UMW BSS138

50V N-Channel MOSFET

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.

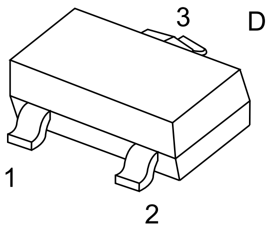
2.Features

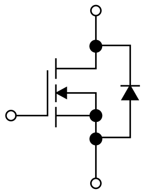
- $V_{DS\ (V)}$=50V
- I_D=300mA(V_{GS}=10V)
- $R_{DS(ON)} < 2.5\Omega$(V_{GS}=10V)
- $R_{DS(ON)} < 3.5\Omega$(V_{GS}=2.5V)
- Low On-Resistance

3.Pinning information

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

SOT-23





4.Maximum ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	50	V
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	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to 150	

5.Static Electrical Characteristics (T_A= 25°C Unless Otherwise Noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V, I_D=250μA	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}=±20V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	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=50Ω			20	ns
Turn-Off DelayTime	$t_{D(off)}$				20	

6.1Typical Characterisitics

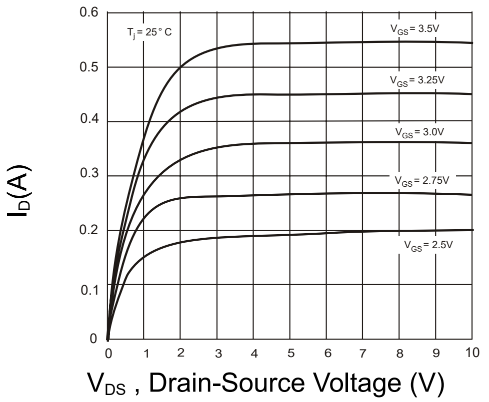


Figure 1: Drain-Source Currentvs.Drain-SourceVoltage

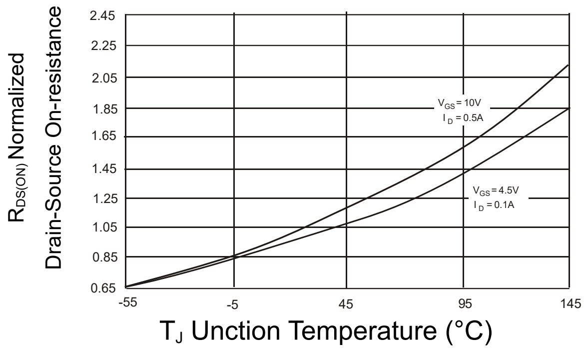


Figure 2: Transfer Characteristics

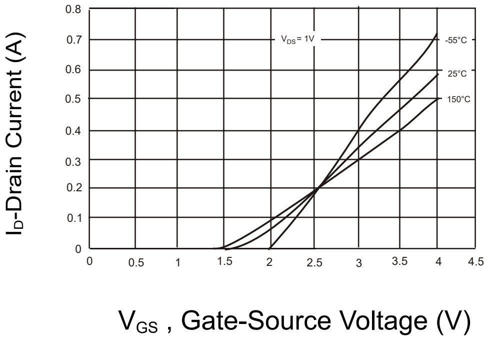


Figure 3: Transfer Characteristics

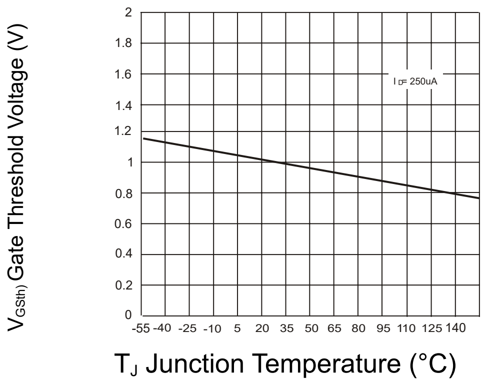


Figure 4: Gate Threshold Voltage vs
Junction Temperature

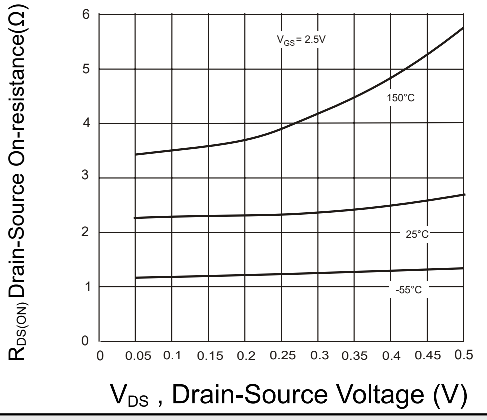


Figure 5: Drain-Source On Resistance vs
Drain Current

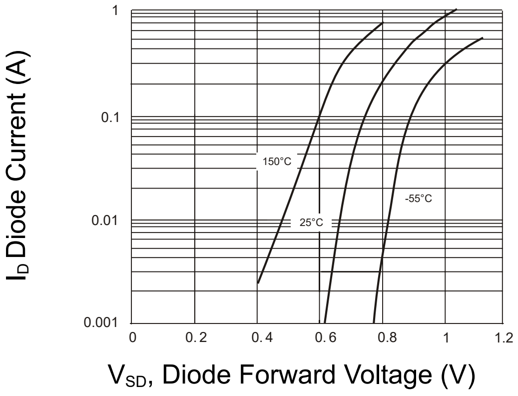


Figure 6: Body Diode Current vs. Body Diode Voltage

6.2Typical Characterisitics

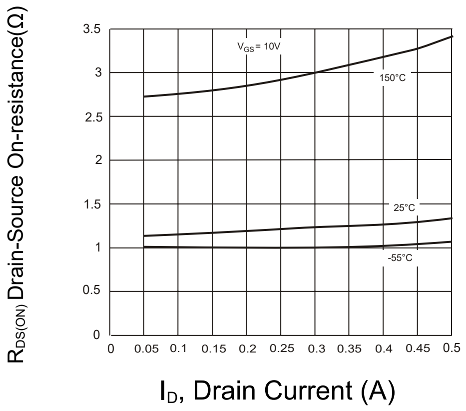


Figure 7: Drain-Source On Resistance vs Drain Current

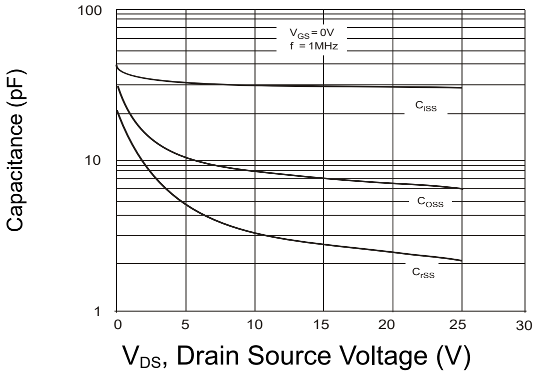
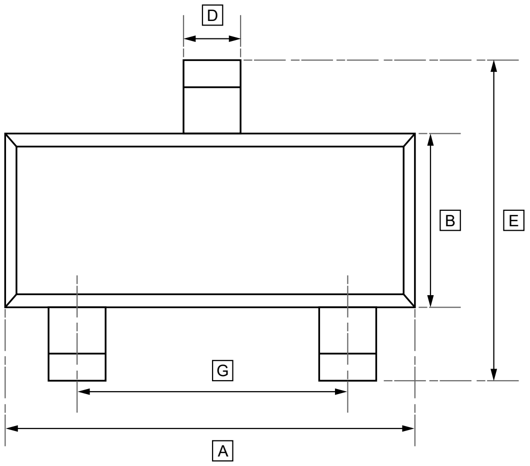
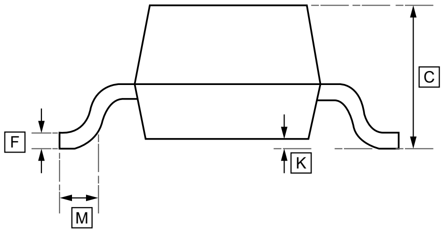
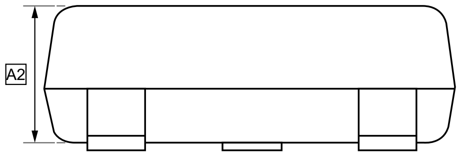


Figure 8: Capacitance vs. Drain Source Voltage

7.SOT-23 Package Outline Dimensions



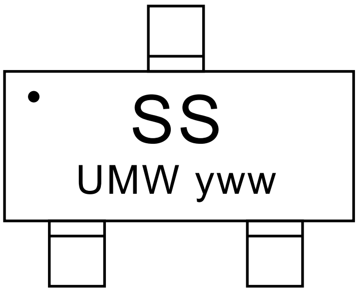




DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.85	1.20	0.90	0.40	2.25	1.80	0.00	0.30	0.95	0.095
Max	3.04	1.40	1.10	0.50	2.55	2.00	0.10	-	1.05	0.115

8.Ordering Information



yww: 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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