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

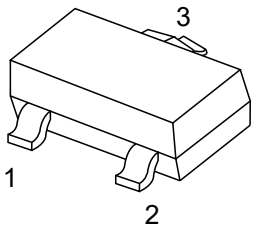
2.Applications

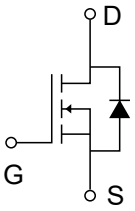
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift
- Battery Management for Ultra Small Portable

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.

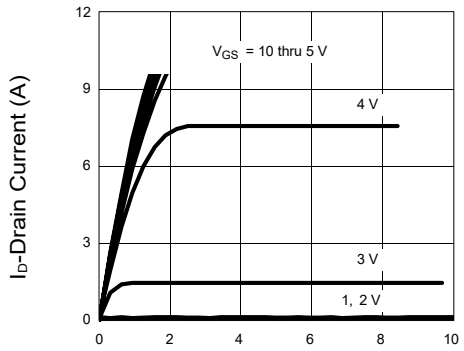
Note.2: Surface Mounted on FR4 Board

5.Electrical Characteristics T_A= 25°C

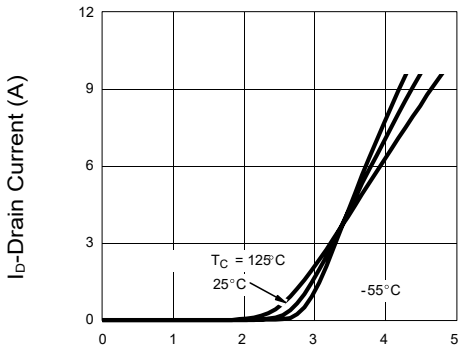
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			0.5	μA
		V_{DS}=60V,V_{GS}=0V,T_J=55°C			10	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold 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%.

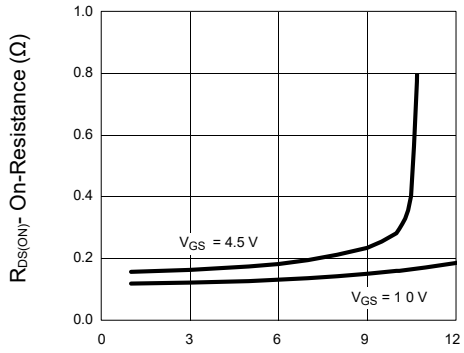
6.1Typical Characterisitics



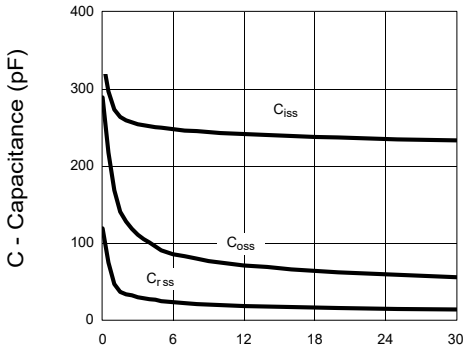
Output Characteristics



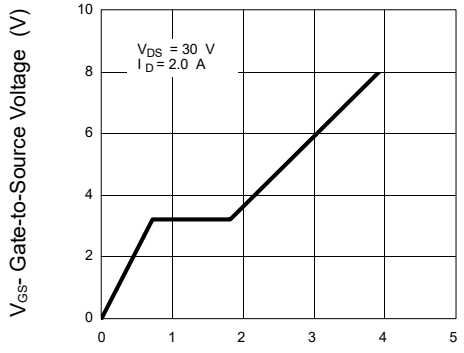
Transfer Characteristics



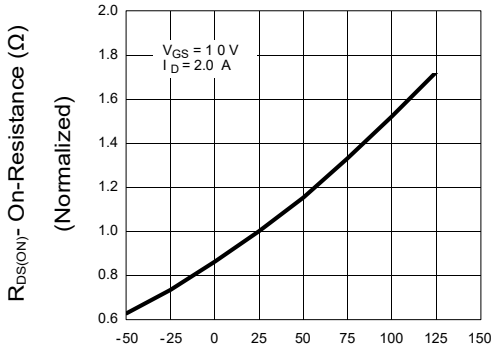
On-Resistance vs. Drain Current



Capacitance

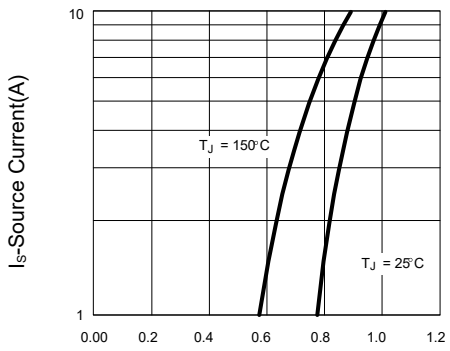


Gate Charge



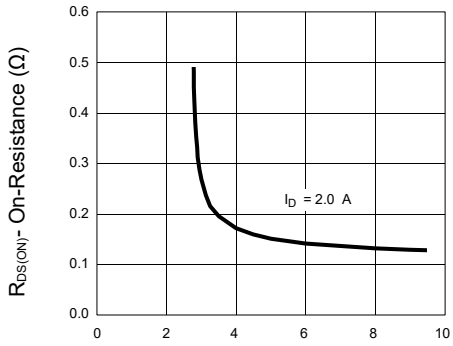
On-Resistance vs. Junction Temperature

6.2Typical Characterisitics



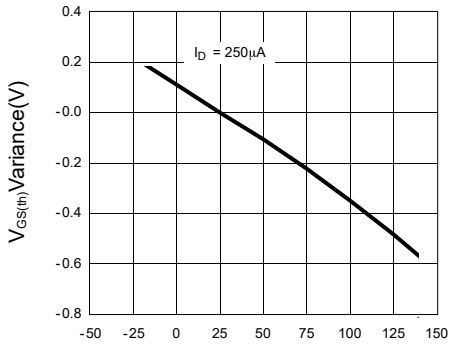
V_{SD} - Source-to-Drain Voltage (V)

Source-Drain Diode Forward Voltage



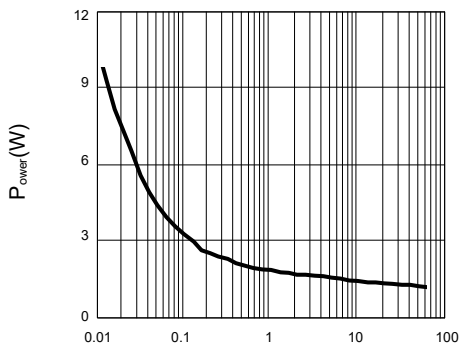
V_{GS} - Gate-to-Source Voltage (V)

On-Resistance vs. Gate-to-Source Voltage



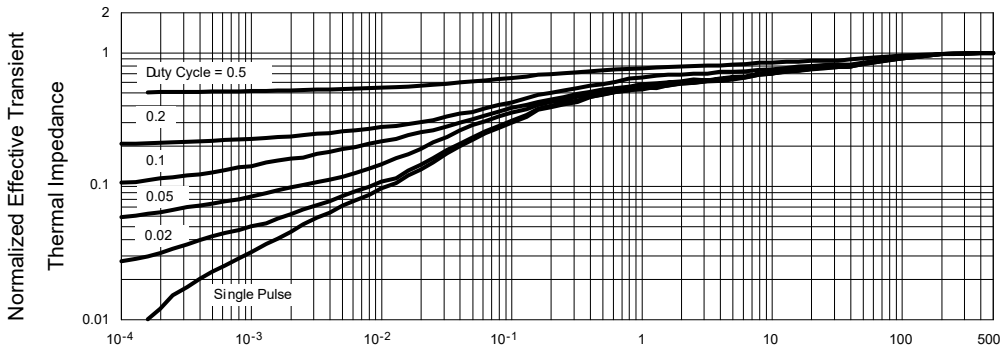
T_J - Temperature (°C)

Threshold Voltage



Time (sec)

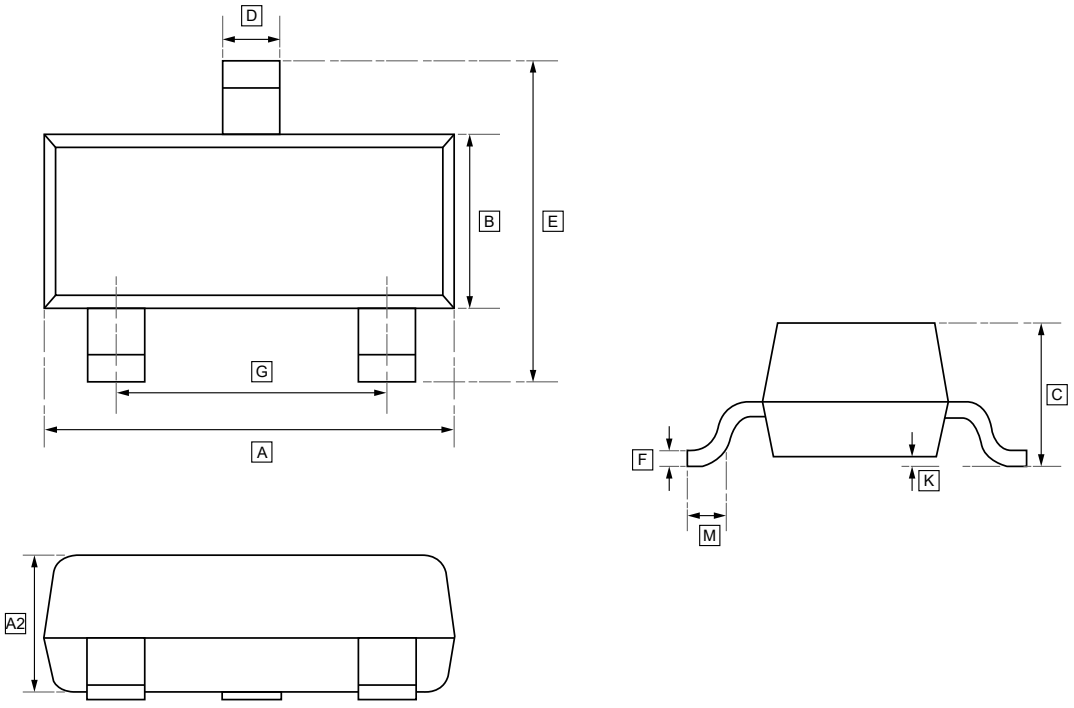
Single Pulse Power



Square Wave Pulse Duration (sec)

Normalized Thermal Transient Impedance, Junction-to-Ambient

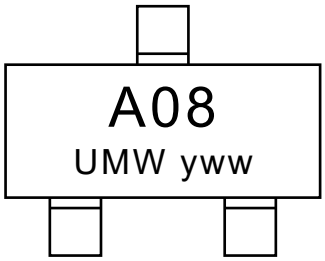
7.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.85	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 SI2308A	SOT-23	3000	Tape and reel

9.Disclaimer

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