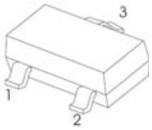
BSS139 N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	3Ω@10V	0.22A
	4Ω@4.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

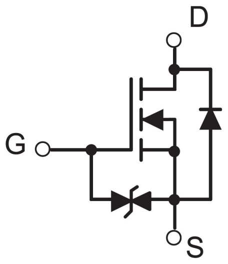
Features

- We declare that the material of product compliance with RoHS requirements and Halogen Free
- Low threshold voltage,makes it ideal for low voltage applications
- ESD Protected

Applications

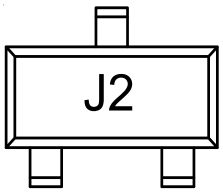
- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- Battery Operated Systems
- Solid-State Relays

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



J2 = Device Marking Code

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.22	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical Characteristics (T_A=25°C unless otherwise specified)

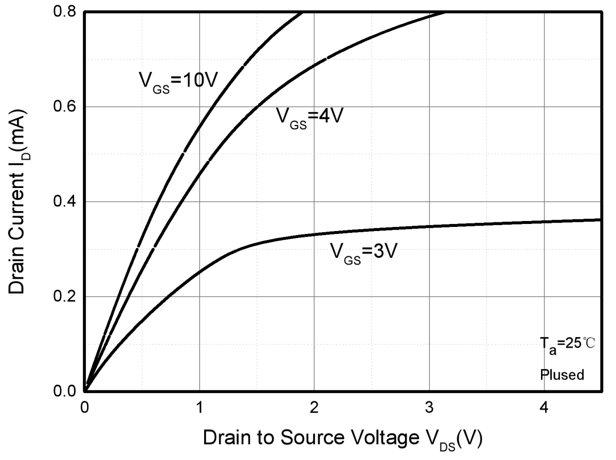
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =48V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±5	μA
Gate threshold voltage$^{1)}$	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D =250μA	0.8	1	1.45	V
Drain-source on-resistance$^{1)}$	$R_{DS(on)}$	V_{GS} =10V, I_D =500mA		1.5	3	Ω
		V_{GS} =4.5V, I_D =200mA		1.8	4	
Dynamic characteristics$^{2)}$						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		27		pF
Output Capacitance	C_{oss}			13		
Reverse Transfer Capacitance	C_{rss}			6		
Switching Characteristics$^{1)2)}$						
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V,I_D=0.29A, V_{GS}=10V,R_G=6Ω			5	nS
Rise time	tr				18	
Turn-off delay time	$t_{d(off)}$				36	
Fall tim	tf				14	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=500mA	0.5		1.4	V

Notes:

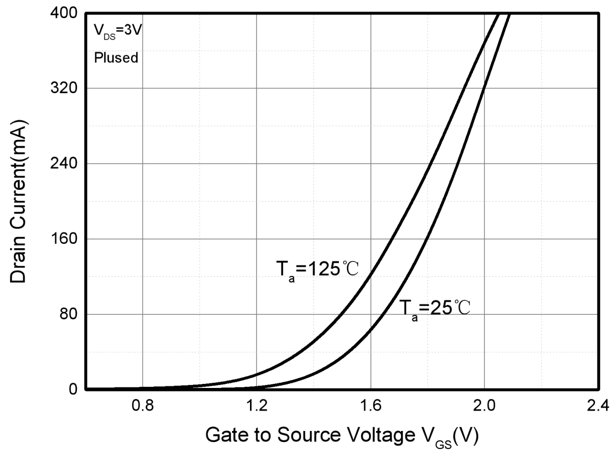
1) Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%.

2) These parameters have no way to verify.

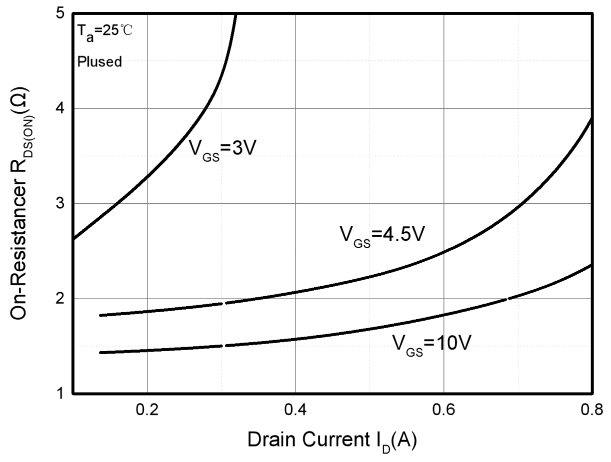
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



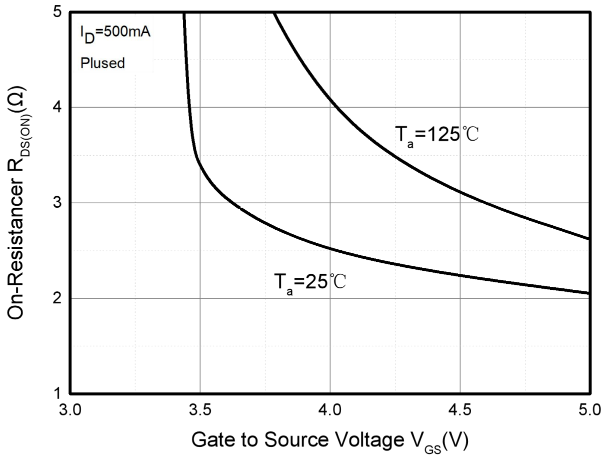
Output Characteristics



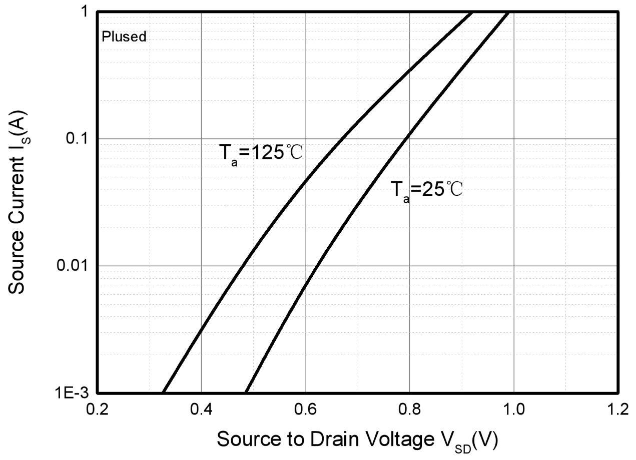
Transfer Characteristics



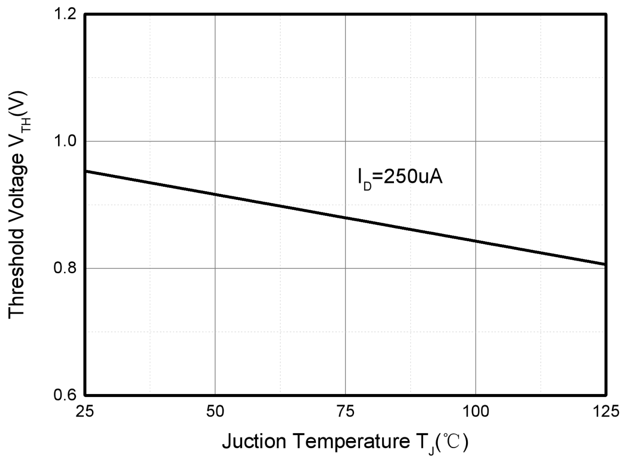
RDS(ON)——ID



RDS(ON)——VGS

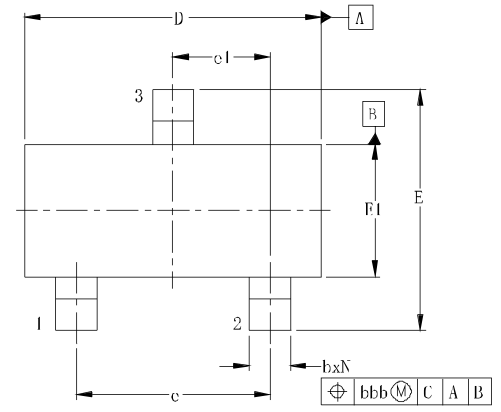


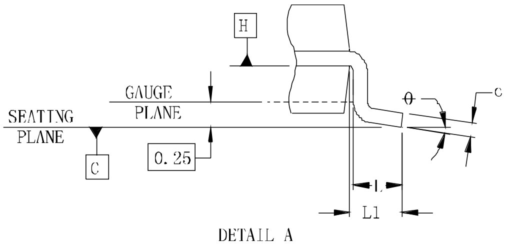
IS——VSD

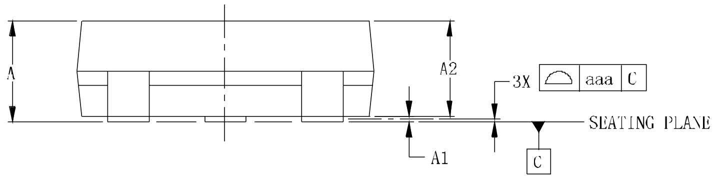


Threshold Voltage

SOT-23 Package Outline Drawing

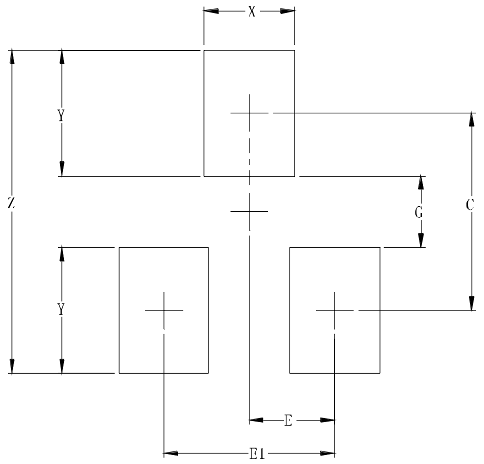






DIMENSIONS						
SYM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	-	0.044	0.89	-	1.12
A1	0.000	-	0.004	0.01	-	0.10
A2	0.035	0.037	0.040	0.88	0.95	1.02
b	0.012	-	0.020	0.30	-	0.51
c	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.90BSC		
e1	0.037			0.95BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	0.022			0.55		
N	3			3		
θ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.008			0.20		

Suggested Land Pattern



DIMENSIONS		
SYM	INCHES	MILLIMETERS
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60

Contact Information

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