UMW AO4410

N-Channel MOSFET

1.Description

The AO4410 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

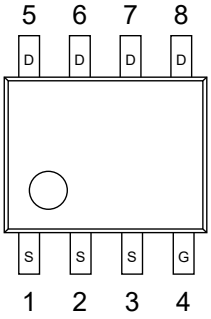
2.Features

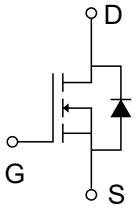
- $V_{DS\ (V)}$= 30V
- I_D=18A
- $R_{DS(ON)}$＜5.5mΩ(V_{GS}=10V)
- $R_{DS(ON)}$＜6.2mΩ(V_{GS}=4.5V)

3.Pinning information

Pin	Symbol	Description
4	G	GATE
1,2,3	S	SOURCE
5,6,7,8	D	DRAIN

SOP-8





4.Absolute Maximum Ratings T_A= 25°C

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	T_A=25°C	I_D	18	A
	T_A=70°C		15	
Pulsed Drain Current		I_{DM}	80	
Power Dissipation	T_A=25°C	P_D	3.1	W
	T_A=70°C		2	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	40	°C/W
	Steady-State		75	
Thermal Resistance.Junction- to-Lead		R_{thJL}	24	
Junction Temperature		T_J	-55 to 150	°C
Storage Temperature Range		T_{STG}	-55 to 150	

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	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
		V_{DS}=24V, V_{GS}=0V, T_J=55°C			5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.8		1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=18A			5.5	mΩ
		V_{GS}=10V, I_D=18A, T_J=55°C			7.4	
		V_{GS}=4.5V, I_D=15A			6.2	
On state drain current	$I_{D(ON)}$	V_{GS}=4.5V, V_{DS}=5V	80			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=18A		102		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		9130	10500	pF
Output Capacitance	C_{oss}			625		
Reverse Transfer Capacitance	C_{rss}			387		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		0.4	0.5	Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=15V I_D=18A		72.4	85	nC
Gate Source Charge	Q_{gs}			13.4		
Gate Drain Charge	Q_{gd}			16.8		
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=10V, V_{DS}=15V R_L=0.83Ω, R_{GEN}=3Ω		11	15	ns
Turn-On Rise Time	t_r			7	11	
Turn-Off DelayTime	$t_{D(off)}$			99	135	
Turn-Off Fall Time	t_f			13	19.5	
Body Diode Reverse Recovery Time	t_{rr}	I_F=18A, dI/dt=100A/μs		33	40	
Body Diode Reverse Recovery Charge	Q_{rr}			22.2	30	nC
Maximum Body-Diode Continuous Current	I_S				4.5	A
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V			1	V

Note : The static characteristics in Figures 1 to 6 are obtained using <300 μs pulses, duty cycle 0.5% max.

6.1Typical characteristic

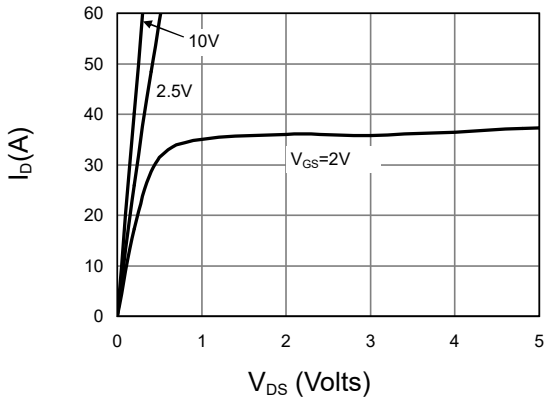


Fig 1: On-Region Characteristics

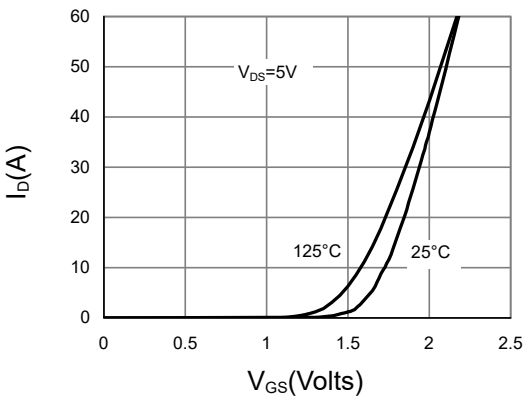


Figure 2: Transfer Characteristics

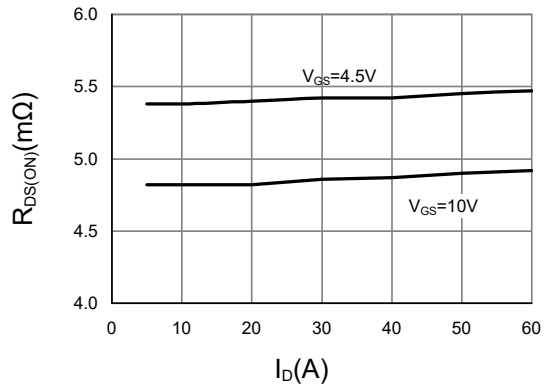


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

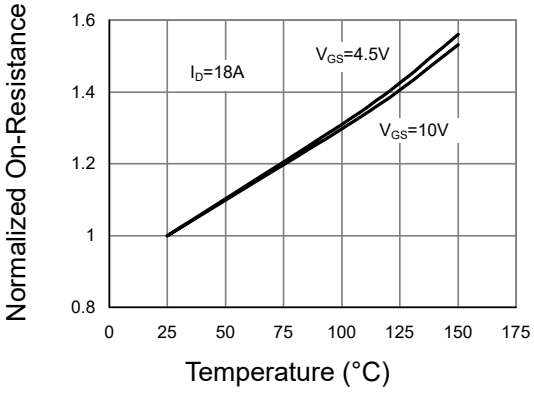


Figure 4: On-Resistance vs. Junction Temperature

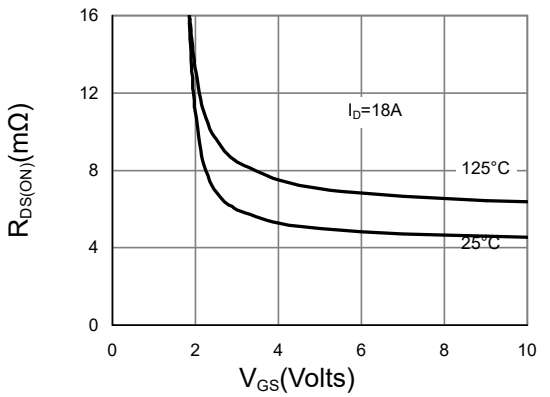


Figure 5: On-Resistance vs. Gate-Source Voltage

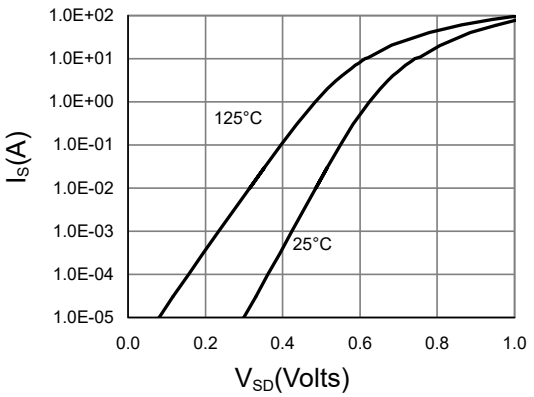


Figure 6: Body-Diode Characteristics

6.2Typical Characterisitics

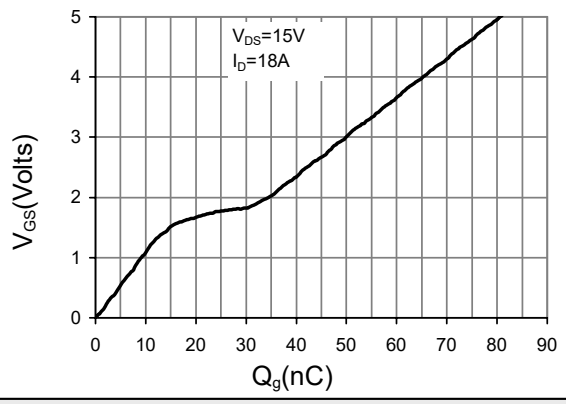


Figure 7: Gate-Charge Characteristics

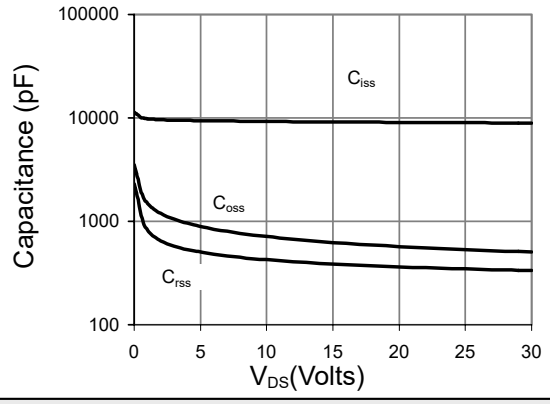


Figure 8: Capacitance Characteristics

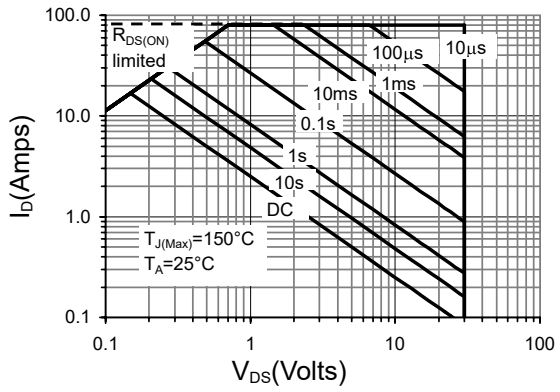


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

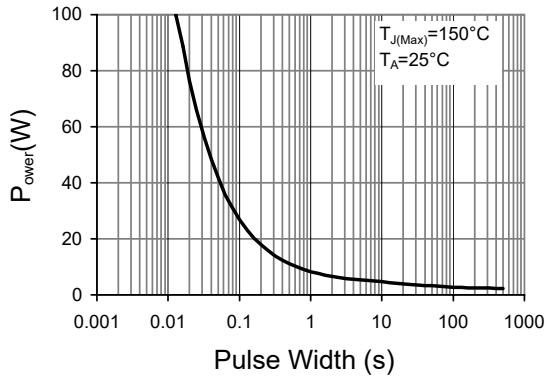


Figure 10: Single Pulse Power Rating Junction-to -Ambient (Note E)

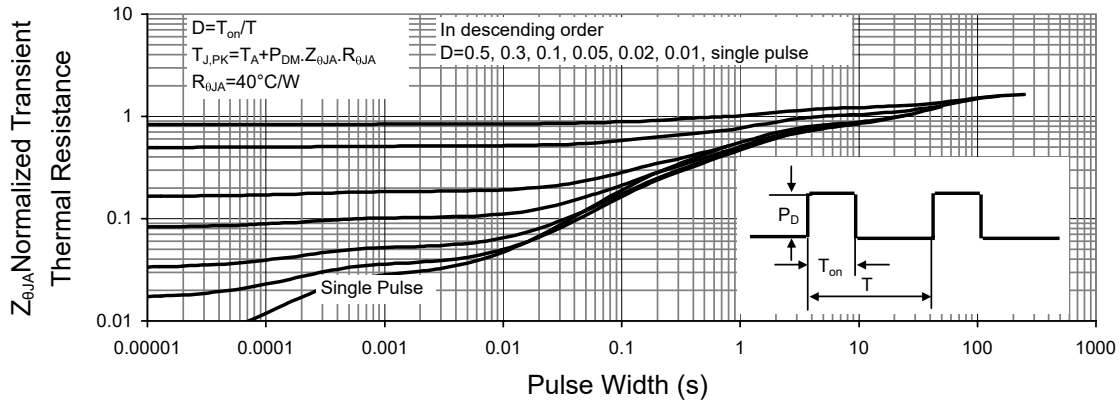
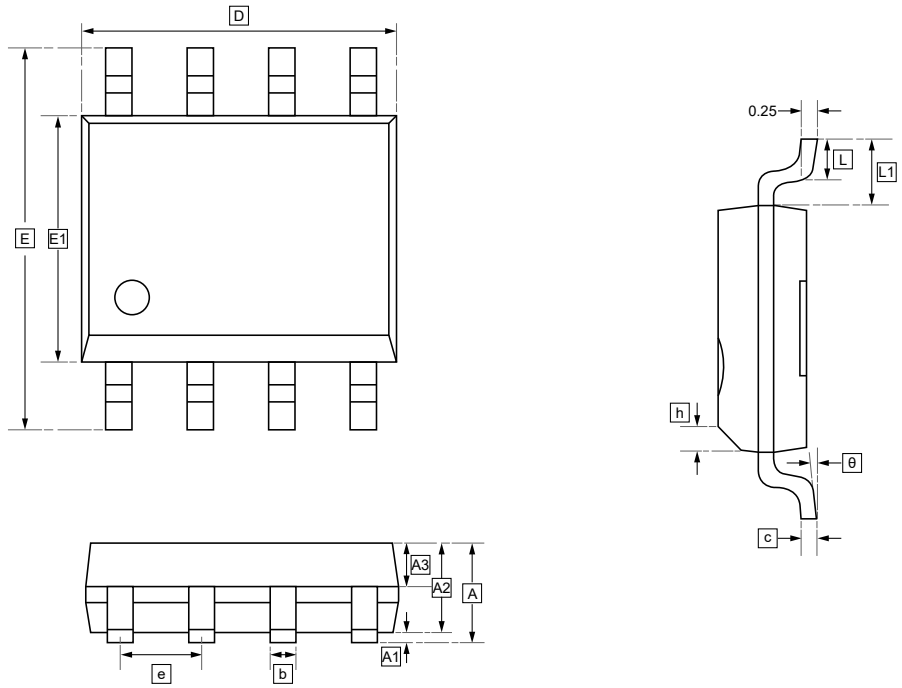


Figure 11: Normalized Maximum Transient Thermal Impedance

7.SOP-8 Package Outline Dimensions

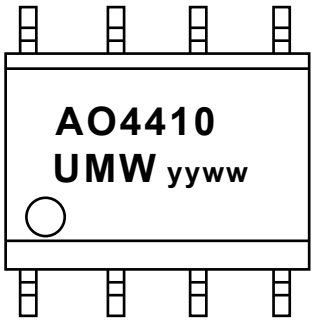


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.70	5.80	3.80	1.24	0.30	0.50
Max	1.75	0.20	1.50	0.70	0.47	0.24	5.10	6.20	4.00	1.30	0.50	0.80

Symbol	L1	θ
Min	1.00	0°
Max	1.10	8°

8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW AO4410	SOP-8	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.

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