

1.Description

The BSS138 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch applications.

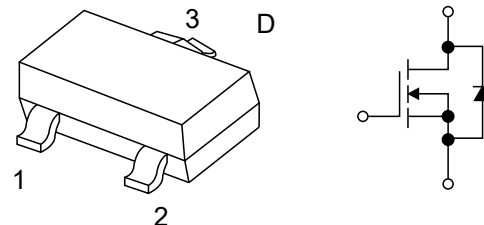
2.Features

- $V_{DS(V)}=50V$
- $I_D=300mA(V_{GS}=10V)$
- $R_{DS(ON)} < 2.5\Omega(V_{GS}=10V)$
- $R_{DS(ON)} < 3.5\Omega(V_{GS}=2.5V)$
- Low On-Resistance
- ESD Rating: 1.5KV HBM

3.Pinning information

Pin	Symbol	Description
1	G	GATE
2	S	SOURCE
3	D	DRAIN

SOT-23



4.Maximum ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage $R_{GS} \leq 20K\Omega$	V_{DG}	50	
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	300	mA
Power Dissipation	P_D	300	mW
Thermal Resistance.Junction- to-Ambient	$R_{\theta JA}$	417	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 to 150	



5.Static Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	$V_{GS}=0V, I_D=250\mu A$	50			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V$			0.5	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7		1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=300mA$			2.5	Ω
		$V_{GS}=2.5V, I_D=100mA$			3.5	
Forward transconductance	g_{FS}	$V_{DS}=25V, I_D=0.3A, f=1KHz$	100			mS
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=10V, f=1MHz$			50	pF
Output Capacitance	C_{oss}				25	
Reverse Transfer Capacitance	C_{rss}				8	
Turn-On DelayTime	$t_{D(on)}$	$V_{DS}=30V, I_D=0.3A, R_G=50\Omega$			20	ns
Turn-Off DelayTime	$t_{D(off)}$				20	

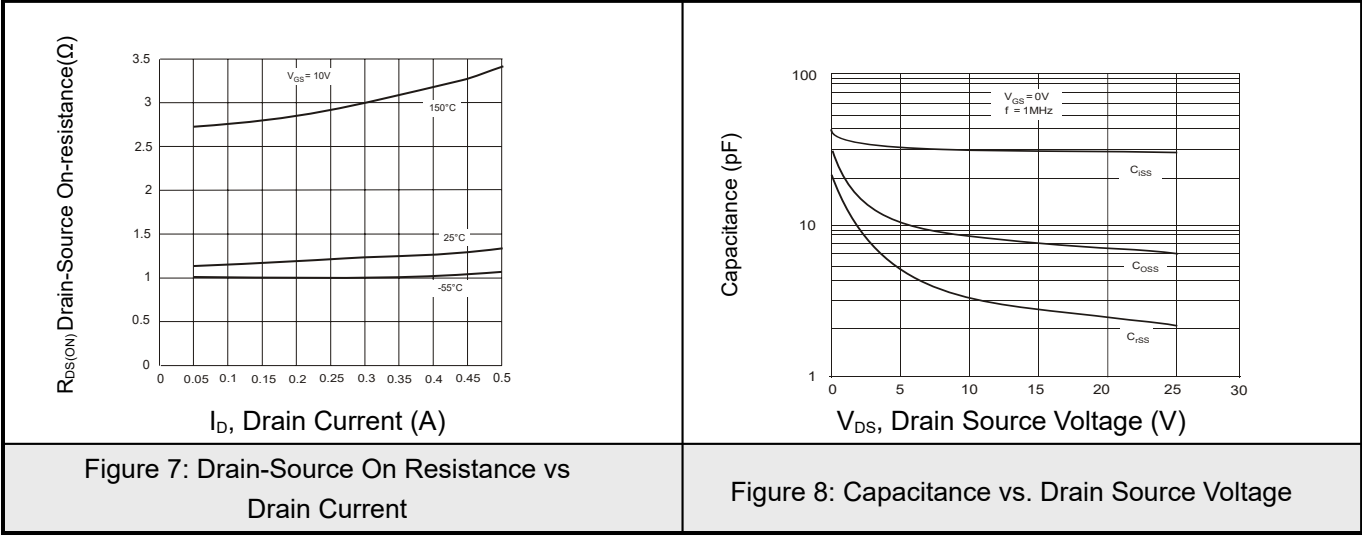


6.1Typical Characteristics

Figure 1: Drain-Source Current vs. Drain-Source Voltage	Figure 2: Transfer Characteristics
Figure 3: Transfer Characteristics	Figure 4: Gate Threshold Voltage vs. Junction Temperature
Figure 5: Drain-Source On Resistance vs. Drain Current	Figure 6: Body Diode Current vs. Body Diode Voltage

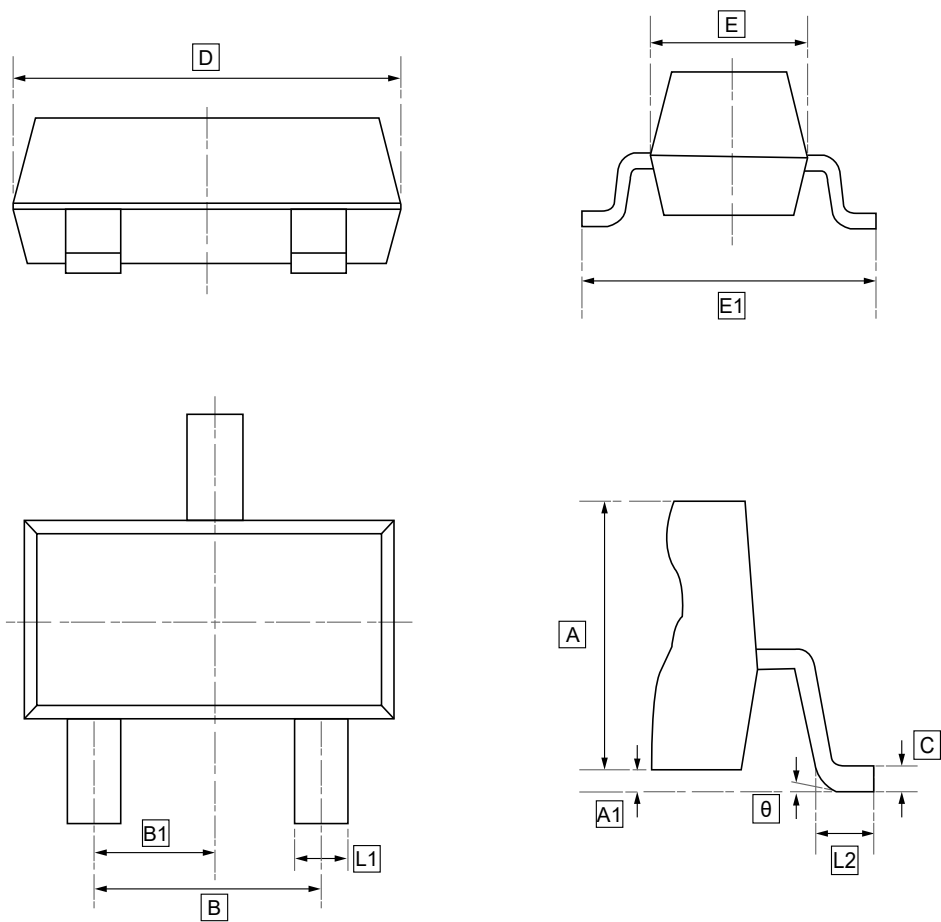


6.2Typical Characterisitics





7.SOT-23 Package Outline Dimensions

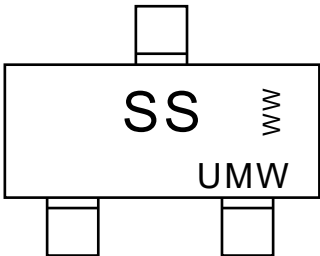


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	L1	L2	C	D	E	E1	B	B1	θ
Min	1.050	0.000	0.300	0.350	0.100	2.820	1.500	2.700	1.800	0.950	0°
Max	1.150	0.100	0.500	0.550	0.200	3.020	1.700	2.900	2.000	TYP	8°



8.Ordering information



WW: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW BSS138	SOT-23	3000	Tape and reel



9.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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