

1.Description

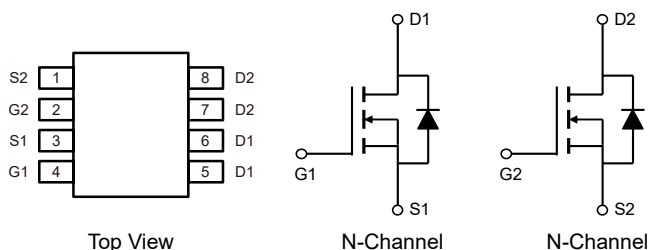
The AO4828 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

2.Features

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

3.Pinning information

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



4.Absolute Maximum Ratings $T_J=25^{\circ}C$

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



5. Electrical Characteristic ($T_c=25^\circ\text{C}$ 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}	$T_J=25^{\circ}C, I_F=7A$		35		ns
Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu s(Notes3)$		43		nC
Forward Turn-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, $t \leq 10$ sec.
- 3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- 4. Guaranteed by design, not subject to production.



6.1Typical characteristic

Figure 1: Output Characteristics	Figure 2: Rdson-Junction Temperature
Figure 3: Transfer Characteristics	Figure 4: Gate Charge
Figure 5: Rdson Drain Current	Figure 6: Source Drain Diode Forward



6.2 Typical characteristic

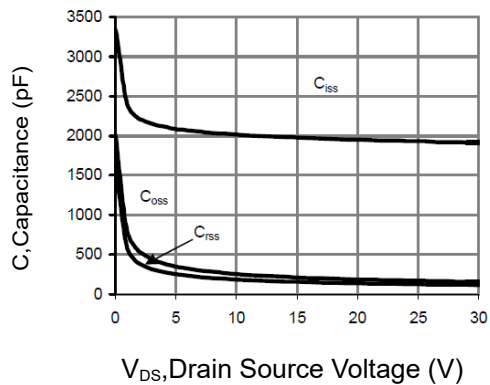


Figure 7: Capacitance vs Vds

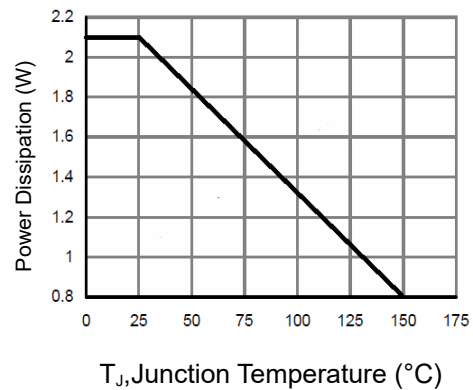


Figure 8: Power De-rating

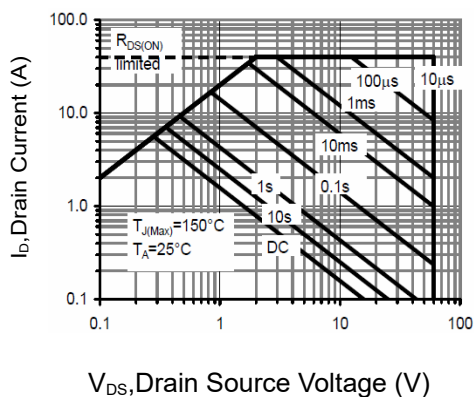


Figure 9: Safe Operation Area

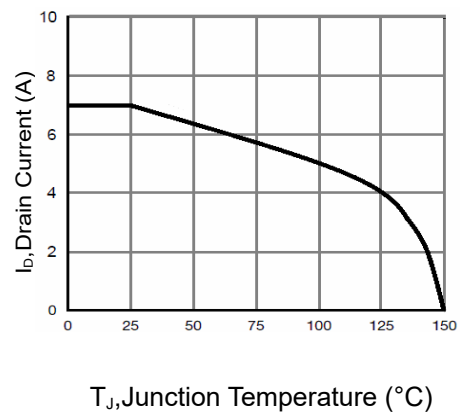


Figure 10: Current De-rating

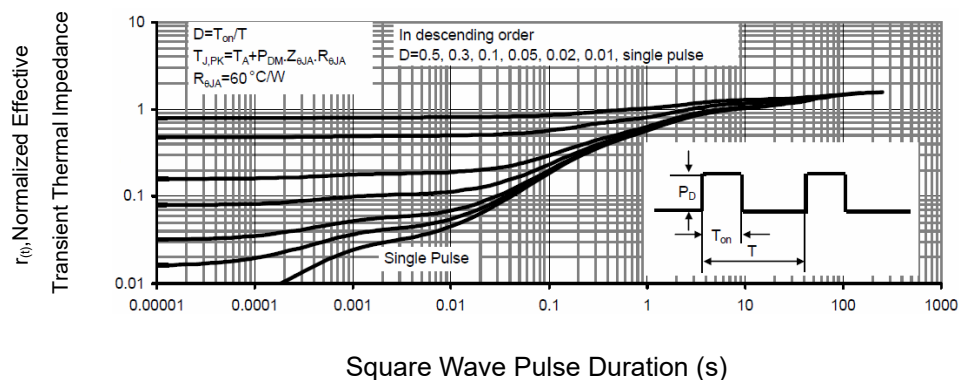


Figure 11: Normalized Maximum Transient Thermal Impedance



6.3 Typical characteristic

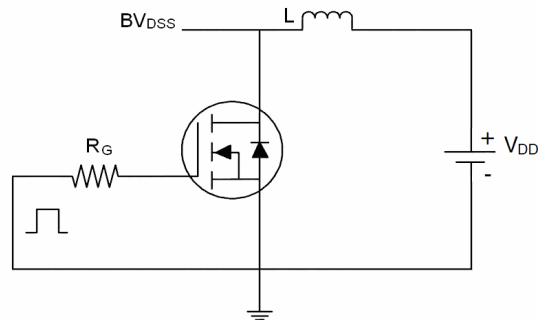


Figure 12: EAS test Circuits

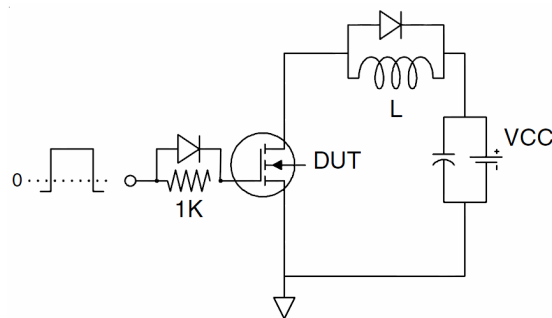


Figure 13: Gate charge test Circuit

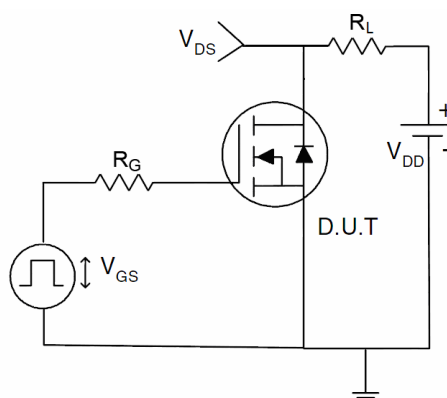
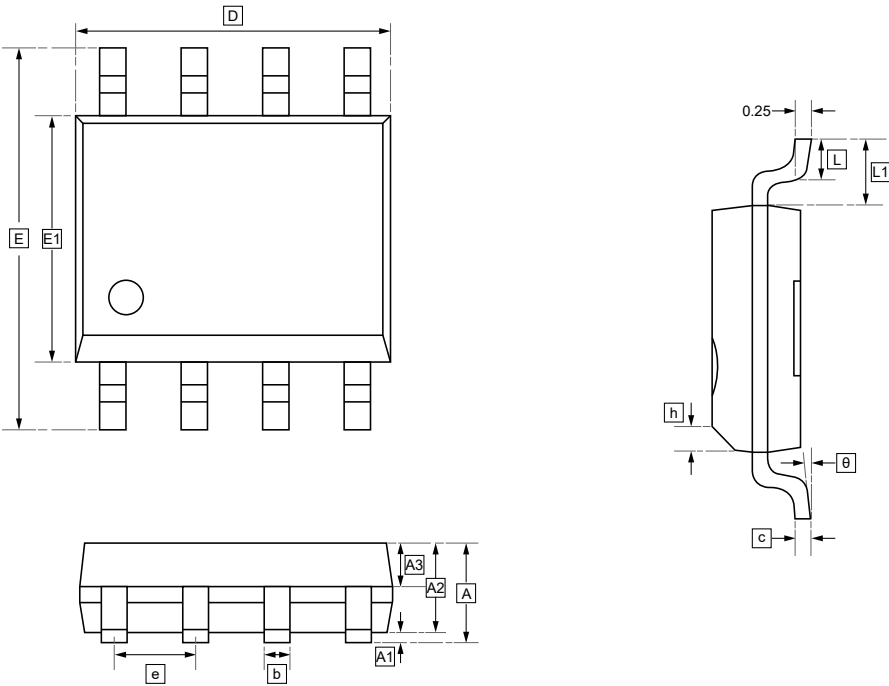


Figure 14: Switch Time Test Circuit



7.SOP-8 Package Outline Dimensions



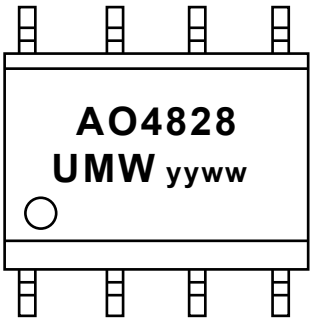
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.80	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 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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