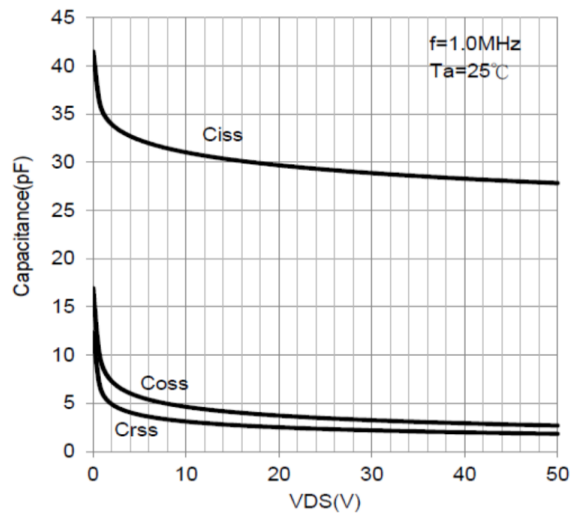


Figure 6. Capacitance vs Drain-to-Source Voltage

Typical Performance Characteristics

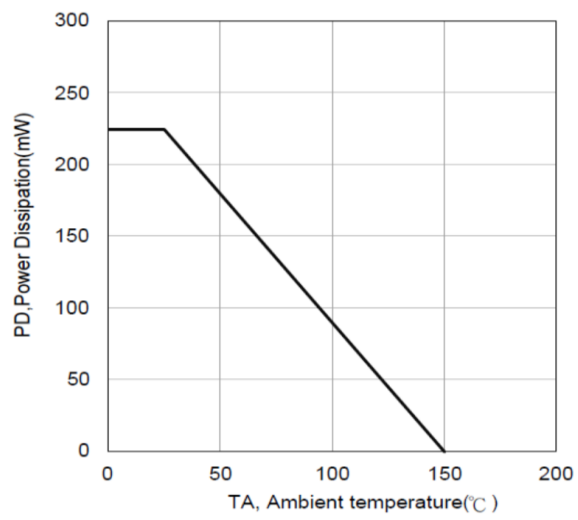
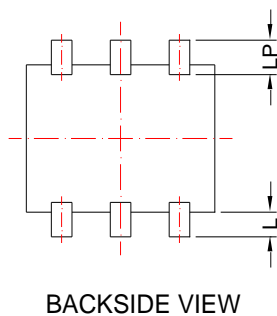
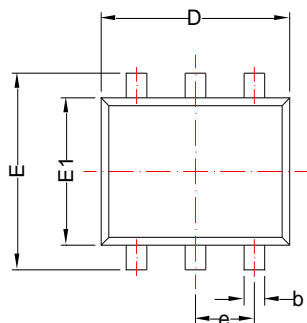


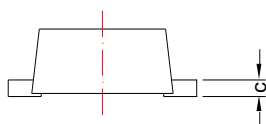
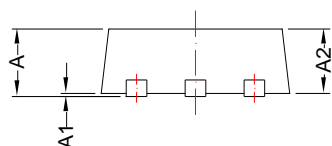
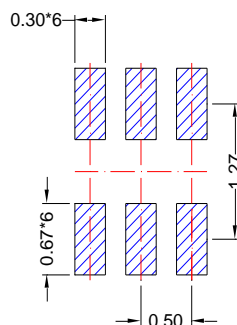
Figure 7. Power Dissipation vs Ambient Temperature

SOT-563

Package Dimension



Recommended Land Pattern



Dimensions

Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.45	0.65	0.018	0.026
A1	0.00	0.10	0.000	0.004
A2	0.45	0.60	0.018	0.024
b	0.15	0.30	0.006	0.012
c	0.07	0.20	0.003	0.008
D	1.50	1.70	0.059	0.067
E	1.50	1.70	0.059	0.067
E1	1.10	1.30	0.043	0.051
e	0.50 BSC		0.020 BSC	
L	0.10	0.30	0.004	0.012
LP	0.16	0.4	0.006	0.016





NOTE:



DIMENSION D AND E1 DO NOT INCLUDE MOLD FLASH, TIE BAR BURRS GATE BURRS AND INTERLEAD FLASH, NOT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.

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