UMW AO4840

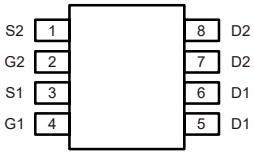
Dual 40V N-Channel MOSFET

1.Features

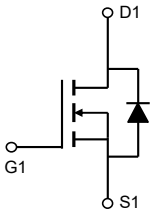
- $V_{DS\ (V)}$=40V
- I_D=7A(V_{GS}=10V)
- $R_{DS(ON)}$<0.028Ω(V_{GS}=10V)
- $R_{DS(ON)}$<0.03Ω(V_{GS}=4.5V)
- TrenchFET® power MOSFET
- 100 % R_g and UIS tested

2.Pinning information

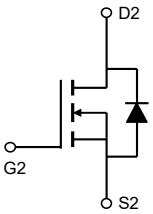
Pin	Symbol	Description
1,3	S2,S1	SOURCE
2,4	G2,G1	GATE
5,6,7,8	D2,D1	DRAIN



Top View



N-Channel



N-Channel

3.Absolute Maximum Ratings T_C= 25°C

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25°C	I_D	7	A
	T_C=125°C		4	
Continuous Source Current (Diode Conduction) [a]		I_S	3.6	
Pulsed Drain Current [b]		I_{DM}	28	
Single Pulse Avalanche Current	L=0.1mH	I_{AS}	18	
Single Pulse Avalanche Energy		E_{AS}	16.2	mJ
Maximum Power Dissipation [b]	T_C=25°C	P_D	4	W
	T_C=125°C		1.3	W
Storage Temperature		T_J, T_{STG}	-55 to 150	°C

4.Thermal Resistance Rating

Parameter		Symbol	Typ	Max	Units
Junction-to-Ambient	PCB Mount[c]	R_{thJA}	90	110	°C/W
Junction-to-Foot (Drain)		R_{thJF}	60	34	°C/W

Notes

a. Package limited.

b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

c. When mounted on 1" square PCB (FR4 material).

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V_{DS}	V_{GS}=0V, I_D=250μA	40			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.5	2	2.5	V
Gate-source leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{GS}=0V, V_{DS}=60V			1	μA
		V_{GS}=0V,V_{DS}=60V,T_J=125°C			50	μA
		V_{GS}=0V,V_{DS}=60V,T_J=175°C			150	μA
On-State Drain Current [a]	$I_{D(ON)}$	V_{GS}=10V, V_{DS}≥5V	20			A
Drain-Source On-State Resistance [a]	$R_{DS(ON)}$	V_{GS}=10V, I_D=4.5A		0.028		Ω
		V_{GS}=4.5V, I_D=4A		0.03		Ω
Forward transconductance [f]	g_{FS}	V_{DS}=15V, I_D=4.5A		15		S
Dynamic [b]						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		600	750	pF
Output Capacitance	C_{oss}			110	140	pF
Reverse Transfer Capacitance	C_{rss}			50	62	pF
Total gate charge [c]	Q_g	V_{DS}=30V, V_{GS}=10V, I_D=5.3A		11.7	18	nC
Gate-source charge [c]	Q_{gs}			1.8	2.7	nC
Gate-drain charge [c]	Q_{gd}			2.8	4.2	nC
Gate resistance	R_g	f=1MHz	1.3		6	Ω
Turn-On Delay Time [c]	$t_{D(on)}$	V_{DS}=30V R_L=6.8Ω, I_D≈4.4A V_{GEN}=10V, R_G=1Ω		7	11	ns
Rise Time [c]	t_r			3.3	5	ns
Turn-Off Delay Time [c]	$t_{D(off)}$			22.4	33.5	ns
Fall time [c]	t_f			2.1	3.2	ns
Source-Drain Diode Ratings and Characteristics [b]						
Pulsed Current [a]	I_{SM}	I_F=2A, V_{GS}=0V			28	A
Forward Voltage	V_{SD}	I_F=2A, V_{GS}=0V		0.75	1.1	V

a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

b. Guaranteed by design, not subject to production testing.

c. Independent of operating temperature.

6.1Typical characteristic

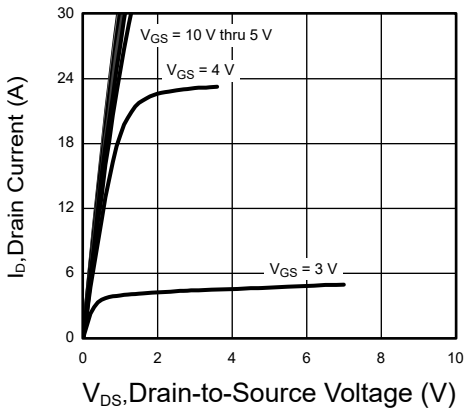


Figure 1: Output Characteristics

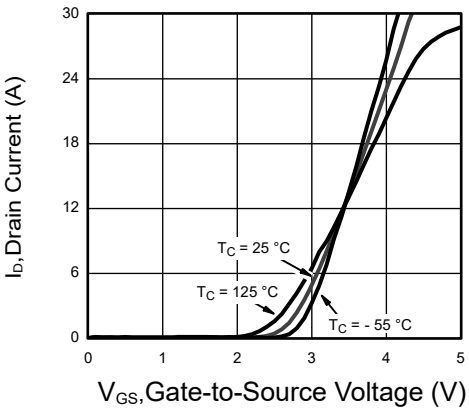


Figure 2: Transfer Characteristics

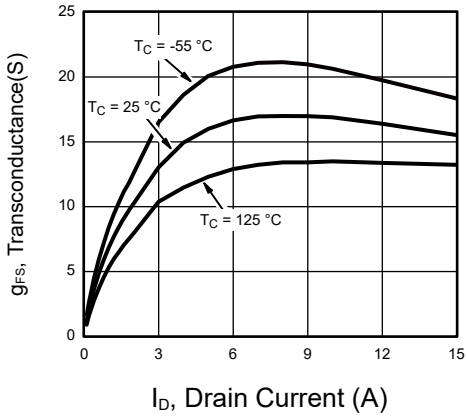


Figure 3: Transconductance

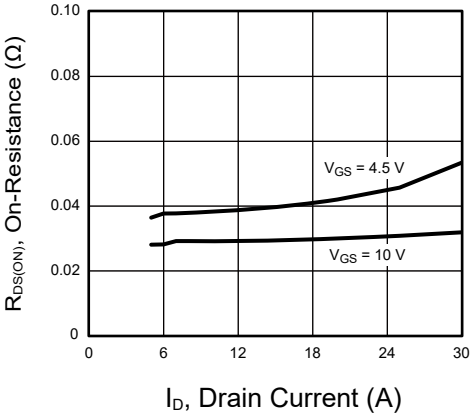


Figure 4: $R_{DS(ON)}$ vs. Drain Current

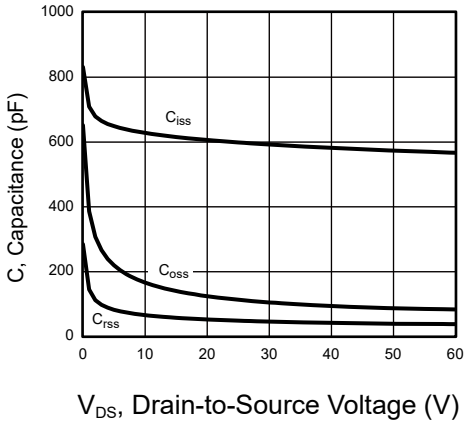


Figure 5: Capacitance

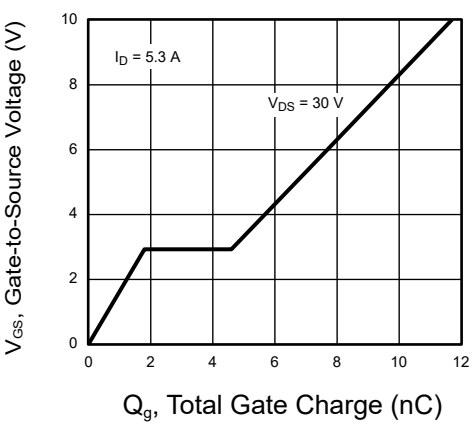


Figure 6: Gate Charge

6.2Typical characteristic

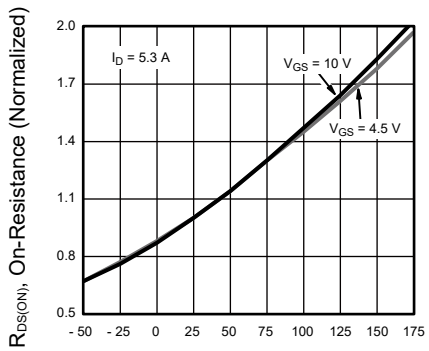


Figure 7: On-Resistance vs. Junction Temperature

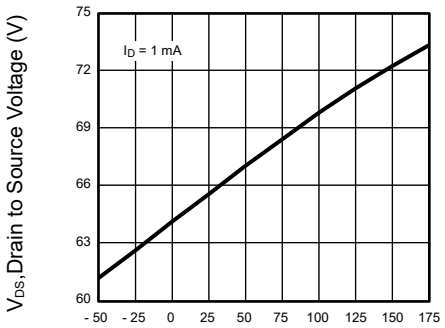


Figure 8: Drain Source Breakdown vs. Junction Temperature

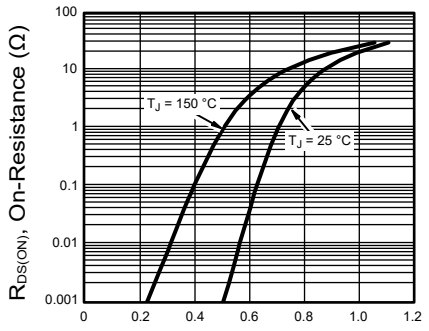


Figure 9: Source Drain Diode Forward Voltag

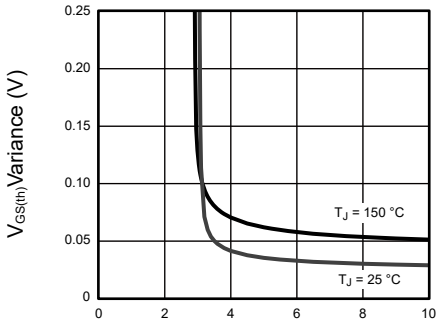


Figure 10: On-Resistance vs. Gate-to-Source Voltage

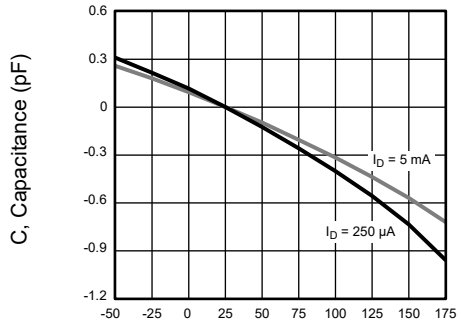
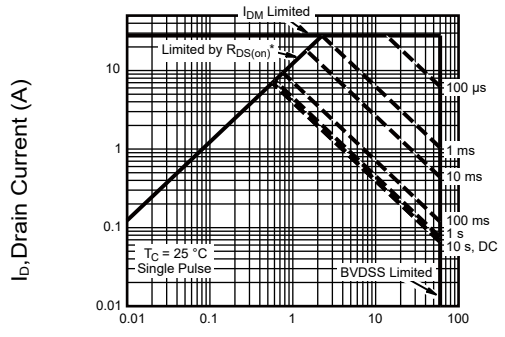


Figure 11: Threshold Voltage



* V_{GS} > minimum V_{GS} at which $R_{DS(ON)}$ is specified

Figure 12: Safe Operating Area

6.3Typical characteristic

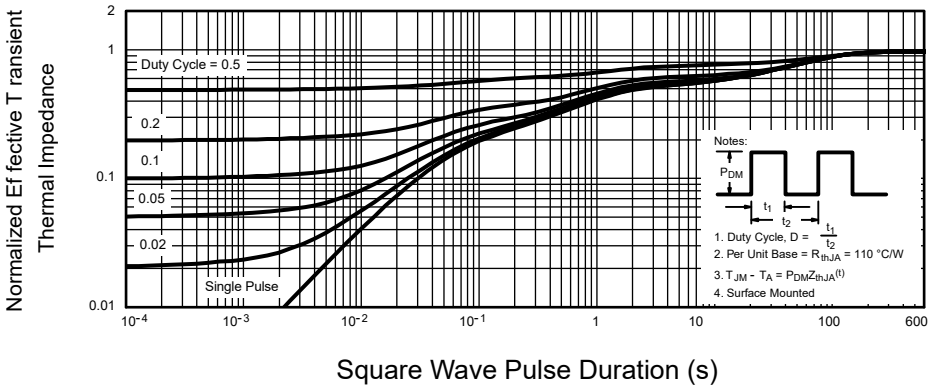


Figure 13: Normalized Thermal Transient Impedance, Junction-to-Ambient

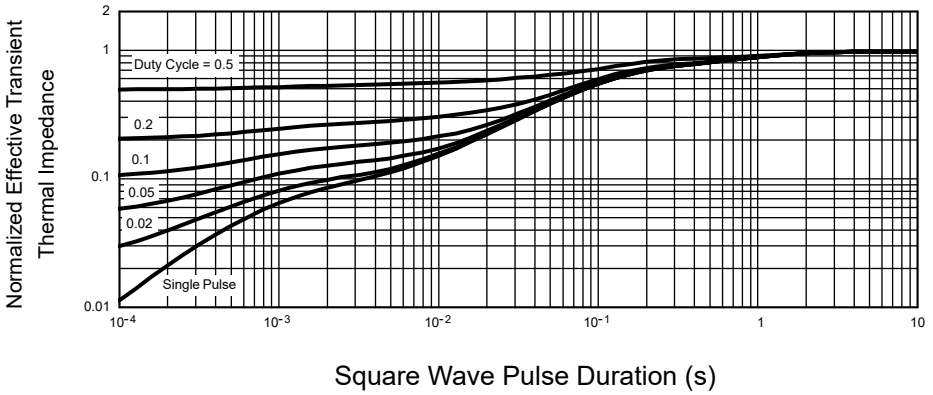
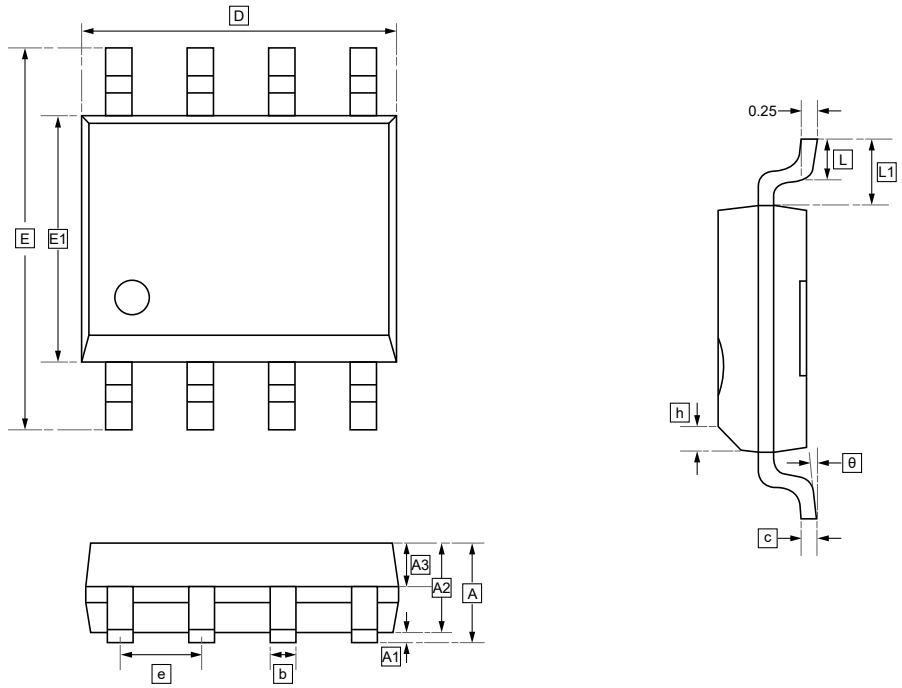


Figure 14: Normalized Thermal Transient Impedance, Junction-to-Foot

7.SOP-8 Package Outline Dimensions

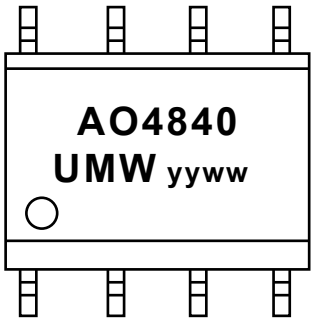


DIMENSIONS (mm are the original dimensions)

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 AO4840	SOP-8	3000	Tape and reel

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