

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.

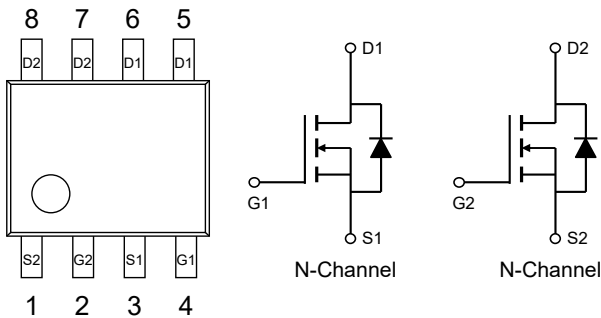
2.Features

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

3.Pinning information

Pin	Symbol	Description
2,4	G2, G1	GATE
1,3	S2, S1	SOURCE
5,6,7,8	D1, D2	DRAIN

SOP-8



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



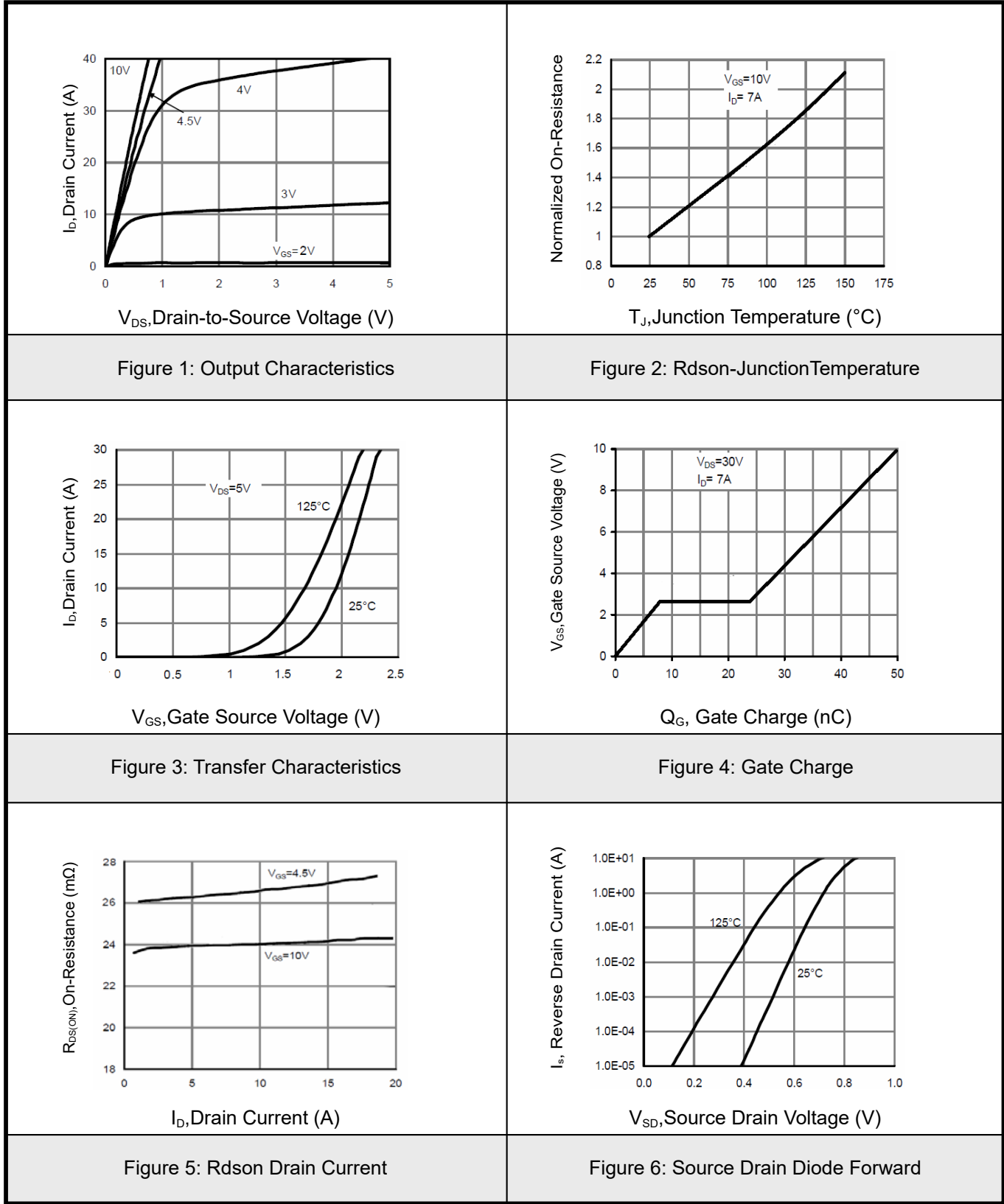
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=6A$			1.2	V
Diode Forward Current (Note 2)	I_S				7	A
Reverse Recovery Time	t_{rr}	$T_J=25^{\circ}C, I_F=7A$		35		ns
Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu s(Notes3)$		43		nC
Forward Turn-On Time	t_{on}	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





6.2Typical characteristic

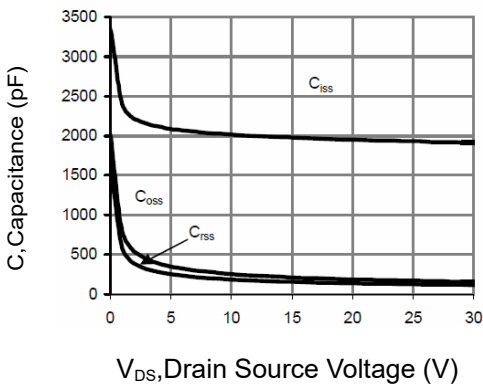


Figure 7: Capacitance vs Vds

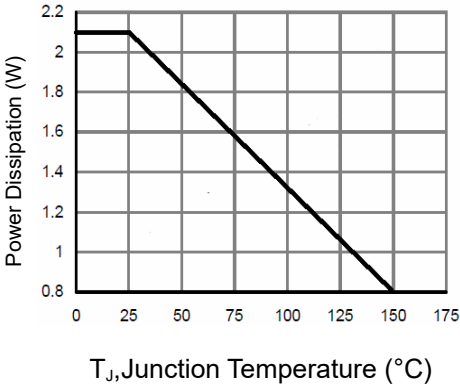


Figure 8: Power De-rating

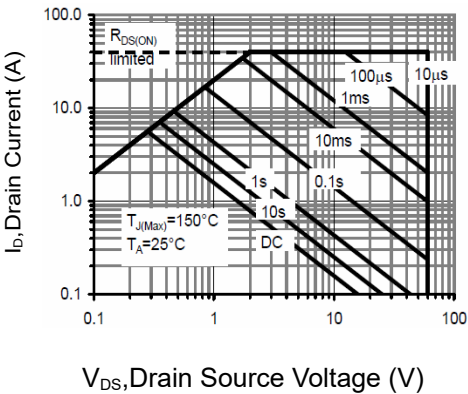


Figure 9: Safe Operation Area

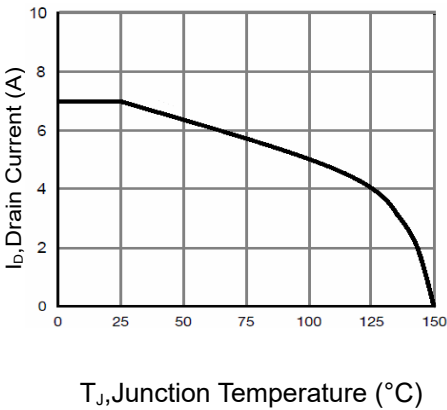


Figure 10: Current De-rating

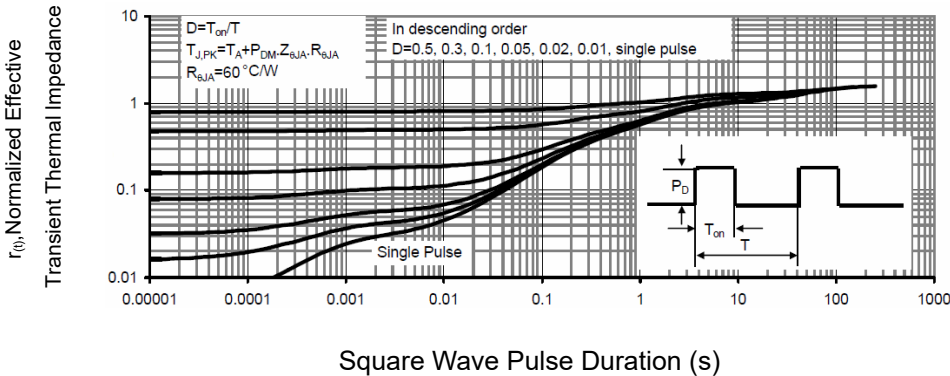


Figure 11: Normalized Maximum Transient Thermal Impedance



6.3 Typical characteristic

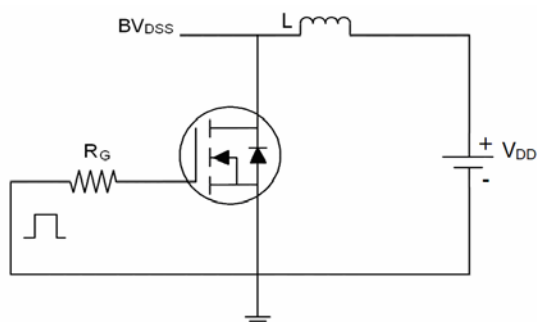


Figure 12: EAS test Circuits

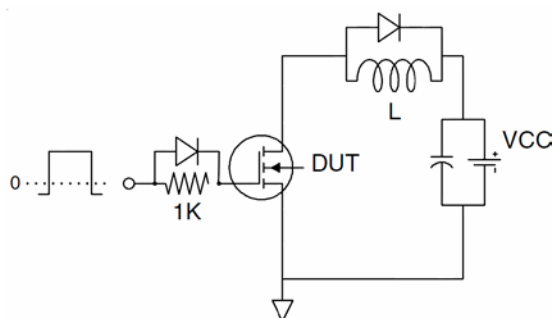


Figure 13: Gate charge test Circuit

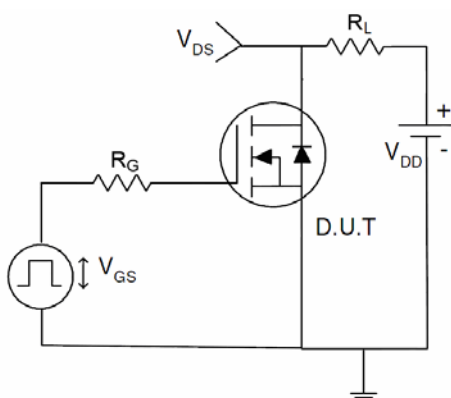
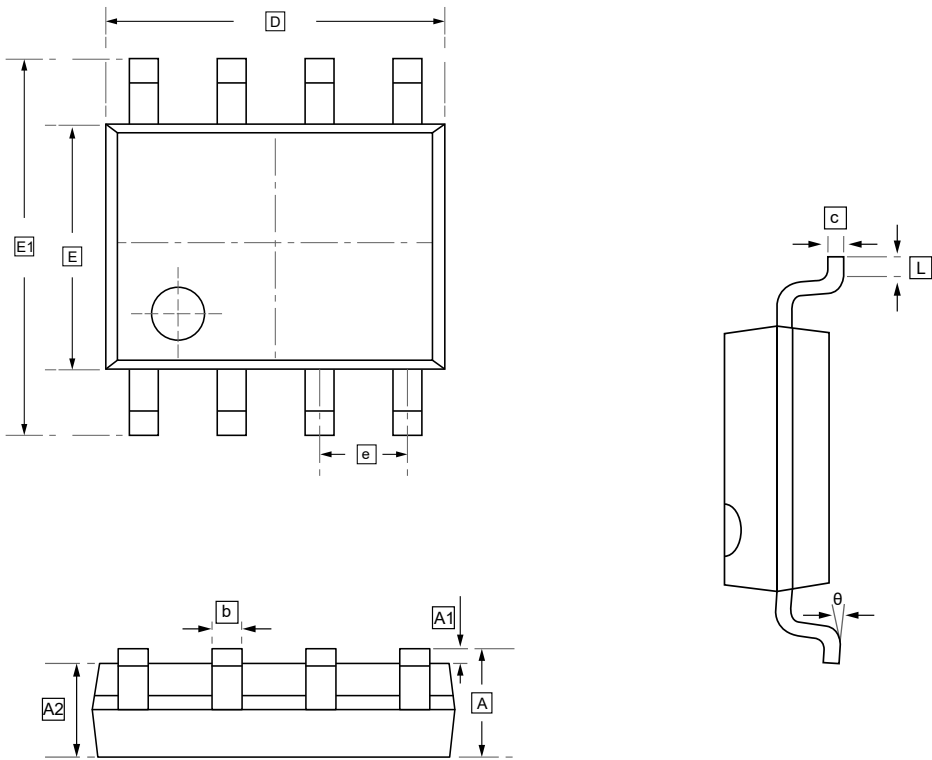


Figure 14: Switch Time Test Circuit



7.SOP-8 Package Outline Dimensions

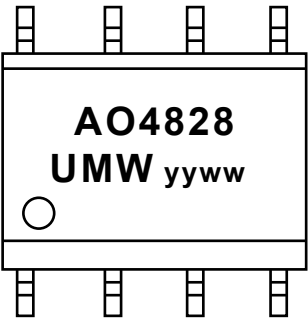


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	L	θ
Min	1.350	0.000	1.350	0.330	0.170	4.700	3.800	5.800	1.270	0.400	0°
Max	1.750	0.100	1.550	0.510	0.250	5.100	4.000	6.200	BSC	1.270	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

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