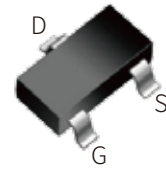


## FEATURES

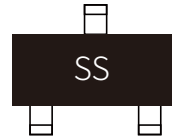
- | High density cell design for extremely low RDS(on)
- | Rugged and Reliable



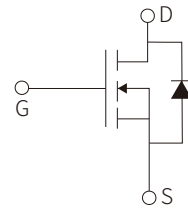
SOT-23

## APPLICATION

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



Marking



Schematic Symbol

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	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	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$

## ELECTRICAL CHARACTERISTICS (Ta=25°C )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	50			V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS1}$	$V_{DS}=50V, V_{GS}=0V$			0.5	$\mu A$
	$I_{DSS2}$	$V_{DS}=30V, V_{GS}=0V$			100	nA
Gate Threshold Voltage <sup>1</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8		1.5	V
Drain-source On-Resistance <sup>1</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.22A$		1.0	3.0	$\Omega$
		$V_{GS}=4.5V, I_D=0.22A$		1.1	5.0	$\Omega$
Forward Transconductance <sup>1</sup>	$g_{FS}$	$V_{DS}=10V, I_D=0.22A$		0.13		S
<b>Dynamic Characteristics<sup>2</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		26.5		pF
Output Capacitance	$C_{oss}$			12.9		pF
Reverse Transfer Capacitance	$C_{rss}$			5.9		pF
<b>Switching Characteristics<sup>1,2</sup></b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=0.29A$ $V_{GS}=10V, R_G=6\Omega$			5	ns
Turn-on Rise Time	$t_r$				18	ns
Turn-Off Delay Time	$t_{d(off)}$				36	ns
Turn-off Fall Time	$t_f$				14	ns
<b>Source-Drain Diode Characteristics<sup>1</sup></b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=0.44A$		1.15	1.4	V

Notes:

1. Pulse Test ; Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
2. These Parameters Have No Way to Verify.

# PARAMETER CHARACTERISTIC CURVE

Figure1: Output Characteristics

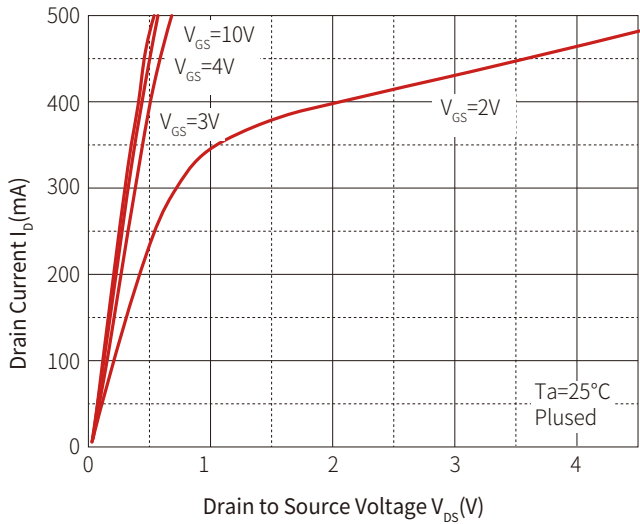


Figure2: Transfer Characteristics

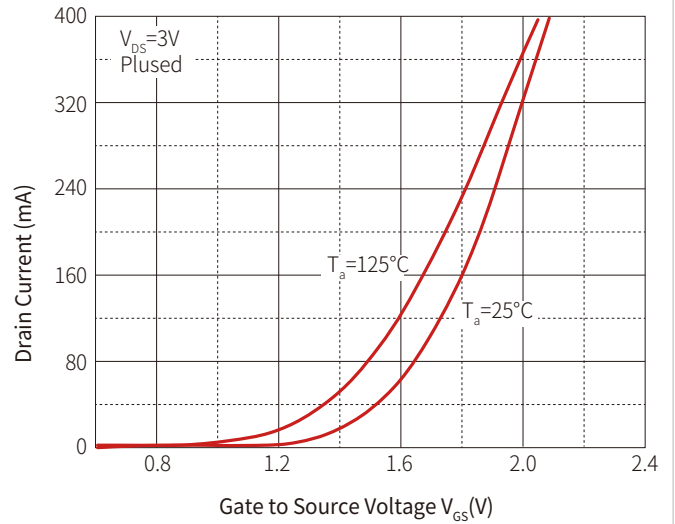


Figure3:  $R_{DS(ON)} - I_D$

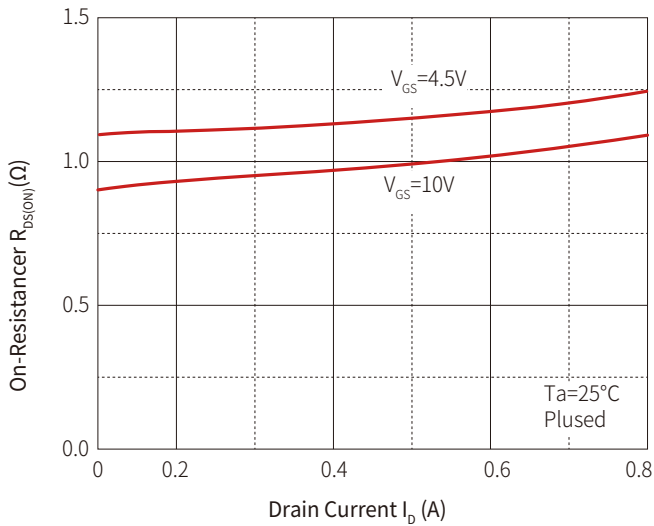


Figure 4:  $R_{DS(ON)} - V_{GS}$

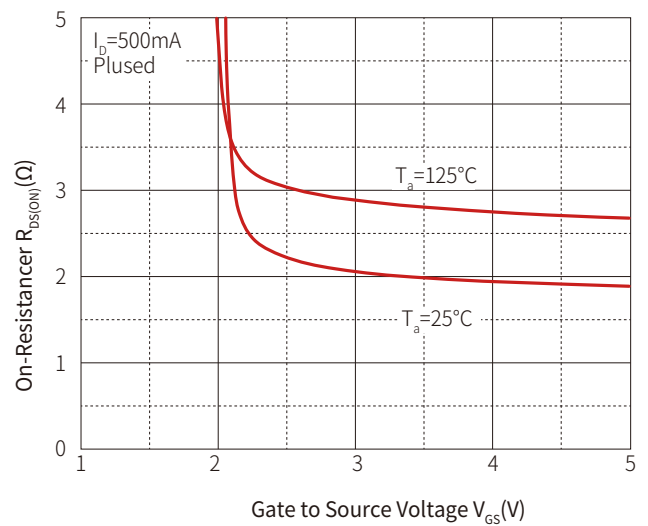


Figure 5:  $I_s$  —  $V_{SD}$

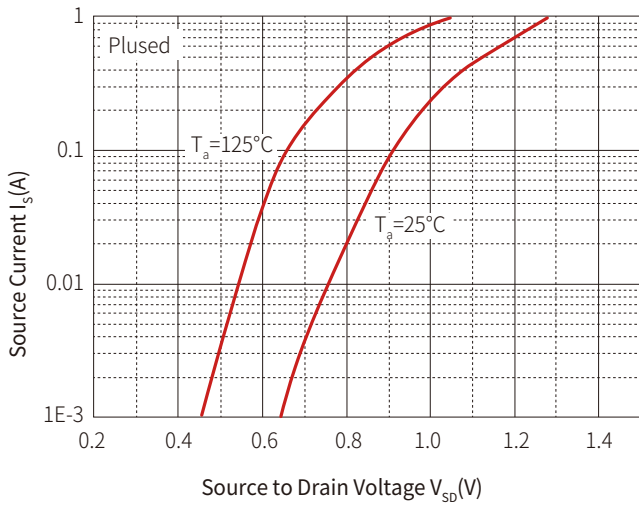
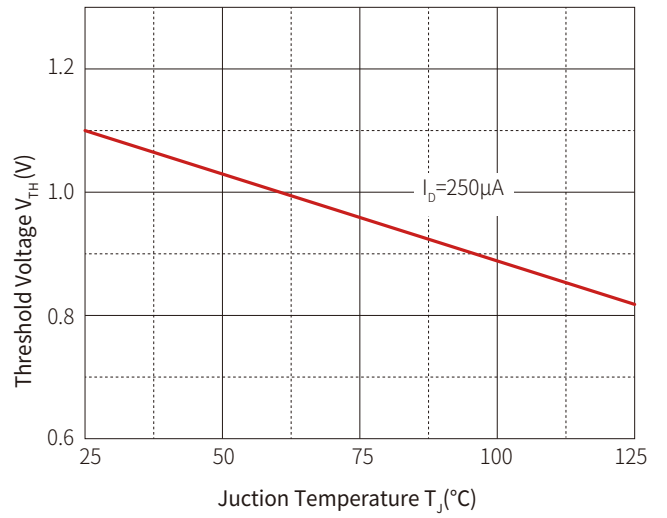
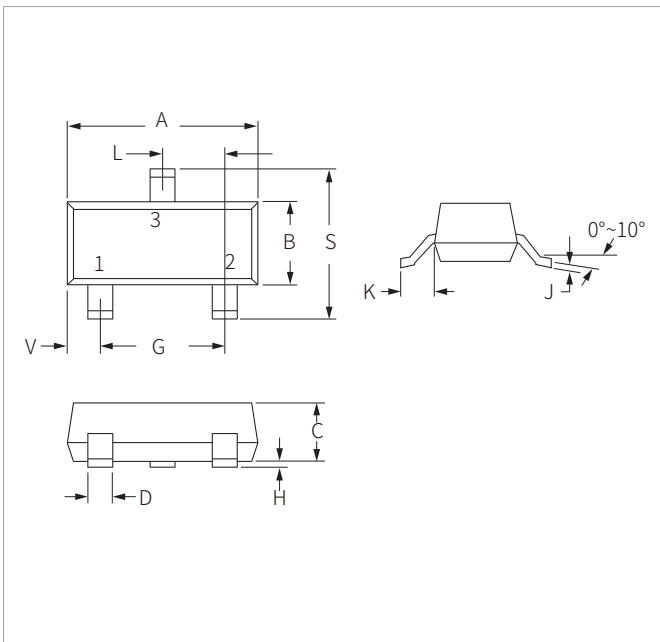


Figure 6: Threshold Voltage

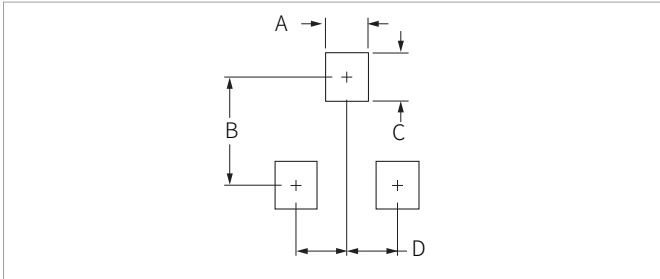


## SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BSS138	SOT-23	3000PCS	7"

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Email: [sales18@semiware.com](mailto:sales18@semiware.com)

**Customer Service**

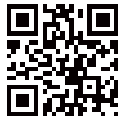
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Website



Wechat

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