UMW SI2308A

60V N-Channel MOSFET

1.Features

- $V_{DS(V)}$=60V
- I_D=3A
- $R_{DS(ON)}$<80mΩ(V_{GS}=10V), I_D=3A
- $R_{DS(ON)}$<95mΩ(V_{GS}=4.5V), I_D=1.9A

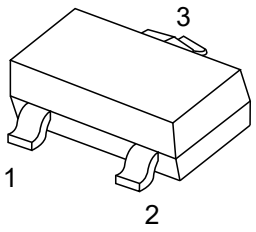
2.Applications

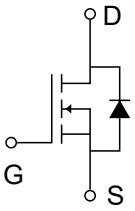
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift
- Battery Management for Ultra Small Portable

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	Rating	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A=25°C	I_D	3	A
	T_A=70°C		1.9	
Pulsed Drain Current		I_{DM}	10	
Power Dissipation	T_A=25°C	P_D	1.25	W
	T_A=70°C		0.8	
Thermal Resistance.Junction- to-Ambient	(Note.1)	R_{thJA}	100	°C/W
	(Note.2)		166	
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-55 to 150	

Note.1: Surface Mounted on FR4 Board, t ≤ 5 sec.

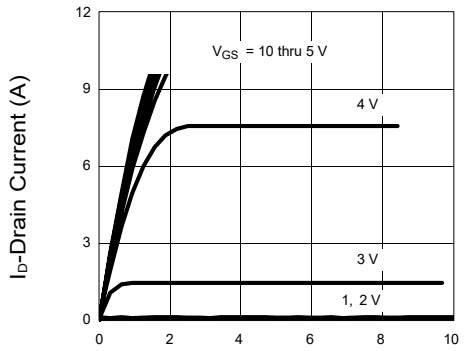
Note.2: Surface Mounted on FR4 Board

5.Electrical Characteristics T_A= 25°C

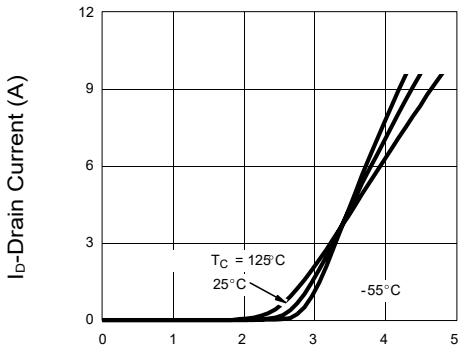
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			0.5	μA
		V_{DS}=60V,V_{GS}=0V,T_J=55°C			10	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold 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		65	80	mΩ
		V_{GS}=4.5V, I_D=1.9A		75	95	
On state drain current	$I_{D(ON)}$	V_{GS}≥4.5V, V_{DS}=10A	6			A
		V_{DS}≥4.5V, V_{DS}=4.5A	4			A
Forward Transconductance	g_{FS}	V_{DS}=4.5A, I_D=2A		4.6		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		240		pF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			15		
Gate Resistance	R_g	V_{DS}=25V, V_{GS}=0V, f=1MHz	0.5		3.3	Ω
Total Gate Charge	Q_g	V_{DS}=30V, V_{GS}=10V, I_D=2A		4.8	10	nC
Gate Source Charge	Q_{gs}			0.8		
Gate Drain Charge	Q_{gd}			1		
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=4.5V, V_{DS}=30V R_L=30Ω, R_G=6Ω I_D=1A		7	15	ns
Turn-On Rise Time	t_r			10	20	
Turn-Off DelayTime	$t_{D(off)}$			17	35	
Turn-Off Fall Time	t_f			6	15	
Maximum Body-Diode Continuous Current	I_S				1	A
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V			1.2	V

Note.Pulse test; pulse width ≤ 300 us, duty cycle ≤ 2%.

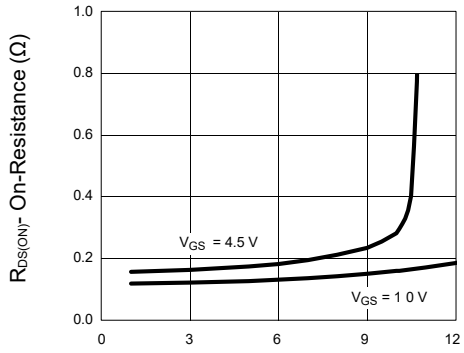
6.1Typical Characterisitics



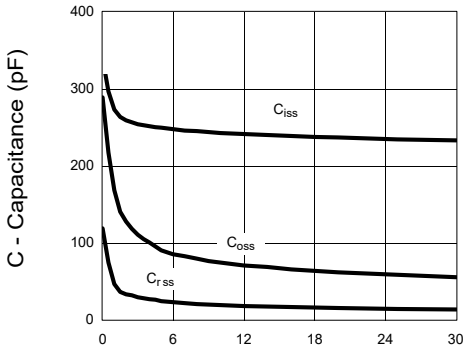
Output Characteristics



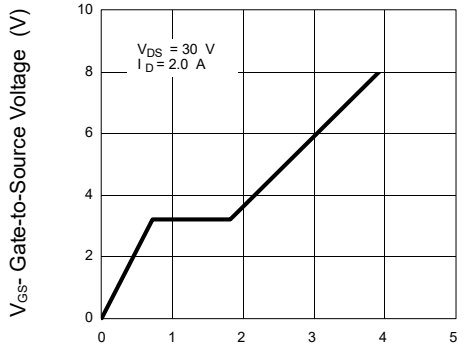
Transfer Characteristics



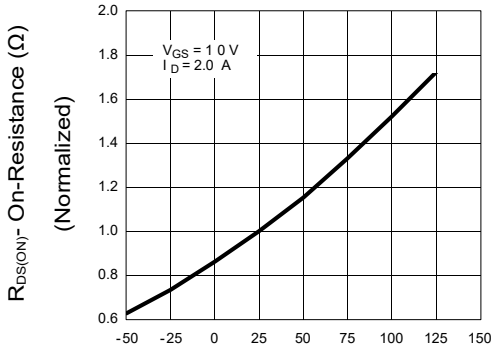
On-Resistance vs. Drain Current



Capacitance

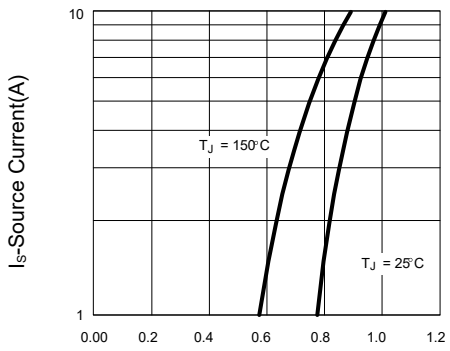


Gate Charge



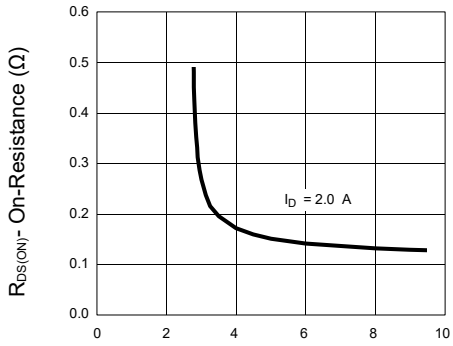
On-Resistance vs. Junction Temperature

6.2Typical Characterisitics



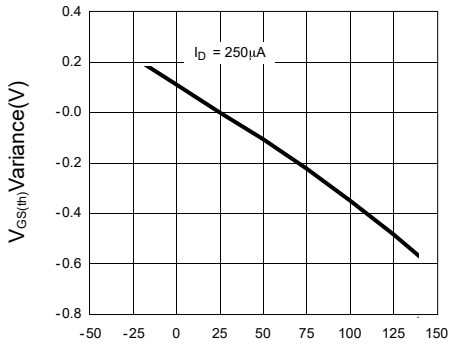
V_{SD} - Source-to-Drain Voltage (V)

Source-Drain Diode Forward Voltage



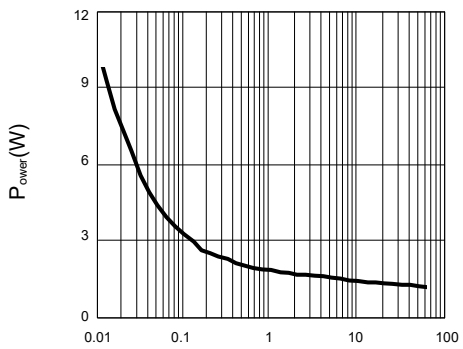
V_{GS} - Gate-to-Source Voltage (V)

On-Resistance vs. Gate-to-Source Voltage



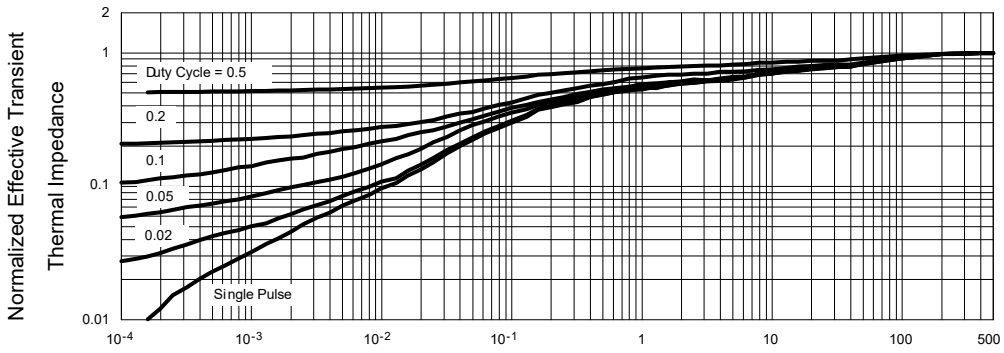
T_J - Temperature (°C)

Threshold Voltage



Time (sec)

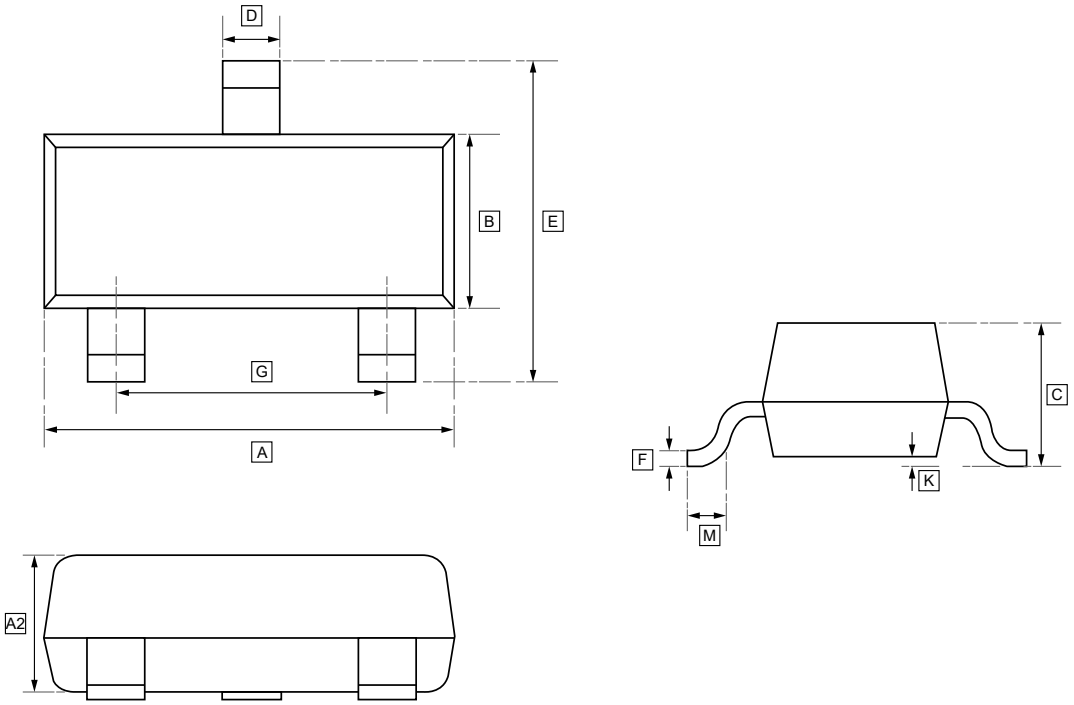
Single Pulse Power



Square Wave Pulse Duration (sec)

Normalized Thermal Transient Impedance, Junction-to-Ambient

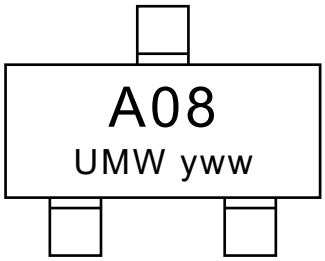
7.SOT-23 Package Outline Dimensions



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	Package	Base QTY	Delivery Mode
UMW SI2308A	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.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.