UMW AO4435

-30V P-Channel MOSFET

1.Description

The AO4435 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.

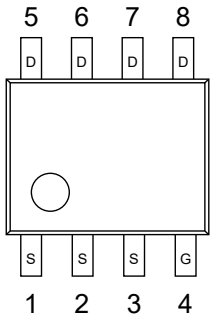
2.Features

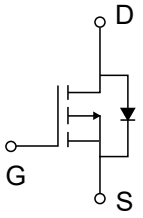
- $V_{DS\ (V)}$=-30V
- I_D=-12A
- $R_{DS(ON)}$<20mΩ(V_{GS}=10V)

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}	±20	V
Drain Current [3], V_{GS}=10V	T_A=25°C	I_D	-12	A
	T_A=70°C		-10	
Pulsed Drain Current [1]		I_{DM}	-50	
Total Power Dissipation	T_A=25°C	P_D	2.5	W
Linear Derating Factor			0.02	W/°C
Storage Temperature Range		T_{STG}	-55 to 150	°C
Operating Junction Temperature Range		T_J	-55 to 150	°C
Maximum Thermal Resistance, Junction-ambient [3]		R_{thJA}	50	°C/W

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-7A		15	20	mΩ
		V_{GS}=-4.5V, I_D=-5A		25	32	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1		-3	V
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-7A		16		S
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V			-5	uA
Gate-Source Leakage	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
Total Gate Charge	Q_g	I_D=-7A		18	29	nC
Gate-Source Charge	Q_{gs}	V_{DS}=-24V		3		nC
Gate-Drain ("Miller") Charge	Q_{gd}	V_{GS}=-4.5V		10		nC
Turn-on Delay Time	$t_{D(on)}$	V_{DS}=-15V		8		ns
Rise Time	t_r	I_D=-1A		6.6		ns
Turn-off Delay Time	$t_{D(off)}$	R_G=3.3Ω		44		ns
Fall Time	t_f	V_{GS}=-10V		34		ns
Input Capacitance	C_{iss}	V_{GS}=0V		1175	1690	pF
Output Capacitance	C_{oss}	V_{DS}=-25V		195		pF
Reverse Transfer Capacitance	C_{rss}	f=1MHz		190		pF
Forward On Voltage [2]	V_{SD}	I_S=-2.1A, V_{GS}=0V			-1.2	V
Reverse Recovery Time	t_{rr}	I_F=-7A, V_{GS}=0V		28		ns
Reverse Recovery Charge	Q_{rr}	dI/dt=100A/μs		18		nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in [2] copper pad of FR4 board, t <10sec ; 125 °C/W when mounted on Min. cop.

7.1Typical characteristic

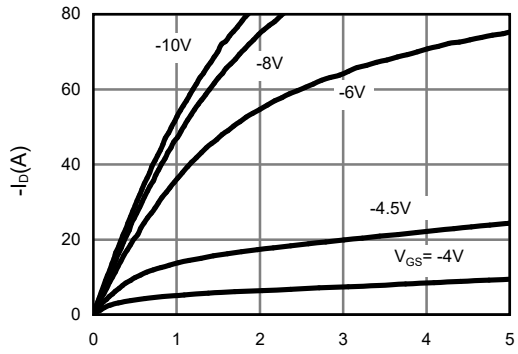


Figure 1: On-Region Characteristics

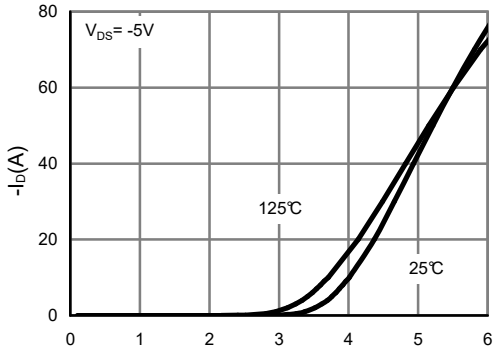


Figure 2: Transfer Characteristics

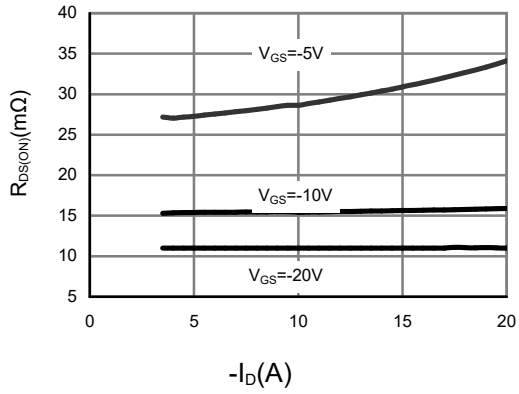


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

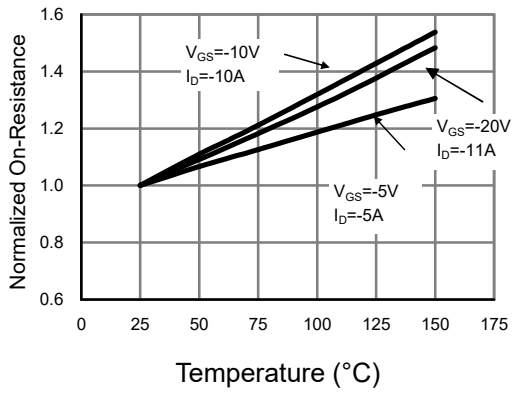


Figure 4: On-Resistance vs. Junction Temperature

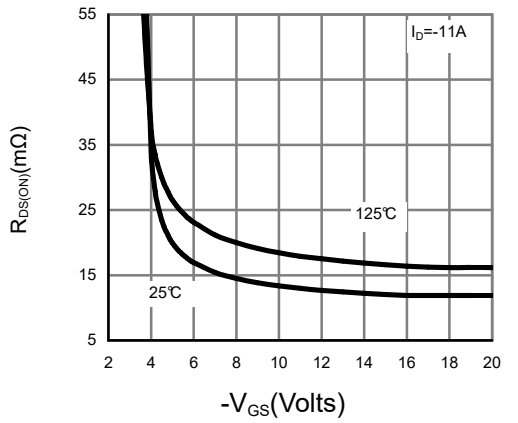


Figure 5: On-Resistance vs. Gate-Source Voltage

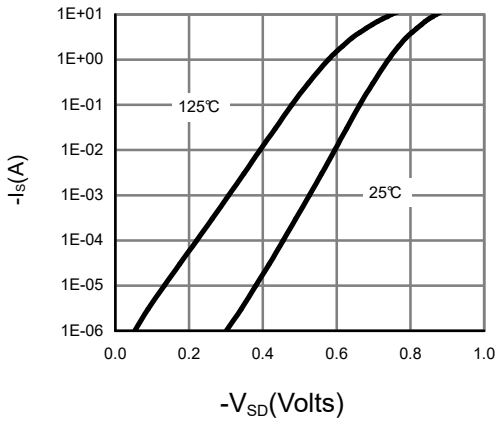


Figure 6: Body-Diode Characteristics

7.2Typical characteristic

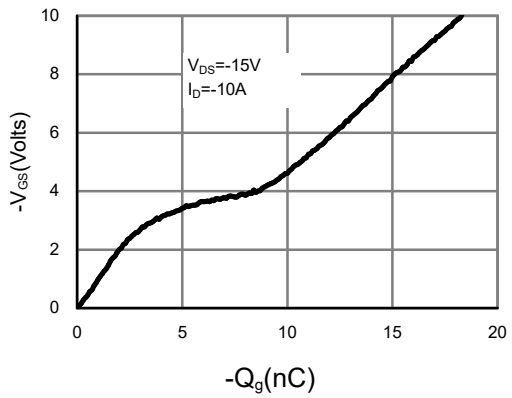


Figure 7: Gate-Charge Characteristics

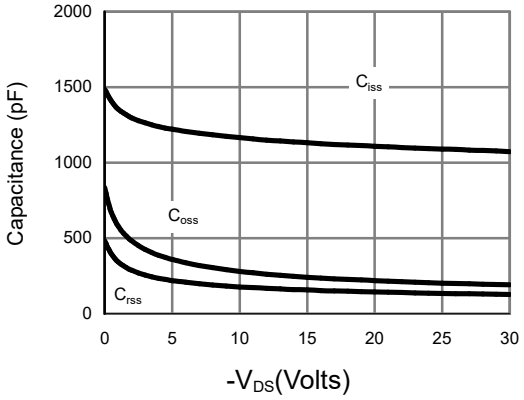


Figure 8: Capacitance Characteristics

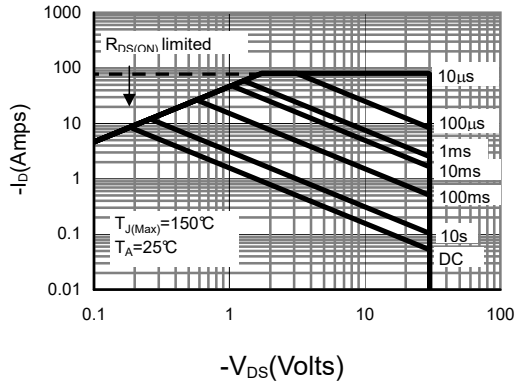


Figure 9: : Maximum Forward Biased Safe Operating Area (Note E)

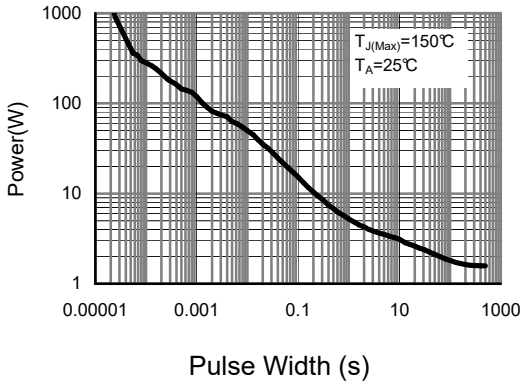


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

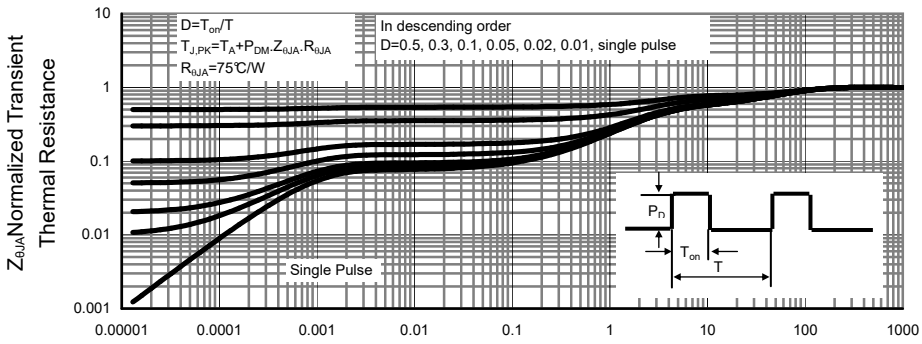
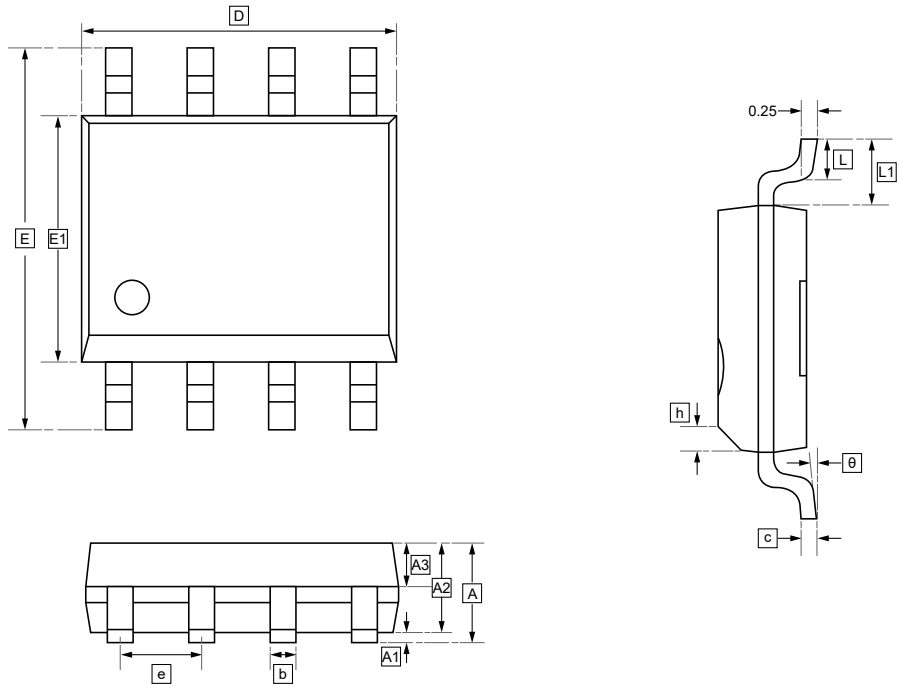


Figure 12: Normalized Maximum Transient Thermal Impedance

7.SOP-8 Package Outline Dimensions

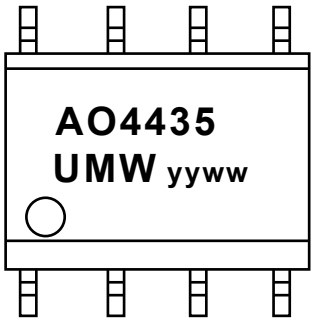


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.70	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 AO4435	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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