



EN: This Datasheet/Document is presented by the manufacturer.

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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.

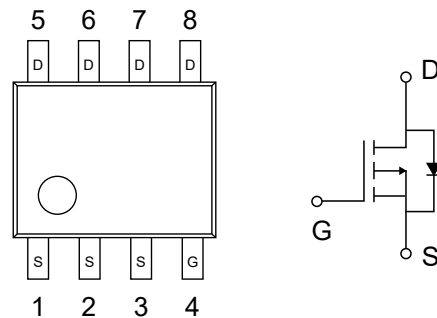
2.Features

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

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 $T_A = 25^\circ C$

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current ³ , $V_{GS} = 10V$	$T_A = 25^\circ C$	I_D	-12	A
	$T_A = 70^\circ C$		-10	
Pulsed Drain Current ¹		I_{DM}	-50	
Total Power Dissipation	$T_A = 25^\circ C$	P_D	2.5	W
Linear Derating Factor			0.02	W/ $^\circ C$
Storage Temperature Range		T_{STG}	-55 to 150	$^\circ C$
Operating Junction Temperature Range		T_J	-55 to 150	$^\circ C$
Maximum Thermal Resistance, Junction-ambient ³		R_{thJA}	50	$^\circ C/W$



5. Electrical Characteristic ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu\text{A}$, $V_{GS}=0\text{V}$	-30			V
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$, $I_D=-7\text{A}$		15	20	mΩ
		$V_{GS}=-4.5\text{V}$, $I_D=-5\text{A}$		25	32	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-1		-3	V
Forward Transconductance	g_{FS}	$V_{DS}=-10\text{V}$, $I_D=-7\text{A}$		16		S
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-24\text{V}$, $V_{GS}=0\text{V}$			-5	uA
Gate-Source Leakage	I_{GSS}	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$			± 100	nA
Total Gate Charge	Q_g	$I_D=-7\text{A}$		18	29	nC
Gate-Source Charge	Q_{gs}	$V_{DS}=-24\text{V}$		3		nC
Gate-Drain ("Miller") Charge	Q_{gd}	$V_{GS}=-4.5\text{V}$		10		nC
Turn-on Delay Time	$t_{D(on)}$	$V_{DS}=-15\text{V}$		8		ns
Rise Time	t_r	$I_D=-1\text{A}$		6.6		ns
Turn-off Delay Time	$t_{D(off)}$	$R_G=3.3\Omega$		44		ns
Fall Time	t_f	$V_{GS}=-10\text{V}$		34		ns
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$		1175	1690	pF
Output Capacitance	C_{oss}	$V_{DS}=-25\text{V}$		195		pF
Reverse Transfer Capacitance	C_{rss}	$f=1\text{MHz}$		190		pF
Forward On Voltage ²	V_{SD}	$I_S=-2.1\text{A}$, $V_{GS}=0\text{V}$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_F=-7\text{A}$, $V_{GS}=0\text{V}$		28		ns
Reverse Recovery Charge	Q_{rr}	$dI/dt=100\text{A}/\mu\text{s}$		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, $t < 10\text{sec}$; 125°C/W when mounted on Min. cop.



7.1 Typical characteristic

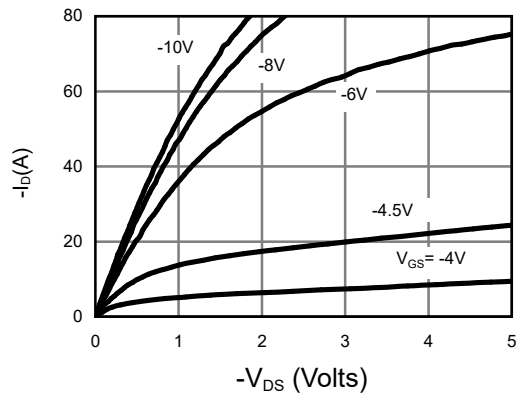


Figure 1: On-Region Characteristics

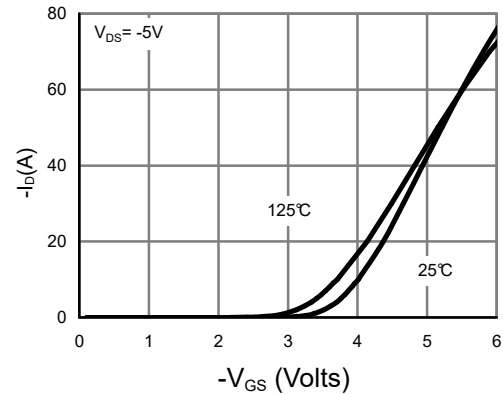


Figure 2: Transfer Characteristics

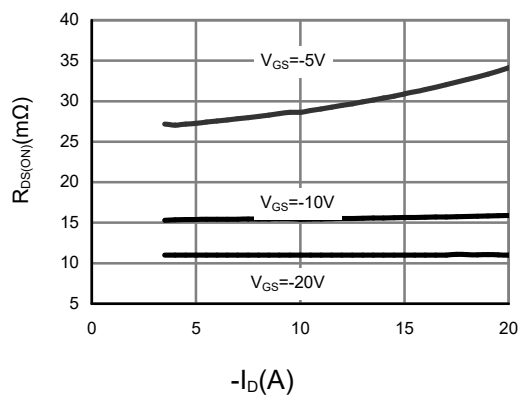


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

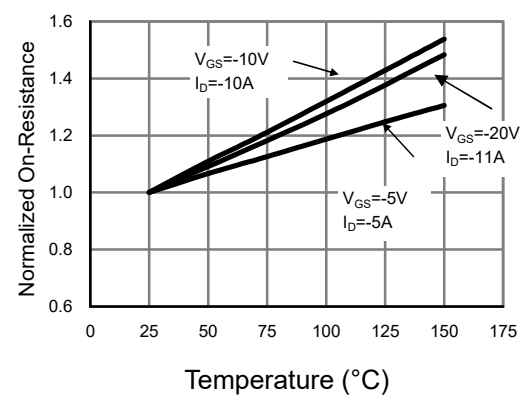


Figure 4: On-Resistance vs. Junction Temperature

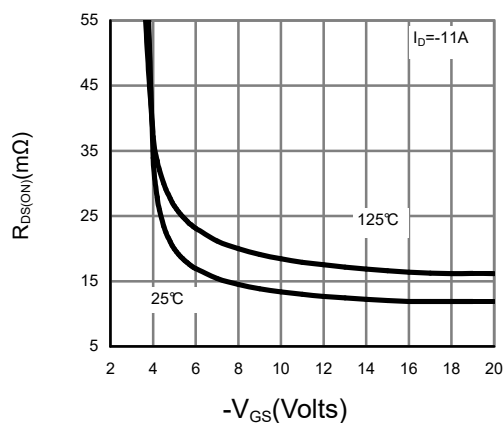


Figure 5: On-Resistance vs. Gate-Source Voltage

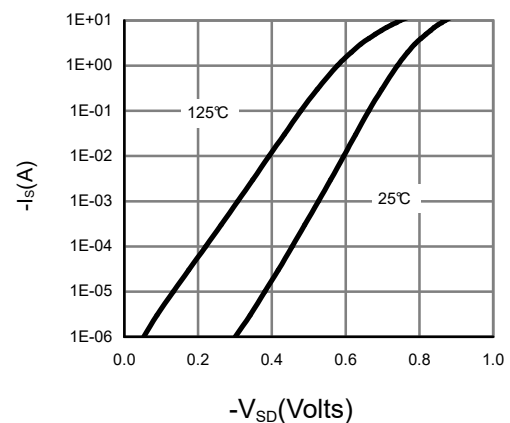


Figure 6: Body-Diode Characteristics



7.2 Typical characteristic

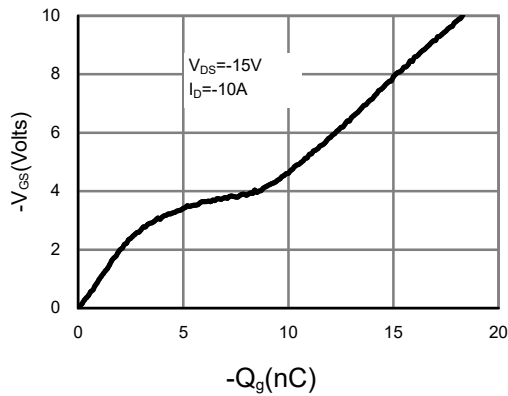


Figure 7: Gate-Charge Characteristics

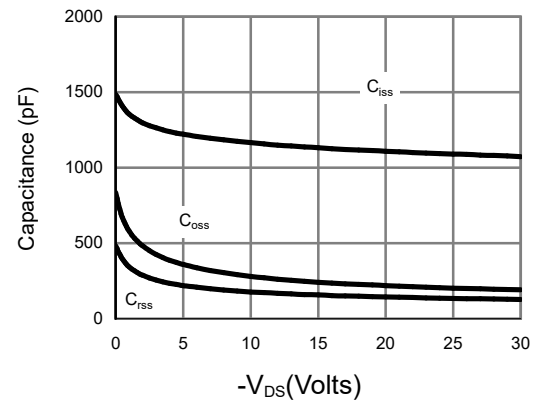


Figure 8: Capacitance Characteristics

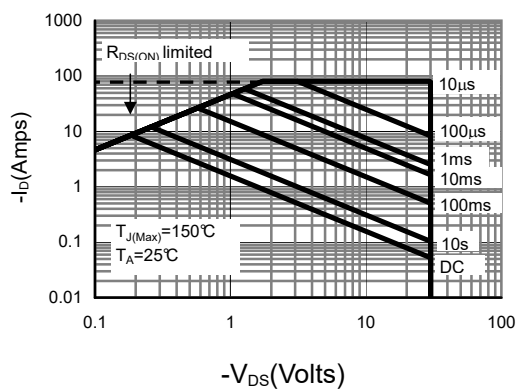


Figure 9: : Maximum Forward Biased Safe Operating Area (Note E)

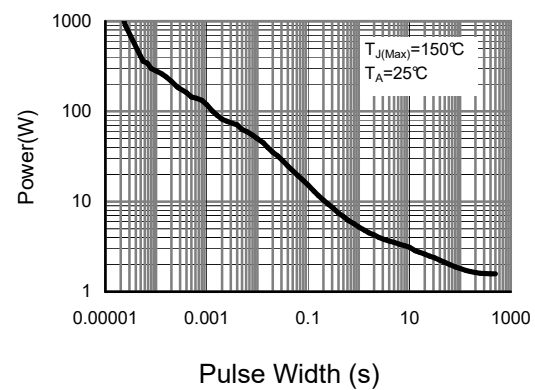


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

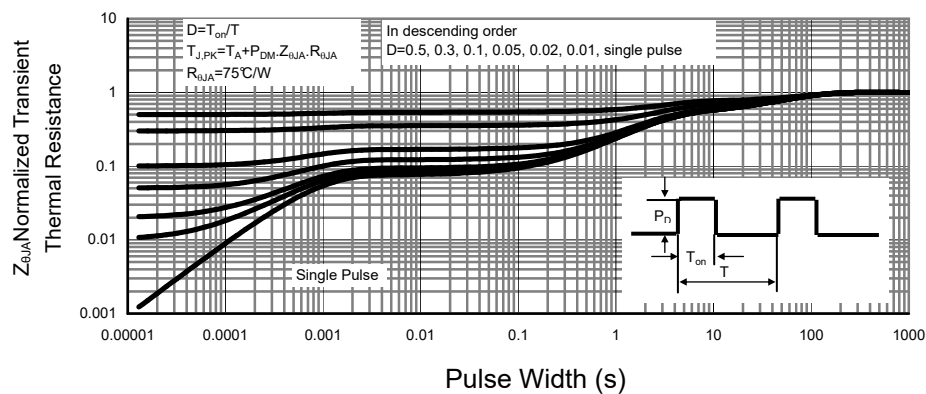
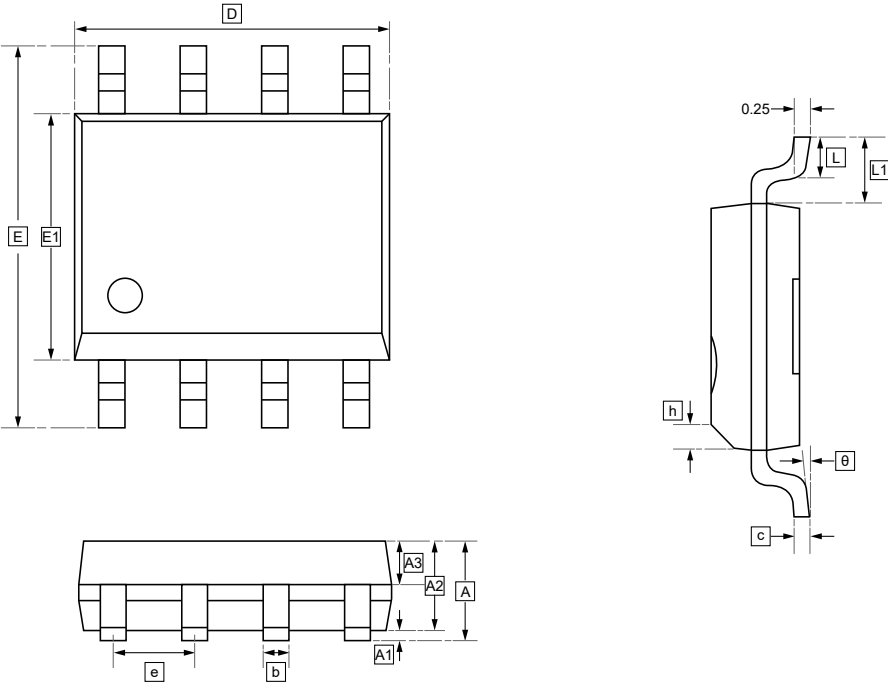


Figure 12: Normalized Maximum Transient Thermal Impedance



7.SOP-8 Package Outline Dimensions



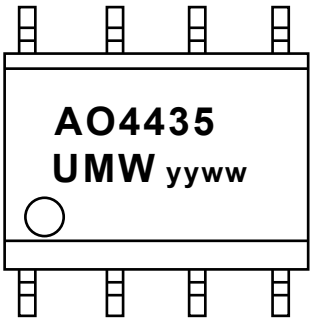
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.80	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 AO4435	SOP-8	3000	Tape and reel



9.Disclaimer

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