UMW BSS123

100V N-Channel MOSFET

1.Description

The BSS123 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltage as low as 2.5V. This device is suitable for use as a load switch or in PWM application.

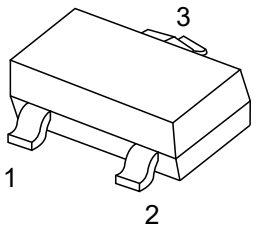
2.Features

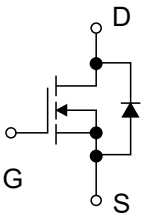
- $V_{DS\ (V)}$=100V
- I_D=0.17A(V_{GS}=10V)
- $R_{DS(ON)}$<6Ω(V_{GS}=10V)
- $R_{DS(ON)}$<10Ω(V_{GS}=4.5V)

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	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Curren	I_D	0.17	A
Pulsed Drain Current	I_{DM}	0.68	A
Power Dissipation	P_D	0.36	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	350	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~+150	°C

5.Electrical Characteristics T_A=25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
		V_{DS}=100V,V_{GS}=0V,T_J=55°C			60	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=1mA	0.8		2.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=0.17A			6	Ω
		V_{GS}=4.5V, I_D=0.17A			10	
On state drain current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	0.68			A
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=0.17A	0.08			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		73		pF
Output Capacitance	C_{oss}			7		
Reverse Transfer Capacitance	C_{rss}			3.4		
Gate resistance	R_g	V_{GS}=15mV, f=1MHz		2.2		Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=30V I_D=0.17A		1.8	2.5	nC
Gate Source Charge	Q_{gs}			0.2		
Gate Drain Charge	Q_{gd}			0.3		
Turn-On DelayTime	$t_{D(on)}$	V_{DD}=30V, I_D=0.17A V_{GS}=10V, R_{GEN}=6Ω		1.7	3.4	ns
Turn-On Rise Time	t_r			9	18	
Turn-Off DelayTime	$t_{D(off)}$			17	31	
Turn-Off Fall Time	t_f			2.4	5	
Body Diode Reverse Recovery Time	t_{rr}	I_F=0.17A, dI/dt=100A/μs		11		
Body Diode Reverse Recovery Charge	Q_{rr}			3		nC
Maximum Body-Diode Continuous Current	I_S				0.17	A
Diode Forward Voltage	V_{SD}	I_S=0.17A, V_{GS}=0V			1.3	V

Note: Pulse Test: Pulse Width≤300 us, Duty Cycle≤2.0%

6.1Typical Characterisitics

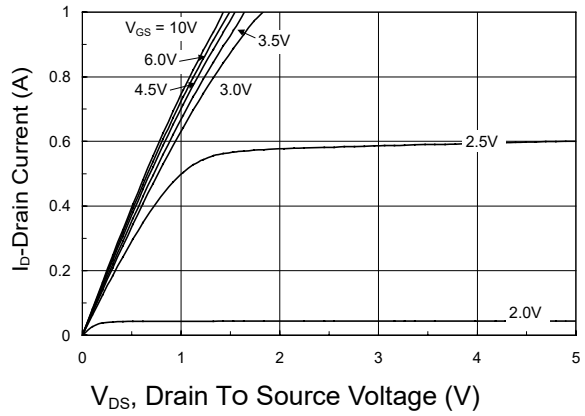


Figure 1: On-Region Characteristics

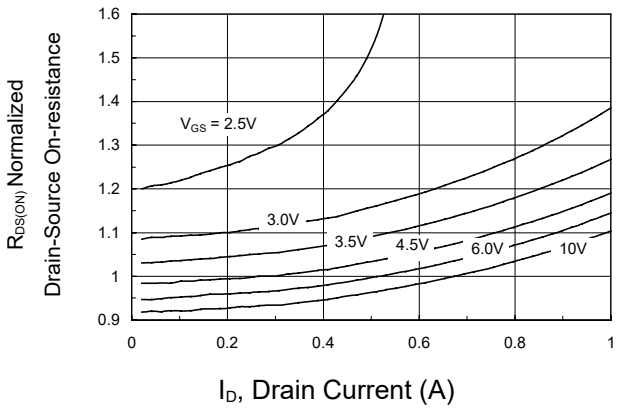


Figure 2: On-Resistance Variation with Drain Current and Gate Voltage.

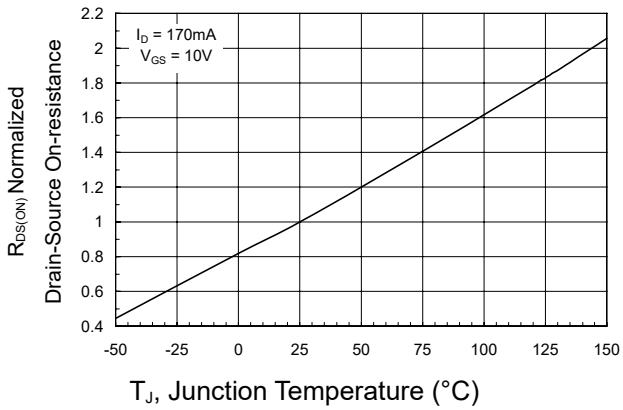


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

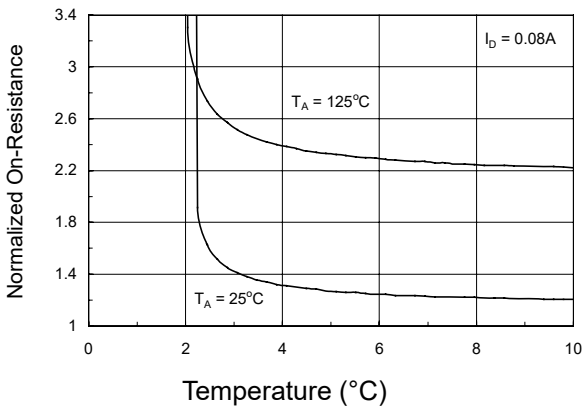


Figure 4: On-Resistance Variation with Gate-to-Source Voltage.

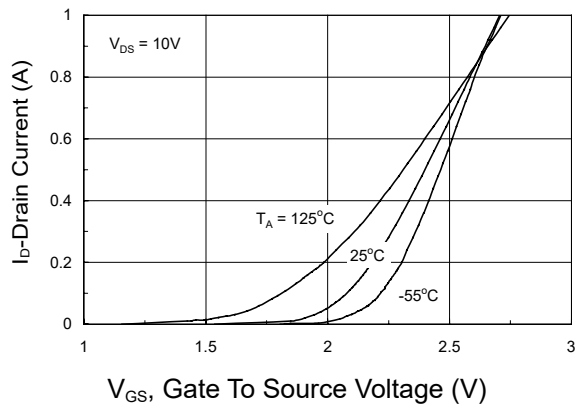


Figure 5: Transfer Characteristics.

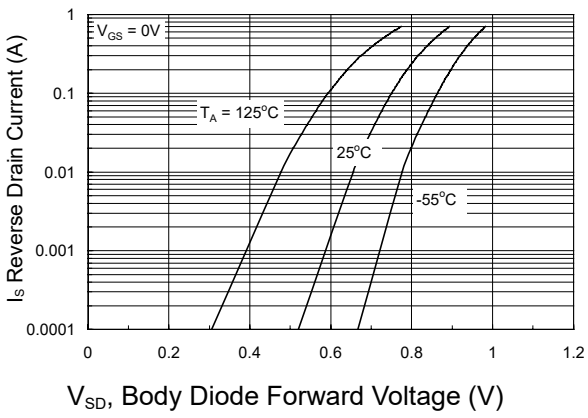


Figure 6: Body Diode Forward Voltage Variation with Source Current and Temperature.

6.2Typical Characterisitics

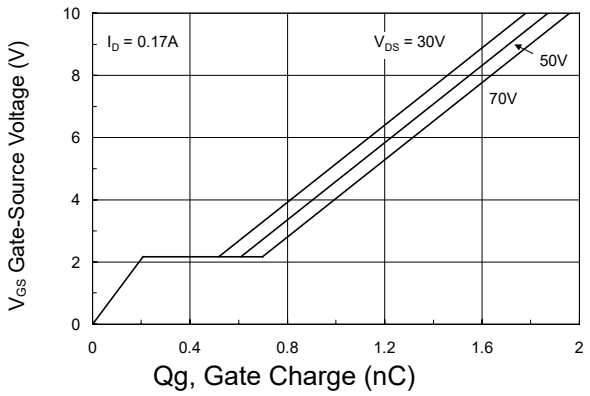


Figure 7: Gate-Charge Characteristics

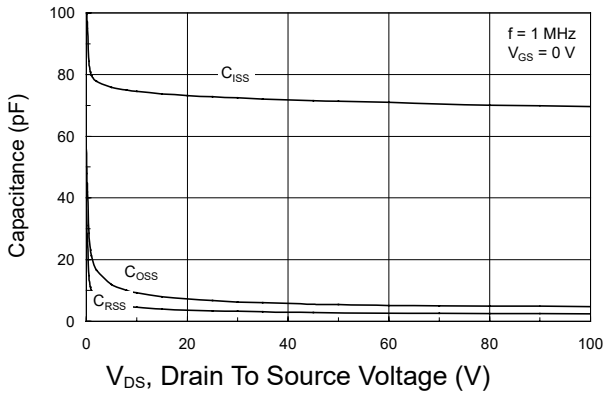


Figure 8: Capacitance Characteristics

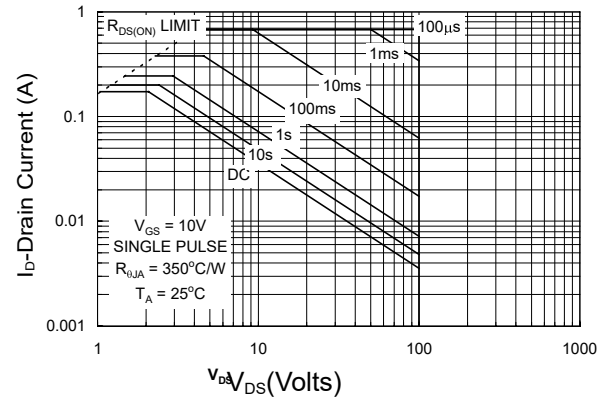


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

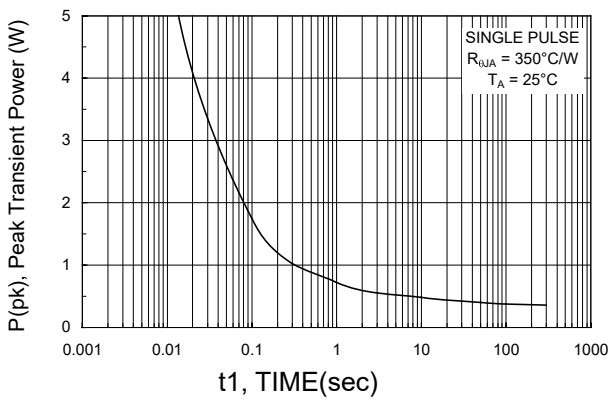
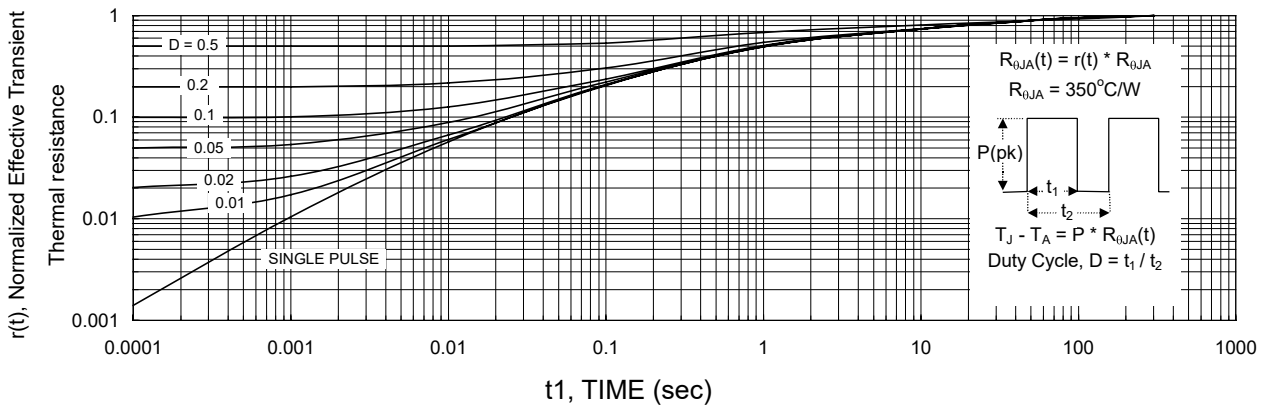
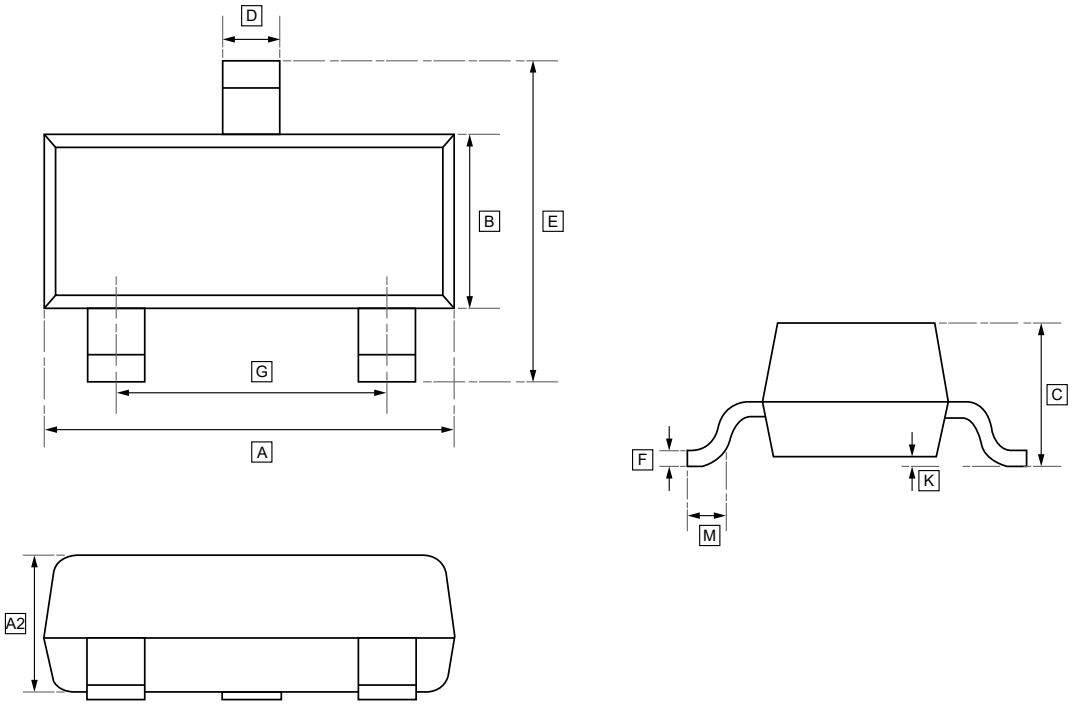


Figure 10: Single Pulse Maximum Power Dissipation.



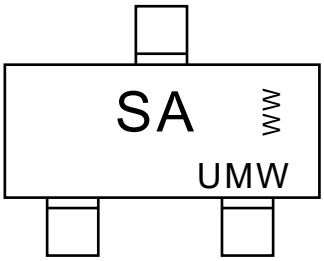
7.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.80	1.20	0.90	0.32	2.25	1.80	0.00	0.30	0.95	0.095
Max	3.04	1.40	1.10	0.55	2.55	2.00	0.10	-	1.05	0.115

8.Ordering Information



WW: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW BSS123	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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