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.

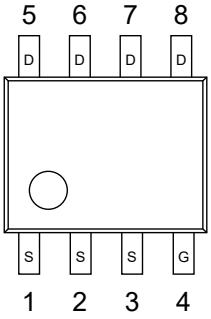
2.Features

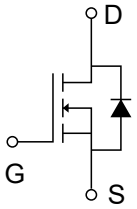
- $V_{DS\ (V)}$= 30V
- I_D=18A
- $R_{DS(ON)}$＜5.5mΩ(V_{GS}=10V)
- $R_{DS(ON)}$＜6.2mΩ(V_{GS}=4.5V)

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

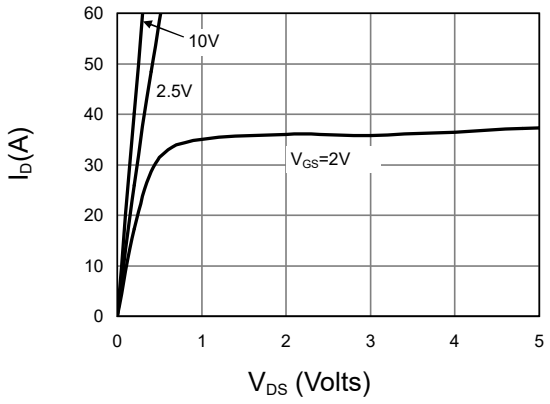


Fig 1: On-Region Characteristics

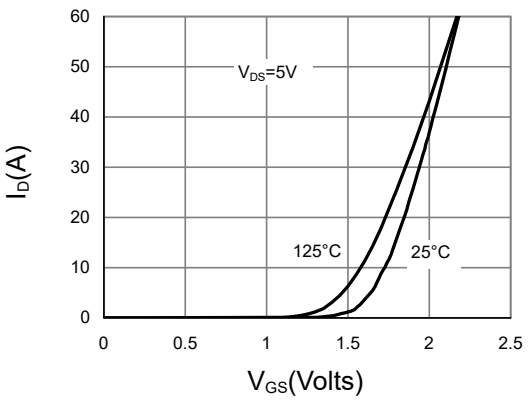


Figure 2: Transfer Characteristics

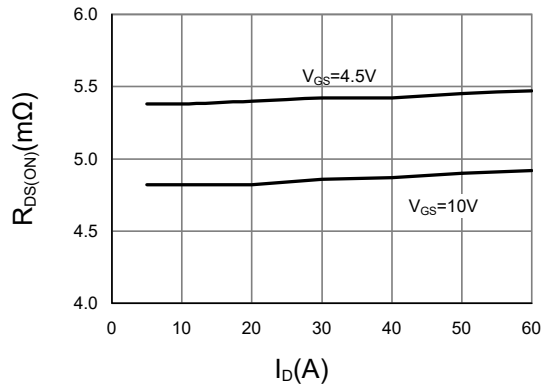


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

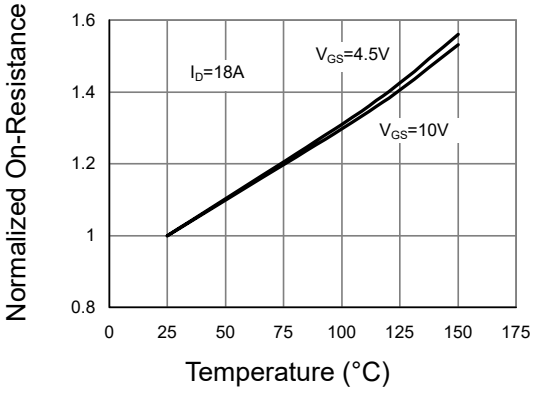


Figure 4: On-Resistance vs. Junction Temperature

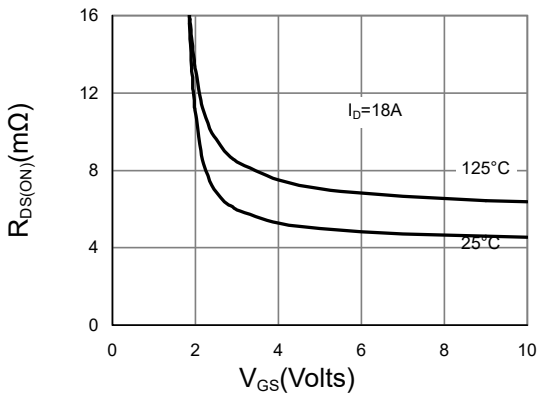


Figure 5: On-Resistance vs. Gate-Source Voltage

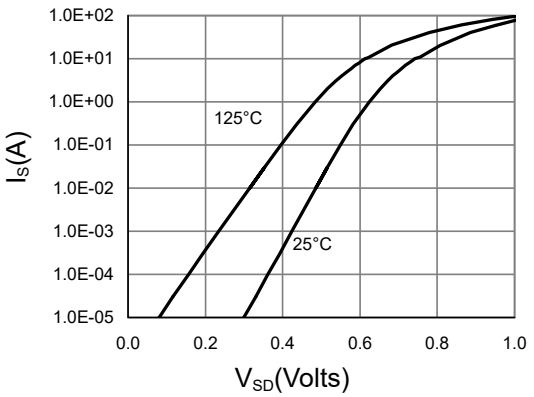


Figure 6: Body-Diode Characteristics

6.2Typical Characterisitics

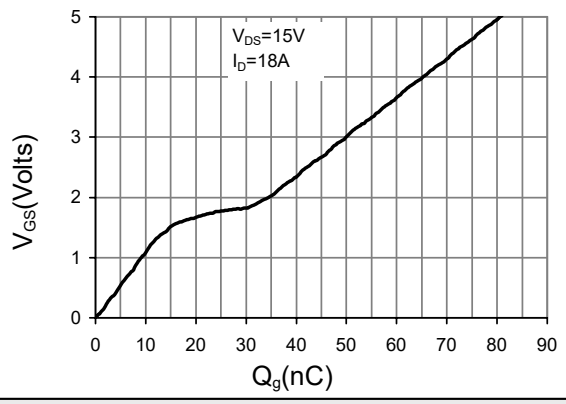


Figure 7: Gate-Charge Characteristics

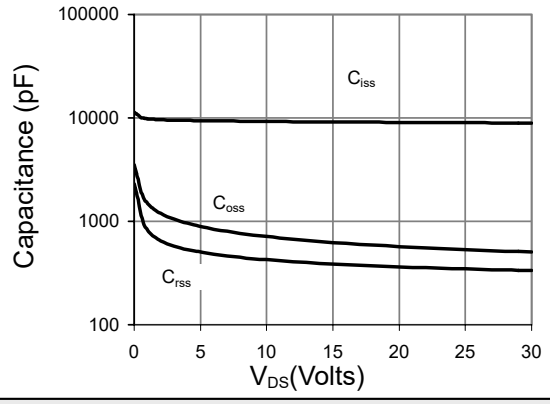


Figure 8: Capacitance Characteristics

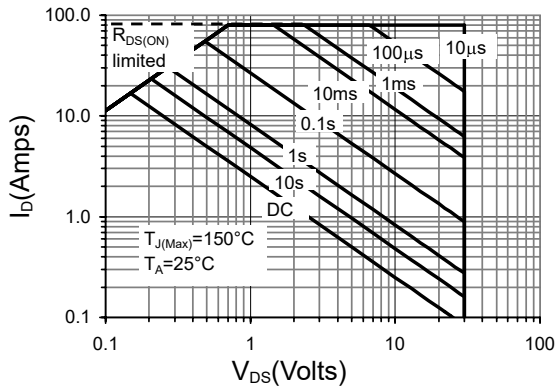


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

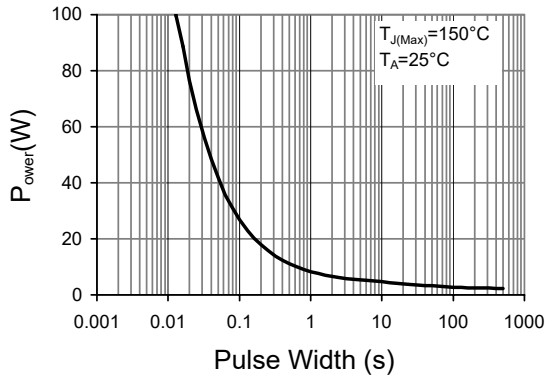


Figure 10: Single Pulse Power Rating Junction-to -Ambient (Note E)

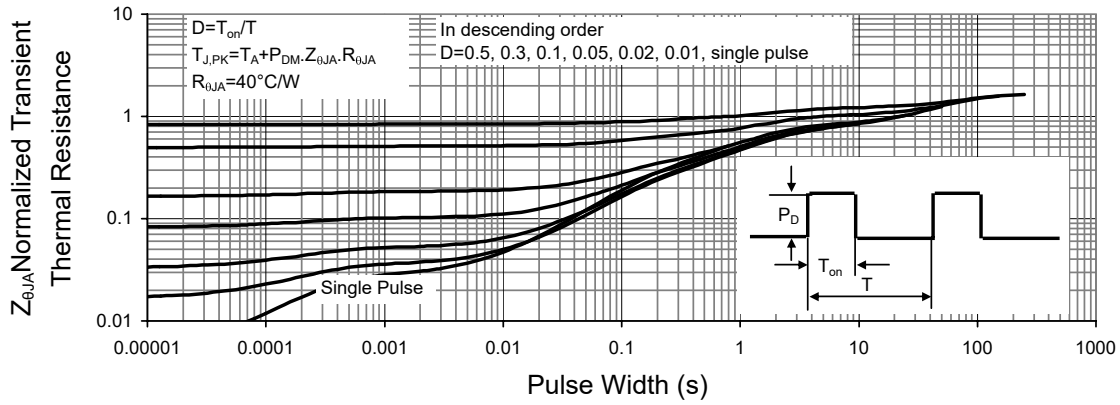
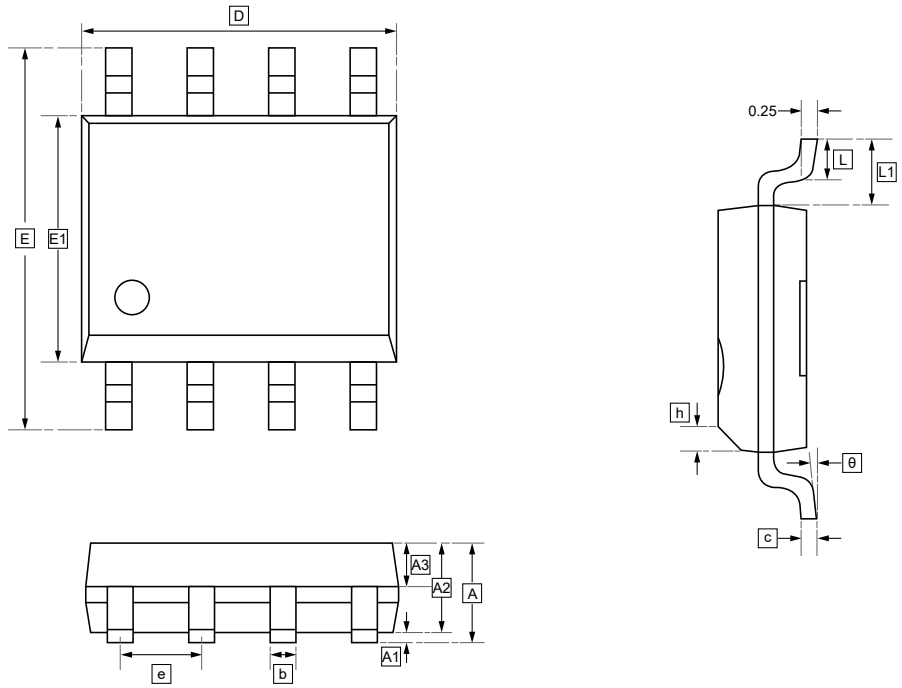


Figure 11: Normalized Maximum Transient Thermal Impedance

7.SOP-8 Package Outline Dimensions

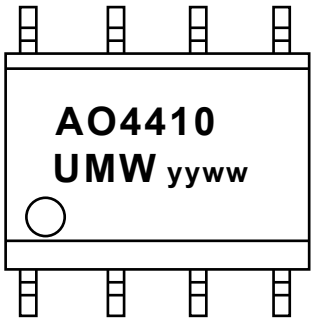


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.80	5.80	3.80	1.24	0.30	0.50
Max	1.75	0.20	1.50	0.70	0.47	0.24	5.00	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

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