UMW SI2303

-30V P-Channel MOSFET

1.Features

- $V_{DS(V)}$=-30V
- I_D=-1.7A
- $R_{DS(ON)}$<120mΩ(V_{GS}=-10V)
- $R_{DS(ON)}$<150mΩ(V_{GS}=-4.5V)

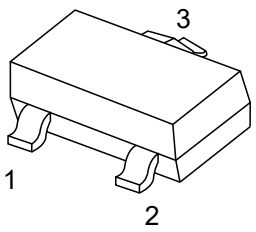
2.Application

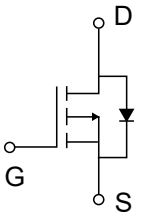
- Load Switch for Portable Devices
- DC/DC Converter

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	Rating	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Curren	I_D	-1.7	A
Pulsed Drain Current	I_{DM}	-10	
Continuous Source-Drain Current(Diode Conduction)	I_S	-1	
Power Dissipation	P_D	0.9	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	357	°C/W
Operating Junction	T_J	150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

5.Electrical Characteristics T_A= 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-30			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1		-3	V
Gate-source leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-1.7A		80	120	mΩ
		V_{GS}=-4.5V, I_D=-1.3A		100	150	mΩ
Forward transconductance	g_{FS}	V_{DS}=-10V, I_D=-1.7A	5.5			S
Diode forward voltage	V_{SD}	I_S=-1A, V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V, f=1MHz		155		pF
Output Capacitance	C_{oss}			35		pF
Reverse Transfer Capacitance	C_{rss}			25		pF
Total gate charge	Q_g	V_{DS}=-15V, V_{GS}=-4.5V I_D=-1.7A		2	4	nC
Gate-source charge	Q_{gs}			0.6		nC
Gate-drain charge	Q_{gd}			1		nC
Gate resistance	R_g	f=1MHz		8.5	17	Ω
Switchingb						
Turn-On Delay Time	$t_{D(on)}$	V_{DD}=-15V R_L=10Ω, I_D≈-1.5A V_{GEN}=-4.5V, R_G=5Ω		36	44	ns
Rise Time	t_r			37	45	ns
Turn-Off Delay Time	$t_{D(off)}$			12	18	ns
Fall time	t_f			9	14	ns
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I_S	T_C=25°C			-1.75	A
Pulsed Diode forward Current	I_{SM}				-10	A

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to production testing.

6.1 Typical Characteristic

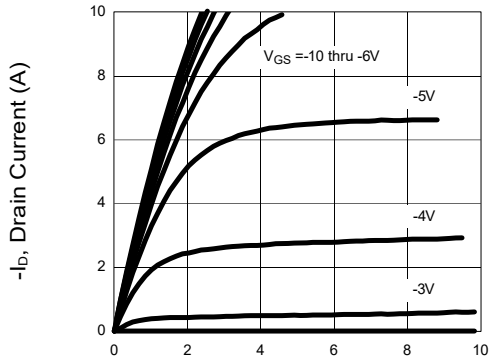


Figure 1: Output Characteristics

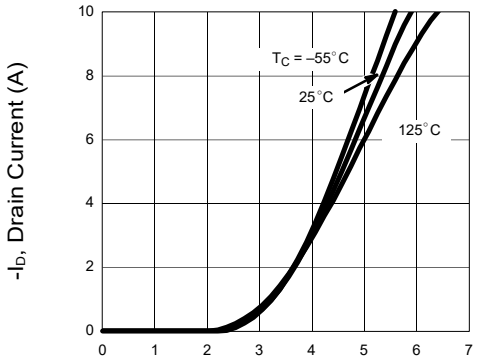


Figure 2: Transfer Characteristics

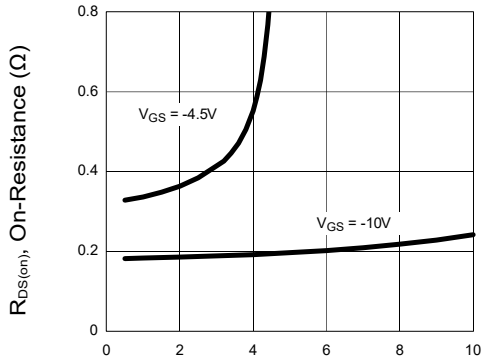


Figure 3: On-Resistance vs. Drain Current

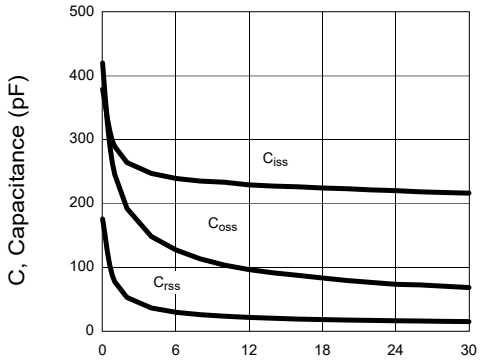


Figure 4: Capacitance

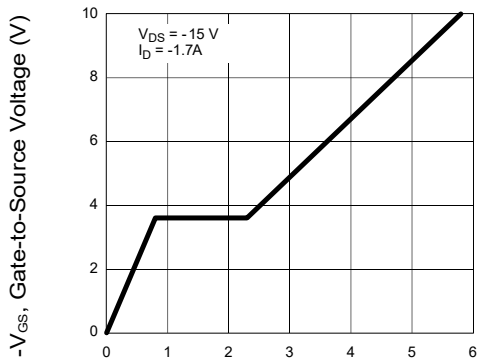


Figure 5: Gate Charge

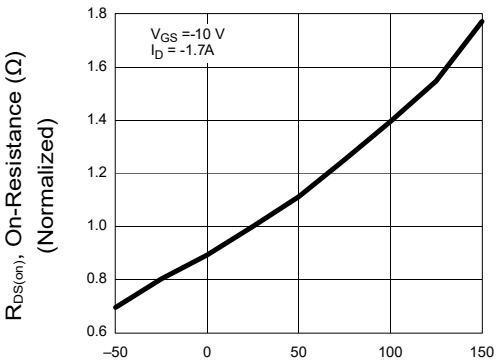


Figure 6: On-Resistance vs. Junction Temperature

6.2 Typical Characteristic

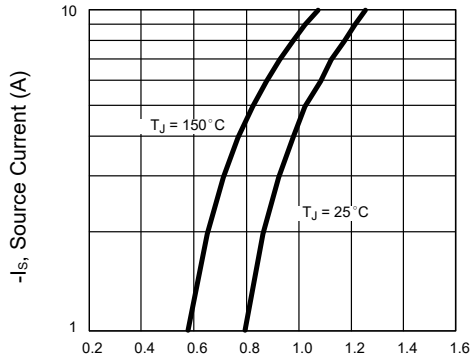


Figure 7: Source-Drain Diode Forward Voltage

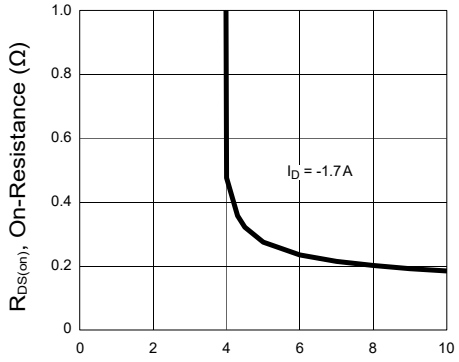


Figure 8: On-Resistance vs. Gate-to-Source Voltage

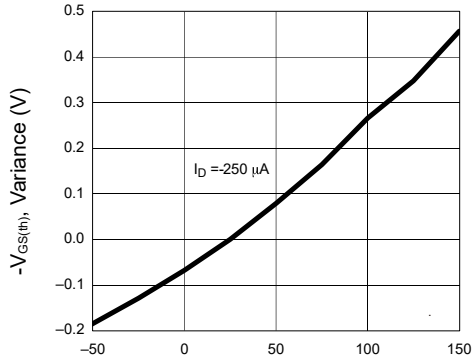


Figure 9: Threshold Voltage

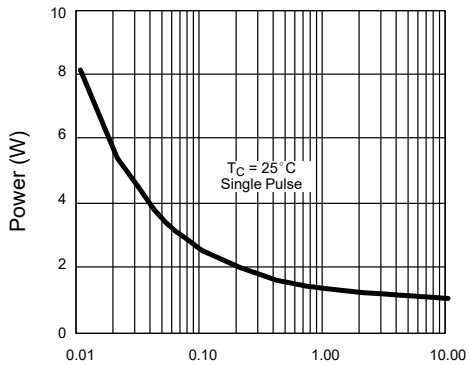


Figure 10: Single Pulse Power

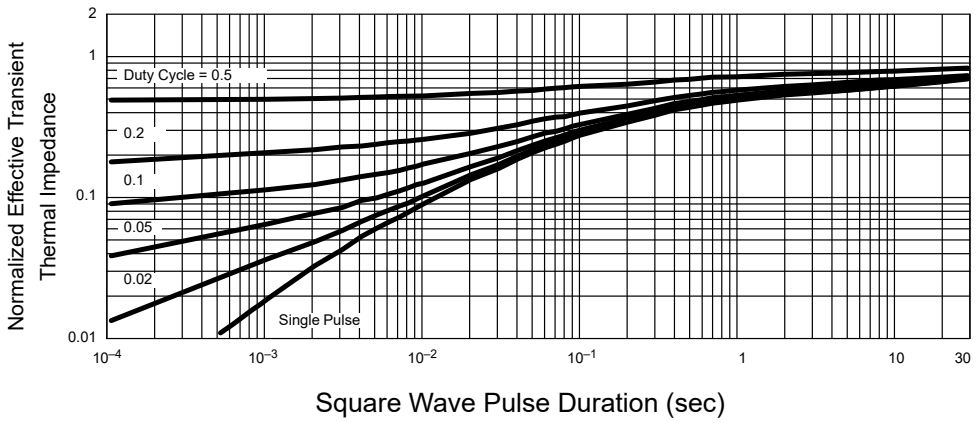
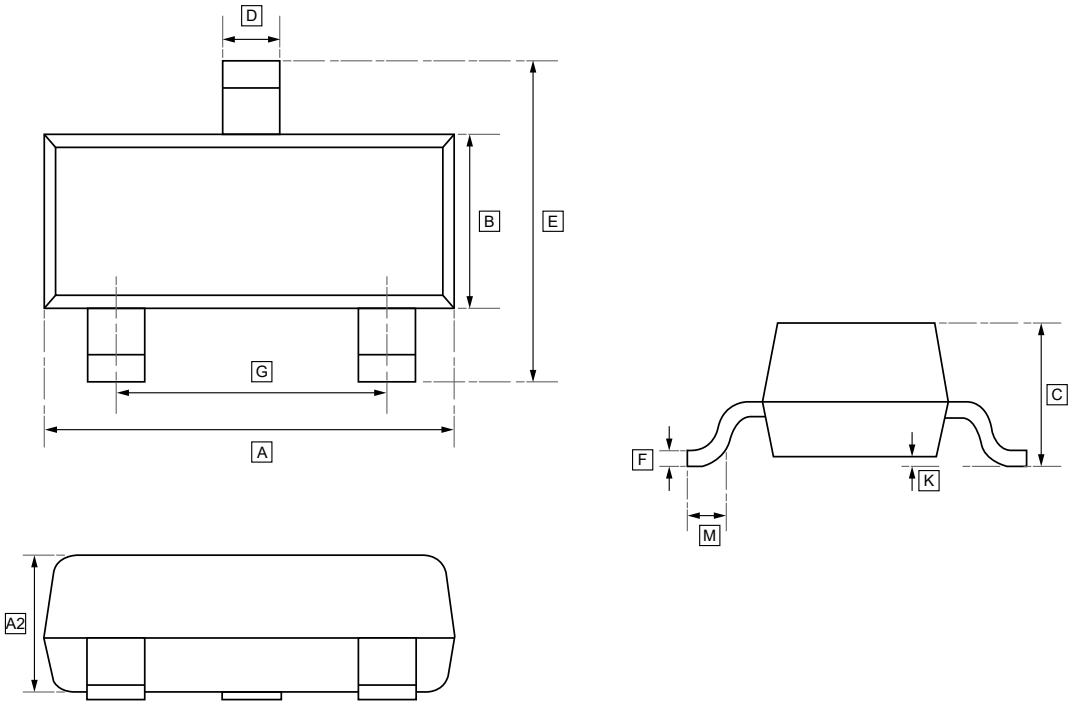


Figure 11: Normalized Thermal Transient Impedance, Junction-to-Ambient

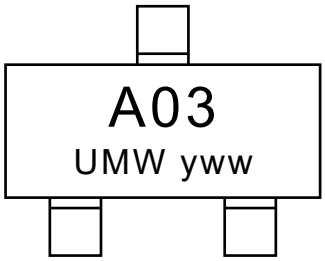
7.SOT-23 Package Outline Dimensions



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



yww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SI2303	A03	SOT-23	3000	Tape and reel
UMW SI2303A	A03	SOT-23	3000	Tape and reel

9.Disclaimer

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