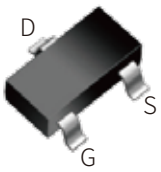
FEATURES

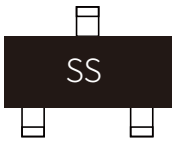
- High density cell design for extremely low RDS(on)
- Rugged and Relaible



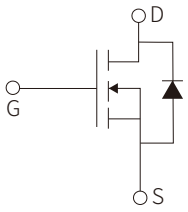
SOT-23

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	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to 150	°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=250μA	50			V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±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=250μA	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 Tranconductance[1]	g_{FS}	V_{DS}=10V,I_D=0.22A		0.13		S
Dynamic Characteristics[2]						
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=6Ω			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 Characteristics[1]						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=0.44A		1.15	1.4	V

Notes:

1. Pulse Test ; Pulse Width ⩽300μs, Duty Cycle ⩽2%.

2. These Parameters Have No Way to Verify.

PARAMETER CHARACTERISTIC CURVE

Figure1: Output Characteristics

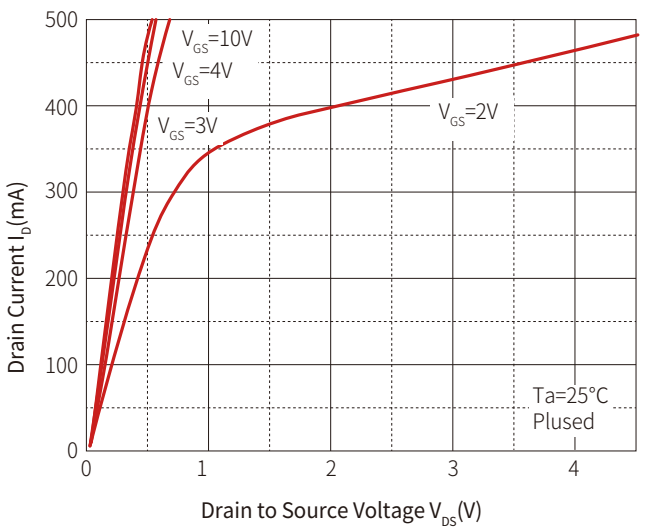


Figure2: Transfer Characteristics

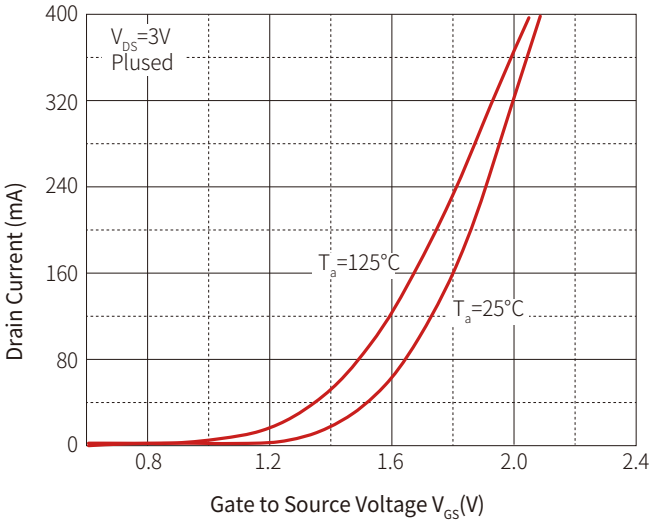


Figure3: $R_{DS(ON)}$——I_D

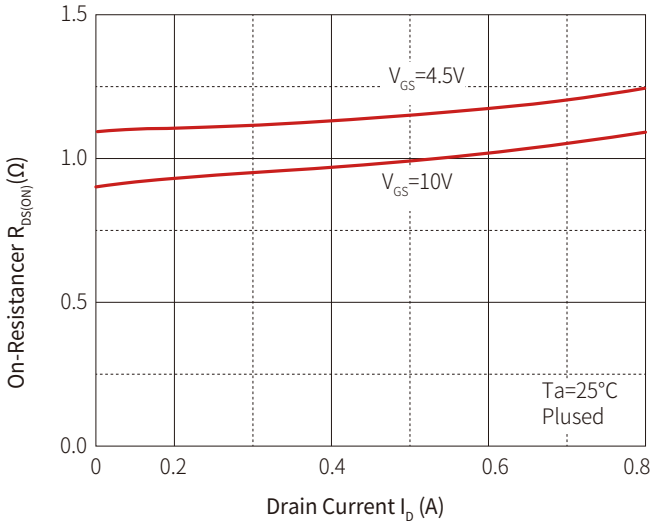


Figure 4: $R_{DS(ON)}$——V_{GS}

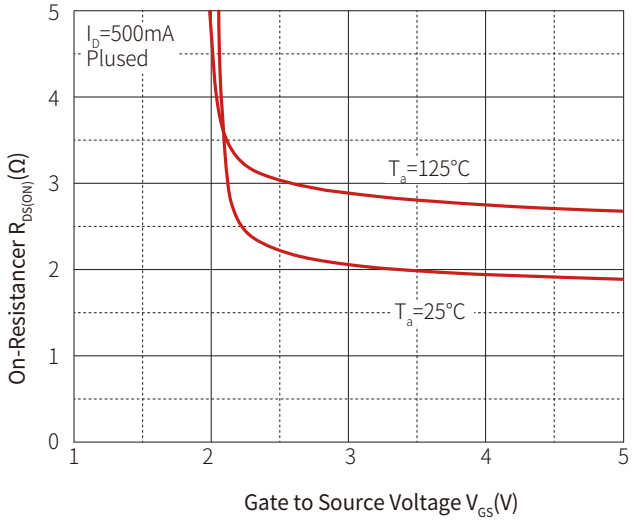


Figure 5: I_S——V_{SD}

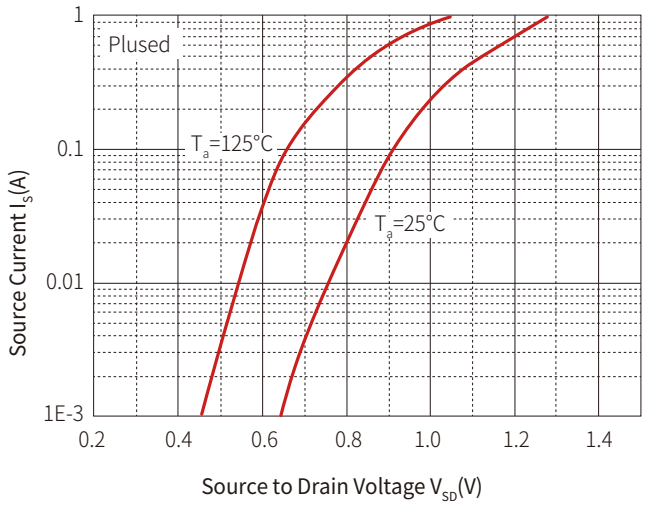
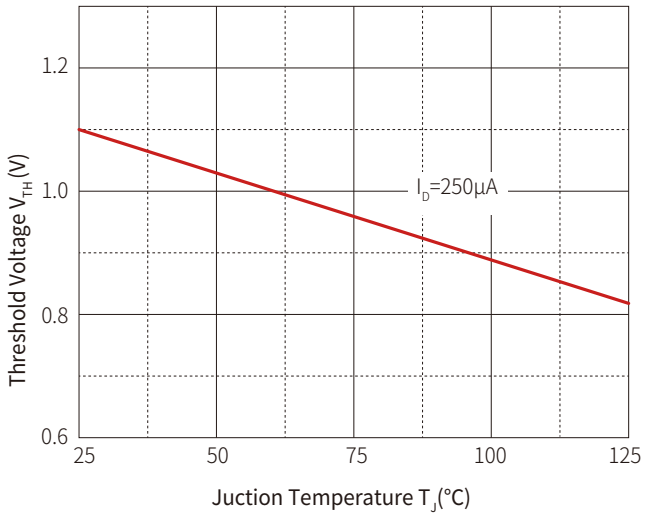
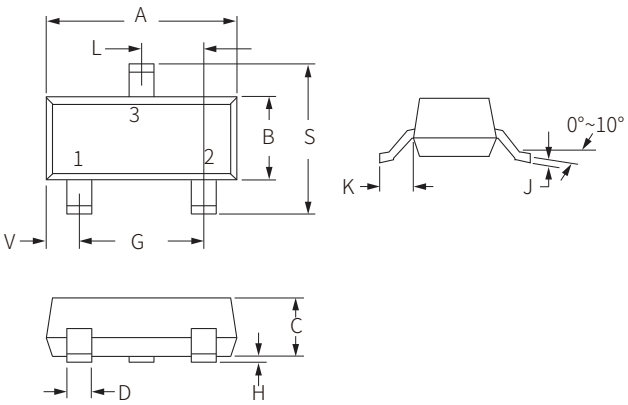


Figure 6: Threshold Voltage

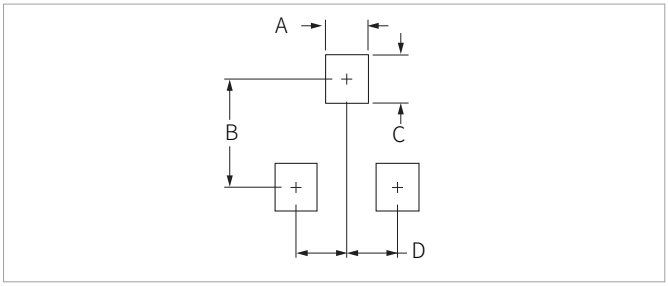


SOT-23 PACKAGE INFORMATION



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”

Headquarters
No.3387 Shendu Road
Pujiang I&E Park
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

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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