UMW AO3422A

N-Channel 60-V(D-S) MOSFET

1.Description

The AO3422A uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It offers operation over a wide gate drive range from 2.5V to12V. This device is suitable for use as a load switch.

2.1Features

- V_{DS}=60V
- I_D=2.1A
- $R_{DS(ON)}$＜80mΩ(V_{GS}=10V)
- $R_{DS(ON)}$＜89mΩ(V_{GS}=4.5V)

2.2Features

- Trench FET Power MOSFET

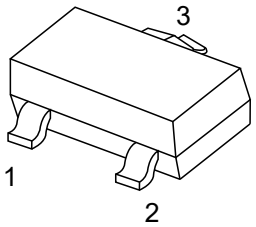
3.Application

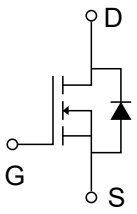
- Load Switch for Portable Devices
- DC/DC Converter

4.Pinning information

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

SOT-23





5.Maximum ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Curren	I_D	2.1	A
Pulsed Drain Current	I_{DM}	10	
Continuous Source-Drain Current(Diode Conduction)	I_S	0.85	
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	125	°C/W
Operating Junction	T_J	150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

6.Static Electrical Characteristics (T_A= 25°C Unless Otherwise Noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	60			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		2.5	V
Gate-source leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Drain-source on-state resistancea	$R_{DS(ON)}$	V_{GS}=10V, I_D=2.1A		80	105	mΩ
		V_{GS}=4.5V, I_D=2A		89	125	mΩ
Forward transconductance	g_{FS}	V_{DS}=4.5V, I_D=2.1A		11		S
Diode forward voltage	V_{SD}	I_S=1.5A, V_{GS}=0V		0.8	1.3	V
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		214	300	pF
Output Capacitance	C_{oss}			31		pF
Reverse Transfer Capacitance	C_{rss}			12.6		pF
Total gate charge	Q_g	V_{DS}=25V, V_{GS}=4.5V, I_D=3A		2.6	3.3	nC
Gate-source charge	Q_{gs}			0.6		nC
Gate-drain charge	Q_{gd}			0.8		nC
Gate resistance	R_g	f=1MHz		1.3	3	Ω
Switchingb						
Turn-On Delay Time	$t_{D(on)}$	V_{DS}=25V R_L=6Ω, I_D≈1A V_{GEN}=10V, R_G=3Ω		2.3		ns
Rise Time	t_r			2.4		ns
Turn-Off Delay Time	$t_{D(off)}$			16.5		ns
Fall time	t_f			2		ns
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I_S	T_C=25°C			3	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.

7.1Typical Characterisitics

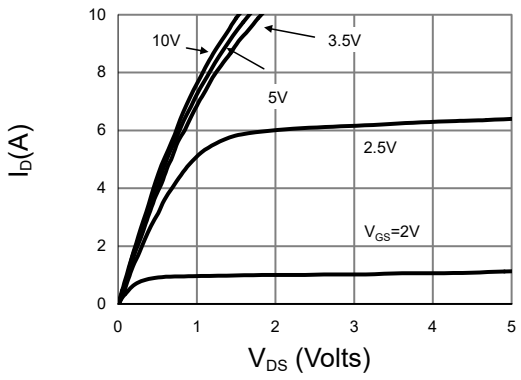


Fig 1: On-Region Characteristics

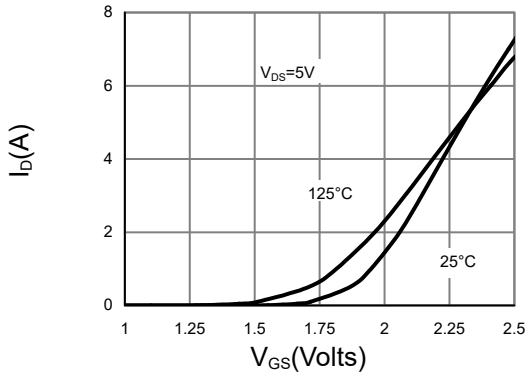


Figure 2: Transfer Characteristics

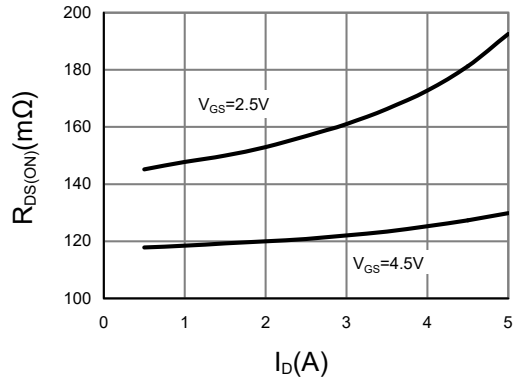


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

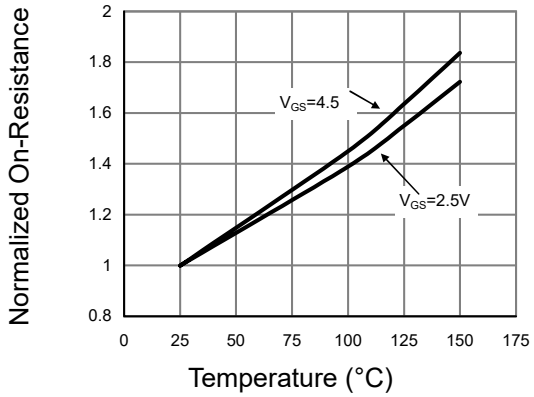


Figure 4: On-Resistance vs. Junction Temperature

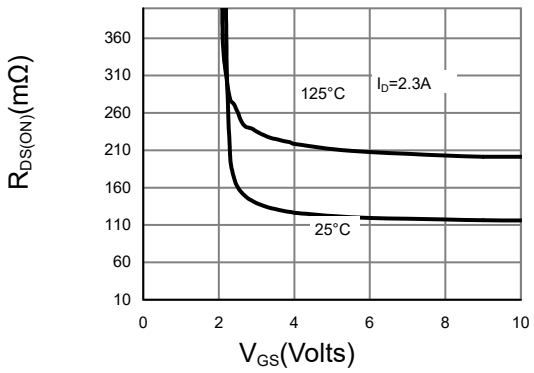


Figure 5: On-Resistance vs. Gate-Source Voltage

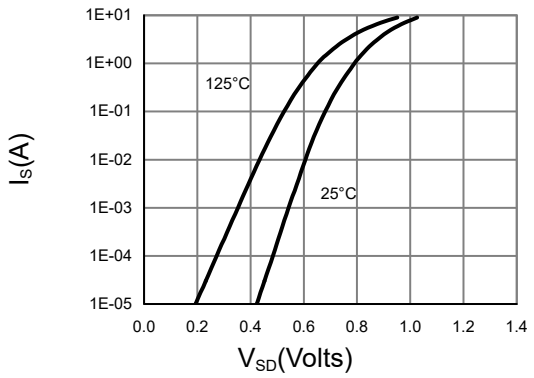


Figure 6: Body-Diode Characteristics

7.2Typical Characterisitics

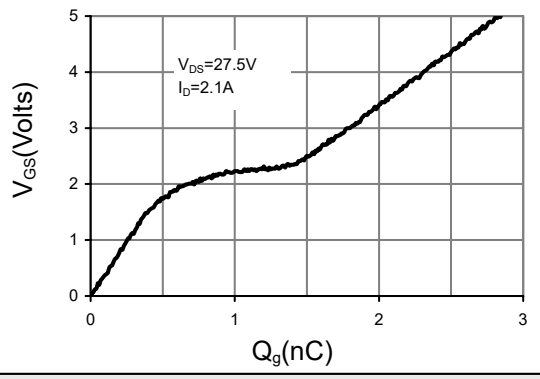


Figure 7: Gate-Charge Characteristics

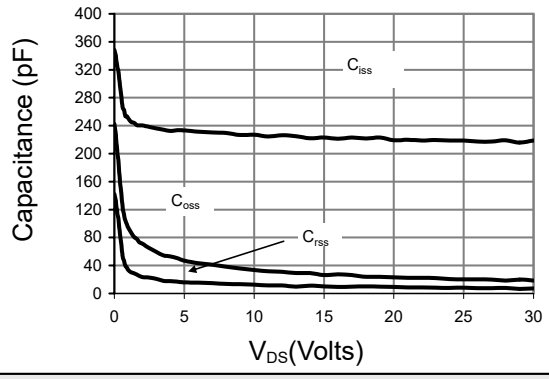


Figure 8: Capacitance Characteristics

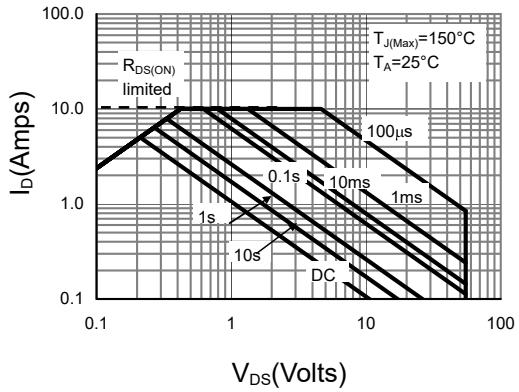


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

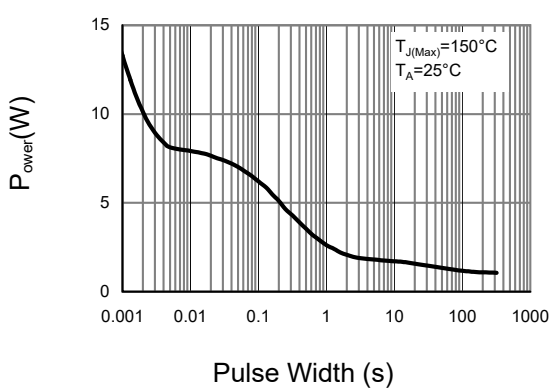


Figure 10: Single Pulse Power Rating Junction-to -Ambient (Note E)

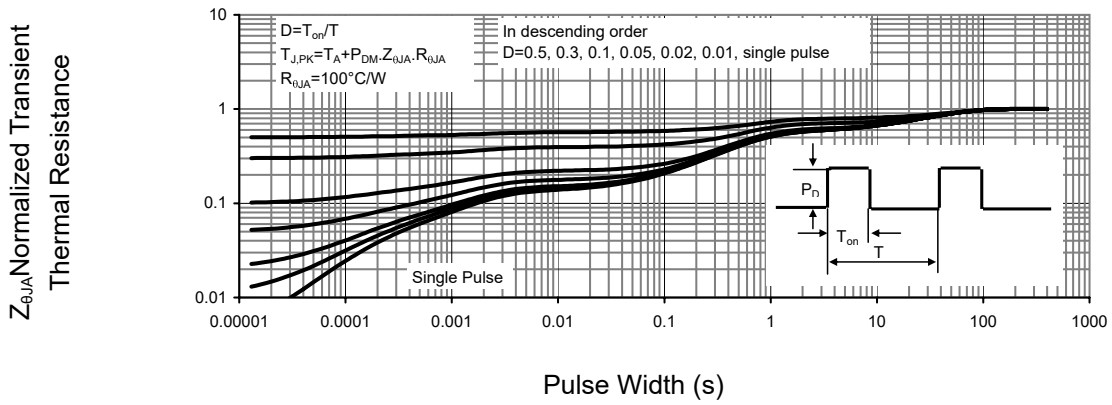
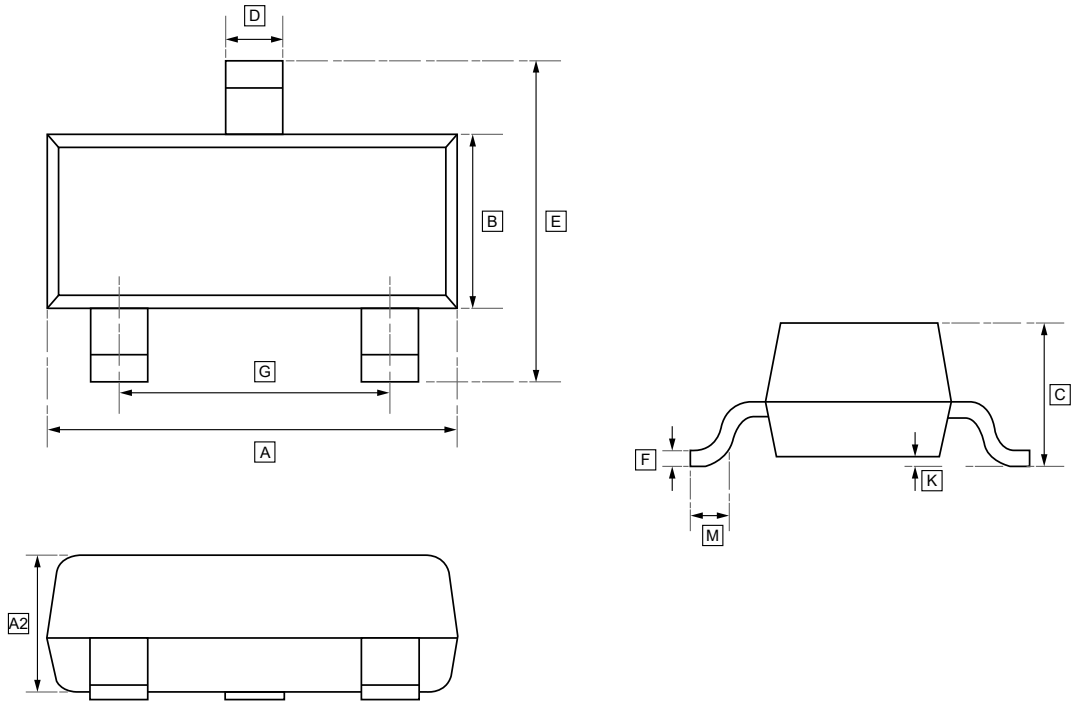


Figure 11: Normalized Maximum Transient Thermal Impedance

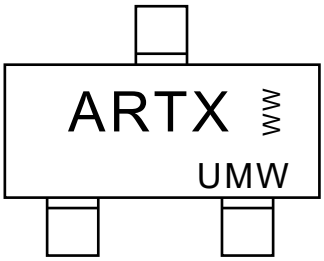
8.SOT-23 Package Outline Dimensions



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

9.Ordering information



WW: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW AO3422A	SOT-23	3000	Tape and reel

10.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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