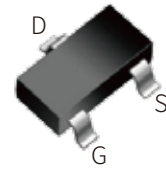


FEATURES

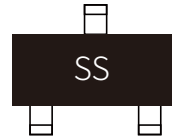
- | High density cell design for extremely low RDS(on)
- | Rugged and Reliable



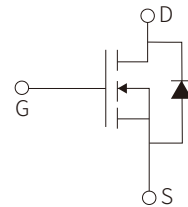
SOT-23

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

RoHS	Compliance with 2011/65/EU
HF	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}	± 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
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	50			V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS1}	$V_{DS}=50V, V_{GS}=0V$			0.5	μA
	I_{DSS2}	$V_{DS}=30V, V_{GS}=0V$			100	nA
Gate Threshold Voltage ¹	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8		1.5	V
Drain-source On-Resistance ¹	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.22A$		1.0	3.0	Ω
		$V_{GS}=4.5V, I_D=0.22A$		1.1	5.0	Ω
Forward Transconductance ¹	g_{FS}	$V_{DS}=10V, I_D=0.22A$		0.13		S
Dynamic Characteristics²						
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
Switching Characteristics^{1,2}						
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
Source-Drain Diode Characteristics¹						
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

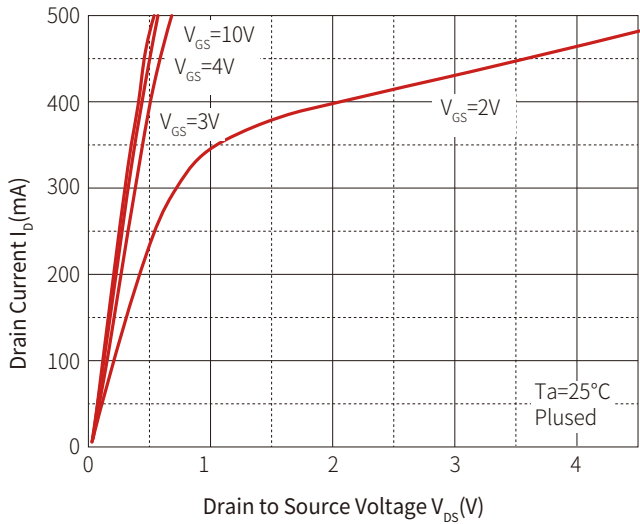


Figure2: Transfer Characteristics

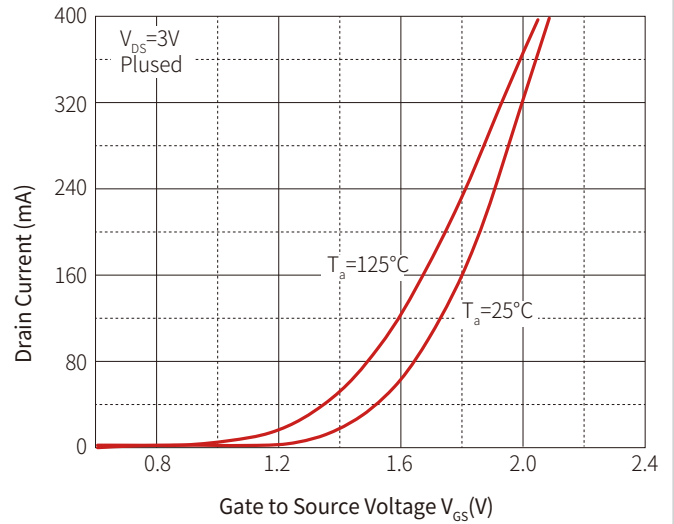


Figure3: $R_{DS(ON)} - I_D$

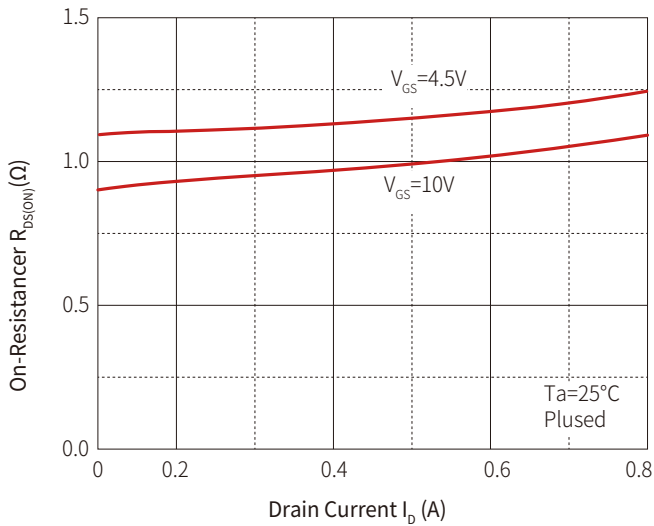


Figure 4: $R_{DS(ON)} - V_{GS}$

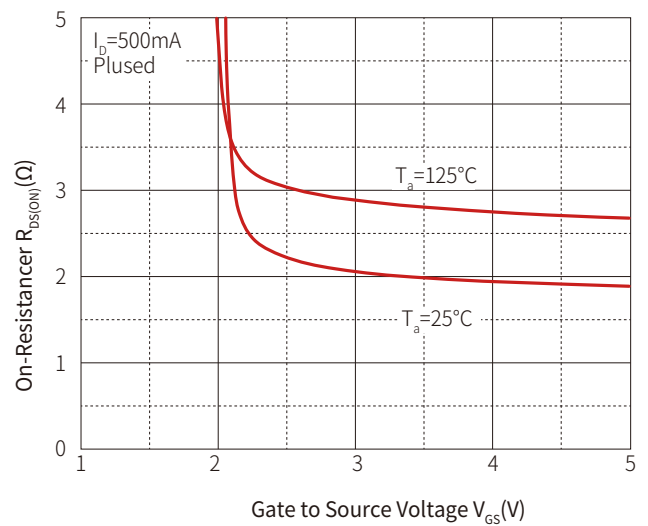


Figure 5: I_S — V_{SD}

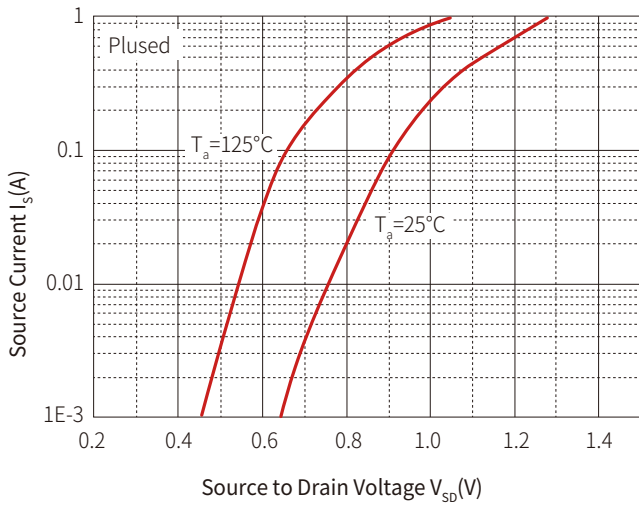
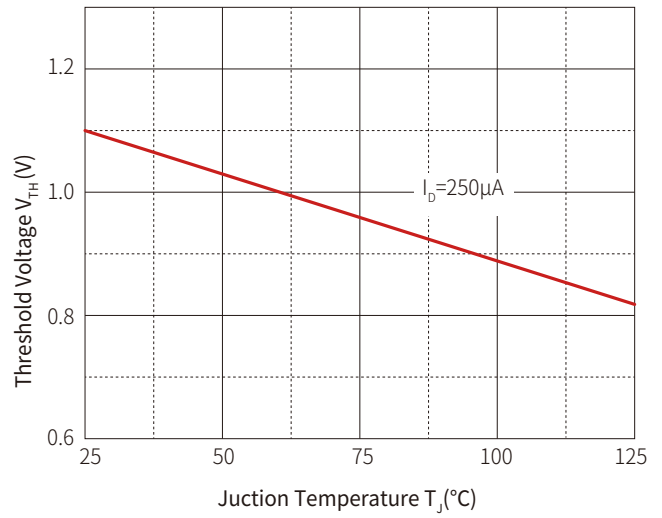
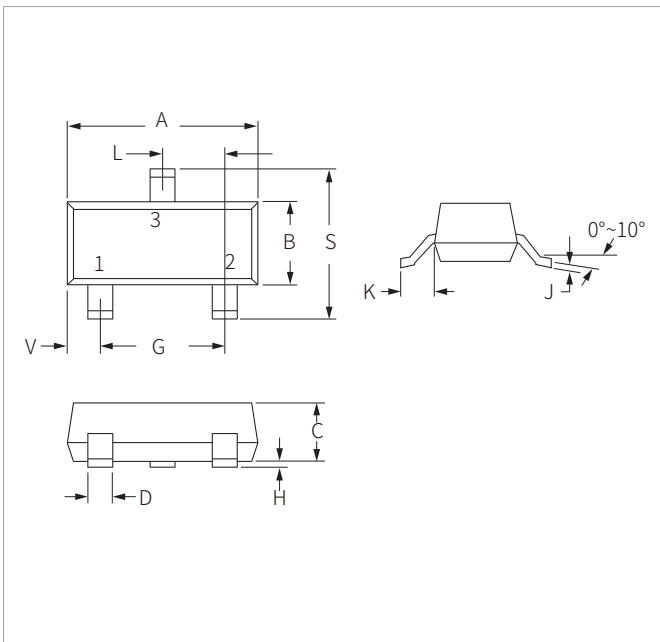


Figure 6: Threshold Voltage

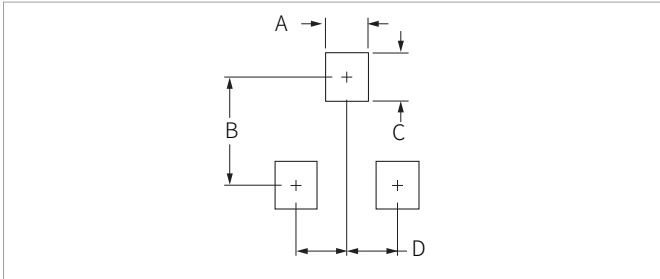


SOT-23 PACKAGE INFORMATION



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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Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

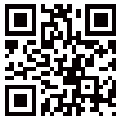
Tel: 86-21-5484-1001
Email: sales17@semiware.com

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By QR Code

Website



Wechat

To find your local partner within Semiware' s global website: www.semiware.com

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