UMW AO4828

Dual 60V N-Channel MOSFET

1.Description

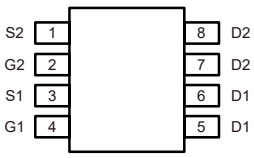
The AO4828 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

2.Features

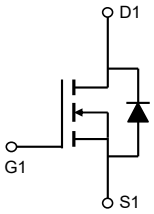
- $V_{DS\ (V)}$=60V
- I_D=6.5A(V_{GS}=10V)
- $R_{DS(ON)}$<36mΩ(V_{GS}=10V)
- $R_{DS(ON)}$<47mΩ(V_{GS}=4.5V)

3.Pinning information

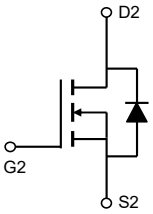
Pin	Symbol	Description
1,3	S	SOURCE
2,4	G	GATE
5,6,7,8	D	DRAIN



Top View



N-Channel



N-Channel

4.Absolute Maximum Ratings T_J= 25°C

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current (V_{GS}=4.5V [3])	T_A=25°C	I_D	6.5	A
	T_A=70°C		5	
Pulsed Drain Current [1]		I_{DM}	30	
Total Power Dissipation	T_A=25°C	P_D	2.1	W
Storage Temperature Range		T_{STG}	-55 to 150	°C
Temperature Range		T_J	-55 to 150	°C
Maximum Thermal Resistance, Junction ambient [3]		R_{thJA}	60	°C/W

5.Electrical Characteristic (T_C=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	60	69		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.5	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=6A		30	36	mΩ
		V_{GS}=4.5V, I_D=4A		36	47	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=6A		20		S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		1920		pF
Output Capacitance	C_{oss}			155		pF
Reverse Transfer Capacitance	C_{rss}			116		pF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{D(on)}$	V_{DS}=30V, R_L=4.7Ω V_{GS}=10V, R_{GEN}=3Ω		8		ns
Turn-on Rise Time	t_r			5		ns
Turn-Off Delay Time	$t_{D(off)}$			29		ns
Turn-Off Fall Time	t_f			6		ns
Total Gate Charge	Q_g	V_{DS}=30V, I_D=6A, V_{GS}=10V		50		nC
Gate-Source Charge	Q_{gs}			8		nC
Gate-Drain Charge	Q_{gd}			16		nC

Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V, I_S=6A			1.2	V
Diode Forward Current (Note 2)	I_S				7	A
Reverse Recovery Time	t_{rr}	T_J=25°C, I_F=7A		35		ns
Reverse Recovery Charge	Q_{rr}	di/dt=100A/μs(Note3)		43		nC
Forward Tum-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.

6.1Typical characteristic

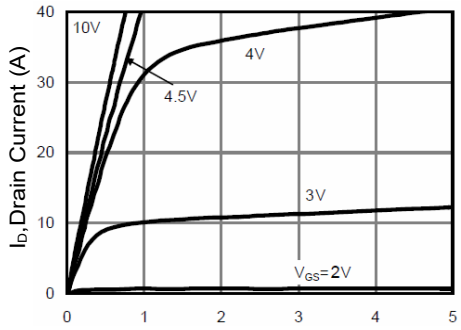


Figure 1: Output Characteristics

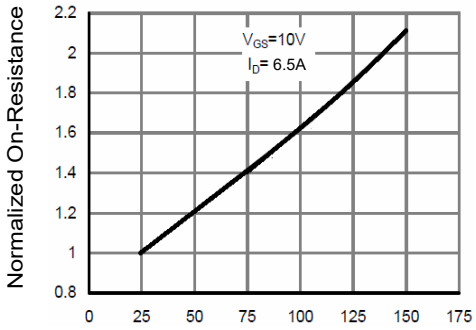


Figure 2: Rdson-JunctionTemperature

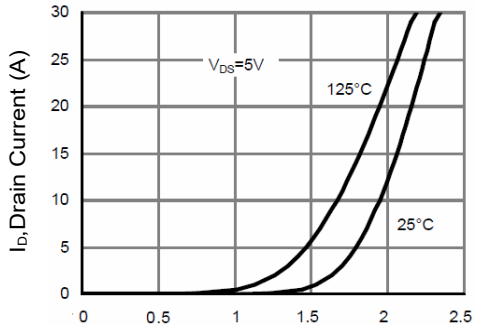


Figure 3: Transfer Characteristics

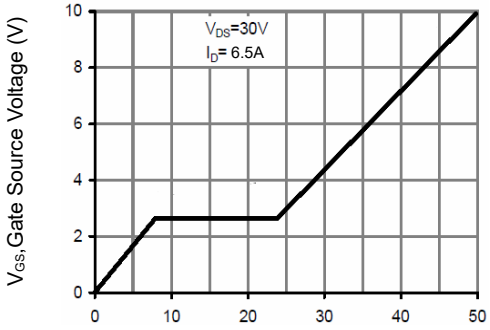


Figure 4: Gate Charge

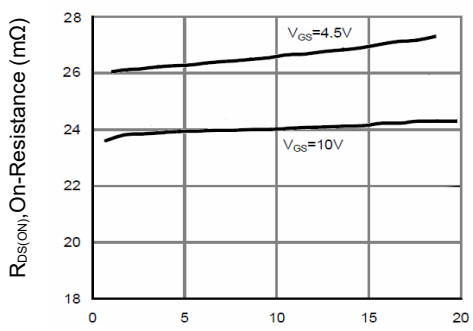


Figure 5: Rdson Drain Current

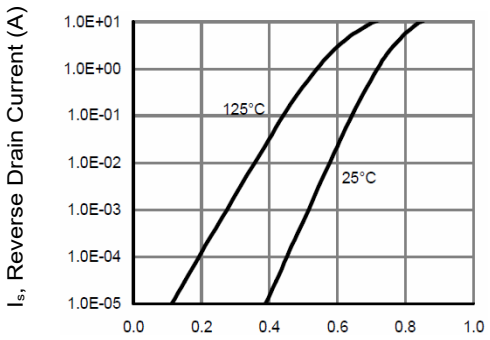


Figure 6: Source Drain Diode Forward

6.2Typical characteristic

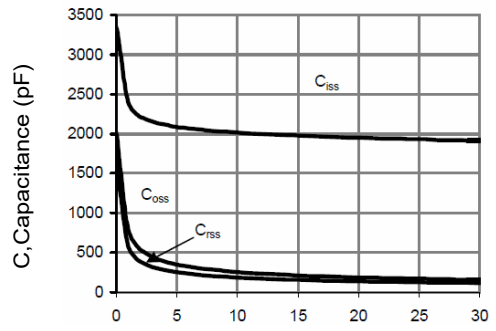


Figure 7: Capacitance vs Vds

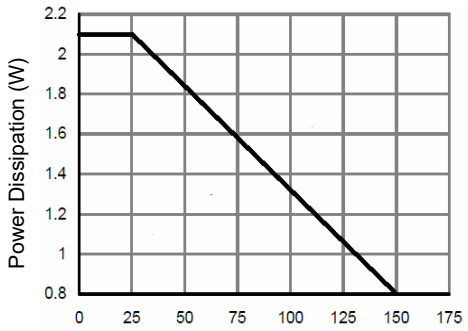


Figure 8: Power De-rating

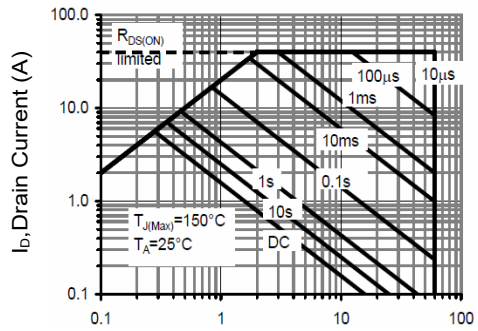


Figure 9: Safe Operation Area

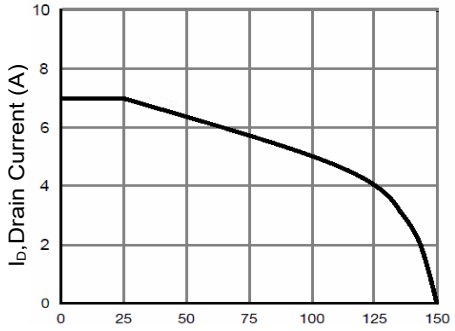


Figure 10: Current De-rating

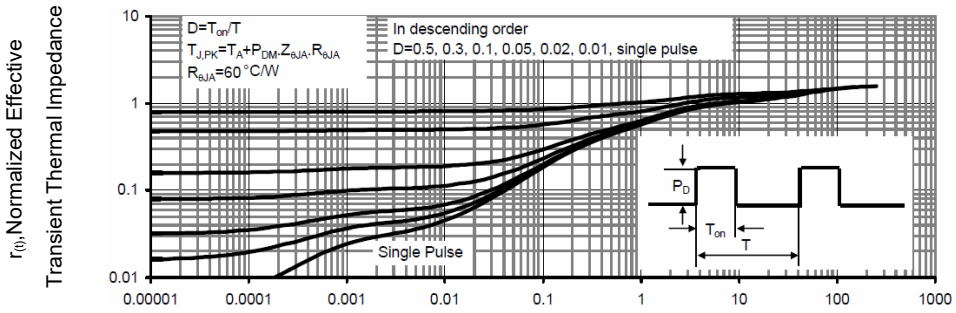


Figure 11: Normalized Maximum Transient Thermal Impedance

6.3Typical characteristic

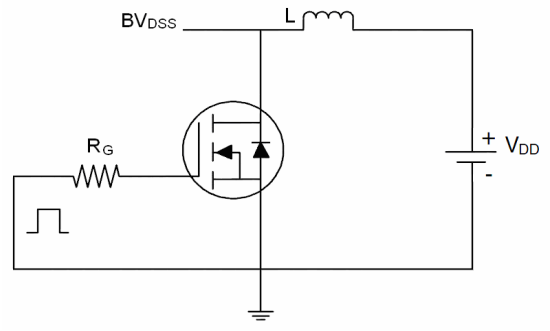


Figure 12: EAS test Circuits

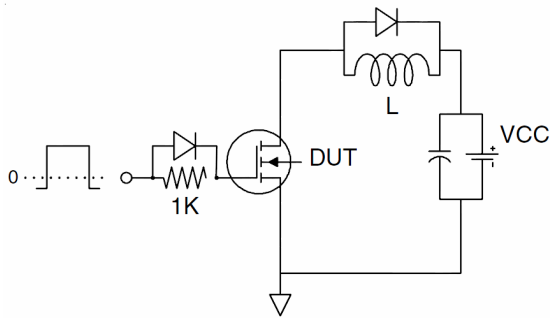


Figure 13: Gate charge test Circuit

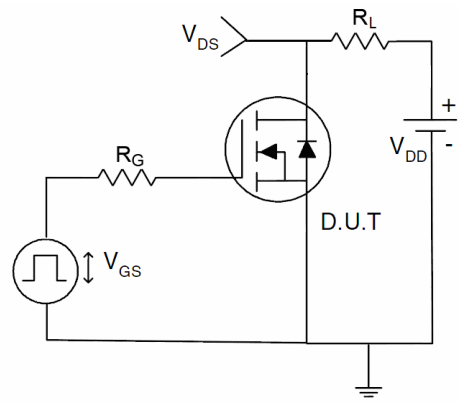
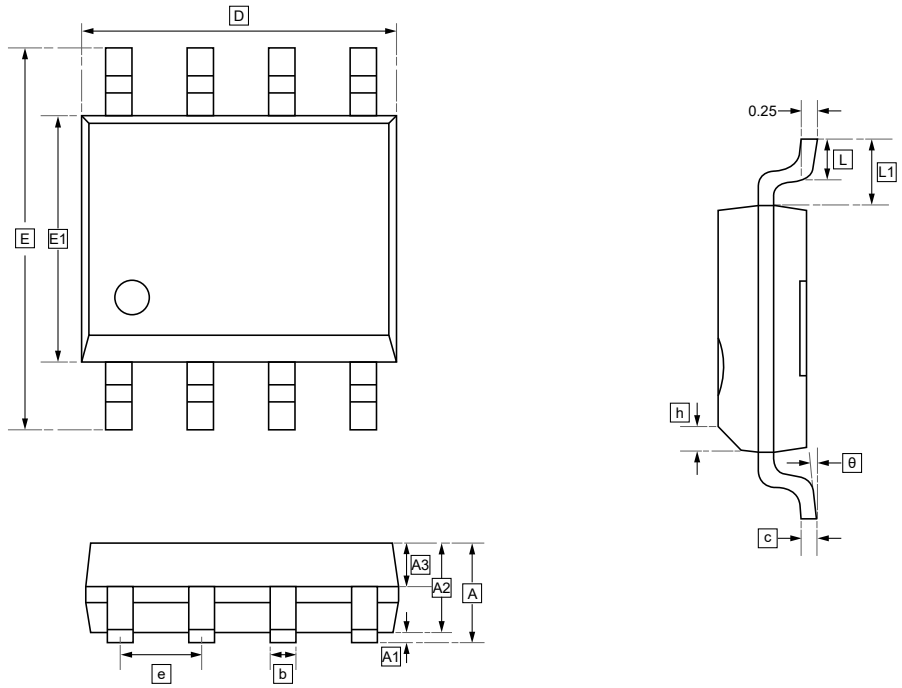


Figure 14: Switch Time Test Circuit

7.SOP-8 Package Outline Dimensions

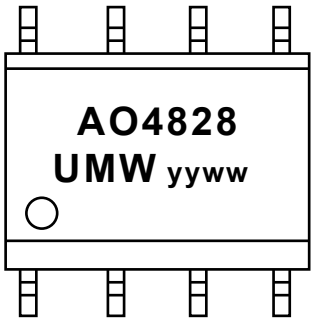


DIMENSIONS (mm are the original dimensions)

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 AO4828	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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