UMW SI2310A

60V N-Channel MOSFET

1.Features

- $V_{DS(V)}$=60V
- I_D=3A
- $R_{DS(ON)}$<80mΩ(V_{GS}=10V)
- $R_{DS(ON)}$<95mΩ(V_{GS}=4.5V)

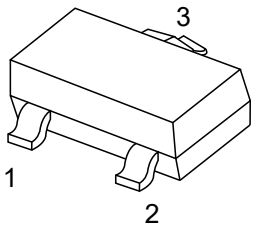
2.Applications

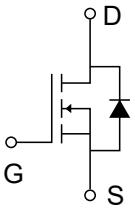
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift
- Battery Management for Ultra Small Portable

3.Pinning information

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

SOT-23





4.Absolute Maximum Ratings T_A= 25°C

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	3	A
	T_A=70°C		2.3	
Pulsed Drain Current *		I_{DM}	10	
Power Dissipation	T_A=25°C	P_D	1.38	W
Linear Derating Factor			0.01	W/°C
Thermal Resistance.Junction-to-ambient		R_{thJa}	90	°C/W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

*2.Pulse width ≤ 300us ,duty cycle ≤ 2%.

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	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			10	μA
		V_{DS}=48V, V_{GS}=0V, T_J=70°C			25	
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=-250μA	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3A		67	80	mΩ
		V_{GS}=4.5V, I_D=2A		77	95	
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=3A		5		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		490	780	pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			40		
Total Gate Charge	Q_g	V_{DS}=48V V_{GS}=4.5V I_D=3A		6	10	nC
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			3		
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=10V, V_{DS}=30V R_D=30Ω, R_{GEN}=3.3Ω I_D=1A		6		ns
Turn-On Rise Time	t_r			5		
Turn-Off DelayTime	$t_{D(off)}$			16		
Turn-Off Fall Time	t_f			3		
Body Diode Reverse Recovery Time	t_{rr}	I_S=3A, dI/dt=100A/μs		25		
Body Diode Reverse Recovery Charge	Q_{rr}	I_S=3A, dI/dt=100A/μs		26		nC
Diode Forward Voltage	V_{SD}	I_S=1.2A, V_{GS}=0V			1.2	V

6.1Typical Characterisitics

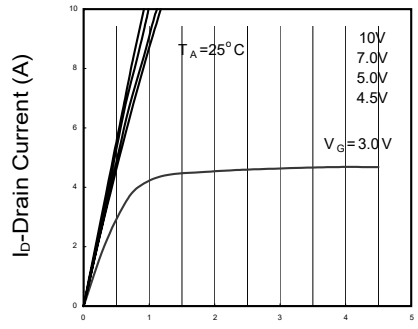


Fig 1. Typical Output Characteristics

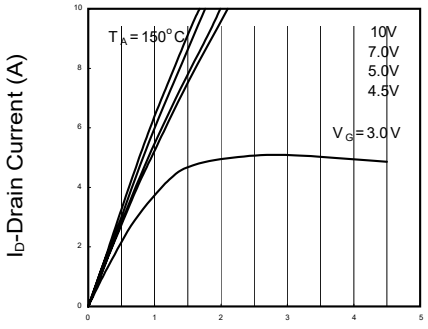


Fig 2. Typical Output Characteristics

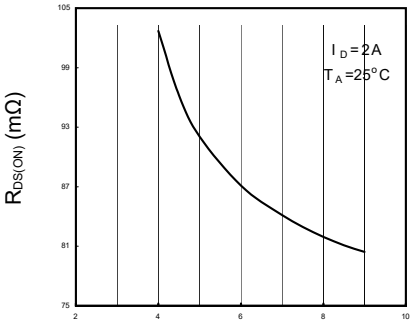


Fig 3. On-Resistance v.s. Gate Voltage

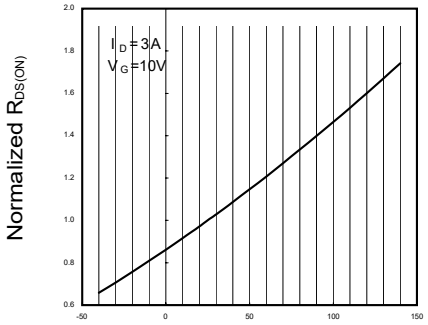


Fig 4. Normalized On-Resistance v.s. Junction Temperature

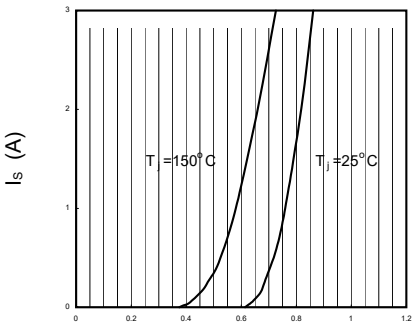


Fig 5. Forward Characteristic of Reverse Diode

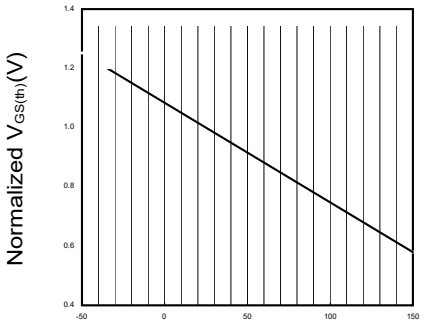


Fig 6. Gate Threshold Voltage v.s. Reverse Diode Junction Temperature

6.2Typical Characterisitics

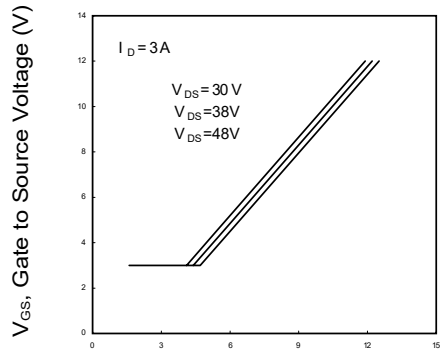


Fig 7. Gate Charge Characteristics

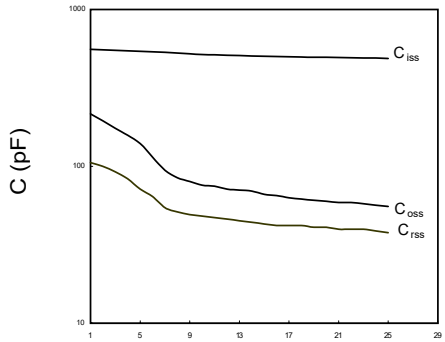


Fig 8. Typical Capacitance Characteristics

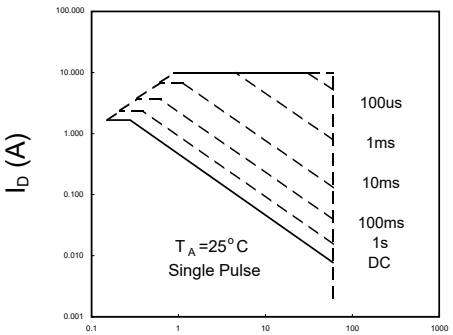


Fig 9. Maximum Safe Operating Area

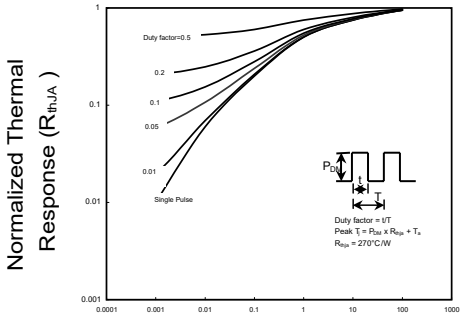
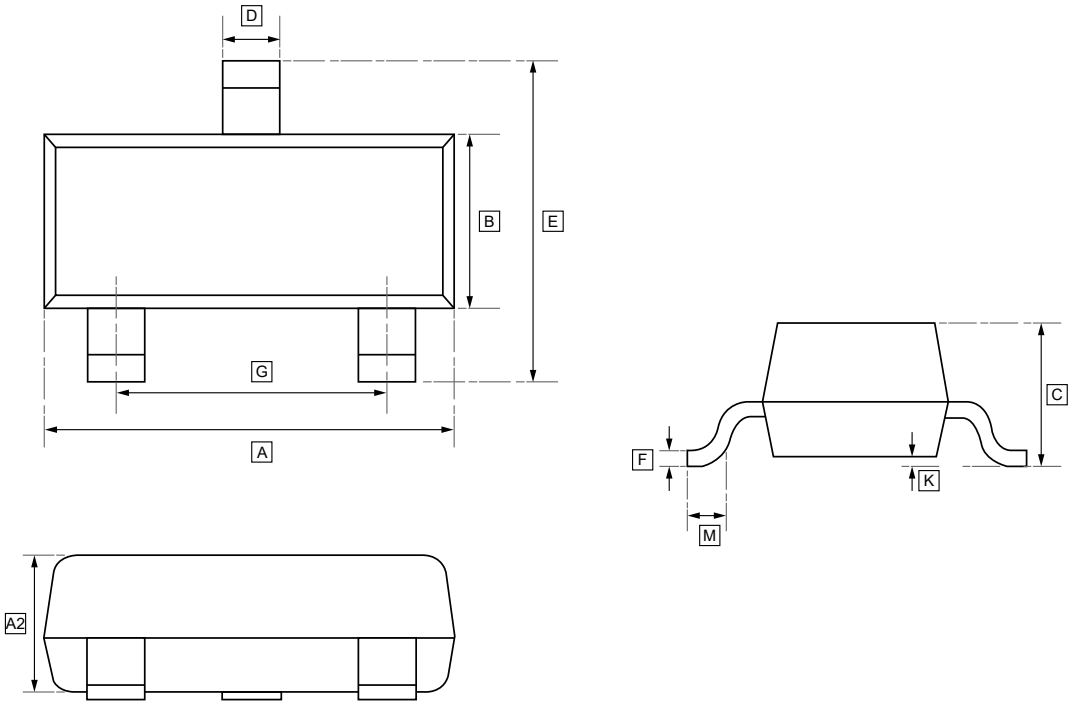


Fig 10. Effective Transient Thermal Impedance

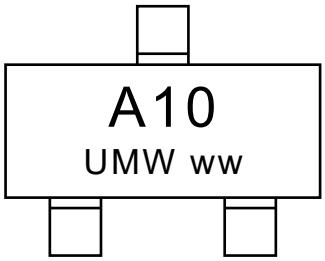
7.SOT-23 Package Outline Dimensions



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



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW SI2310A	SOT-23	3000	Tape and reel

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