

1.Description

The AO4443 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.

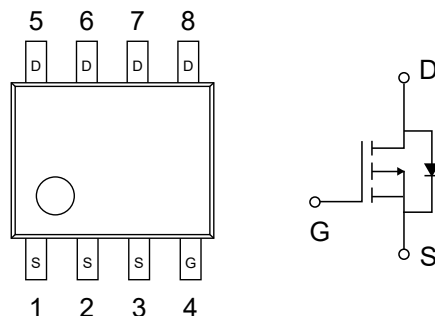
3.Application

- Battery protection
- Load switch

4.Pinning information

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

SOP-8



5.Absolute Maximum Ratings $T_A = 25^\circ\text{C}$

Parameter	Symbol	Rating	Units
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	-40	V
Gate-Source Voltage ($V_{DS}=0V$)	V_{GS}	± 20	
Drain Current-Continuous($T_C=25^\circ\text{C}$)	I_D	-8	A
Drain Current-Continuous($T_C=100^\circ\text{C}$)		-5	
Drain Current-Continuous, Current-Pulsed (Note 1)	$I_{DM(pluse)}$	-20	
Maximum Power Dissipation($T_C=25^\circ\text{C}$)	P_D	3.8	W
Maximum Power Dissipation($T_C=100^\circ\text{C}$)		1.9	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance,Junction-to-Case	R_{thJC}	4	$^\circ\text{C/W}$



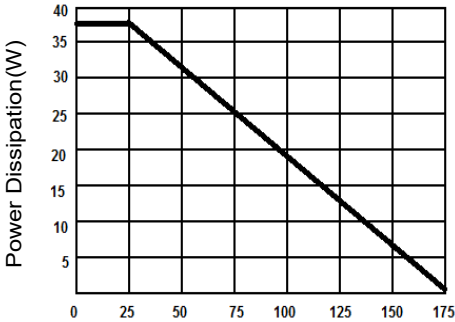
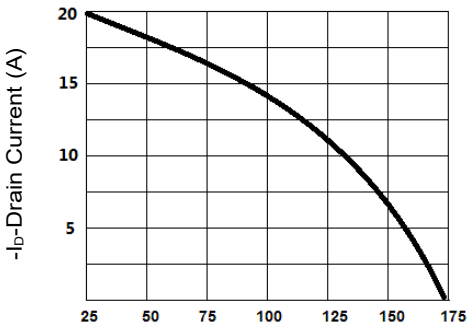
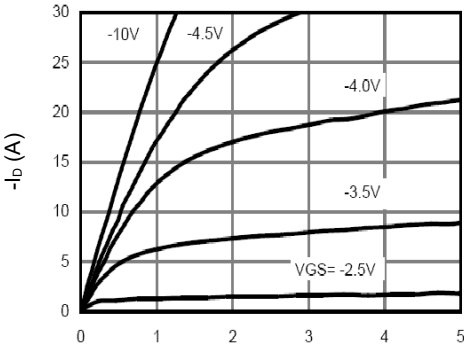
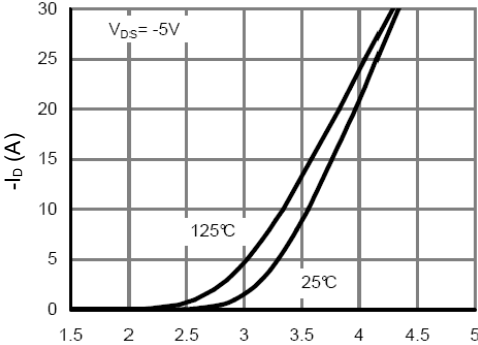
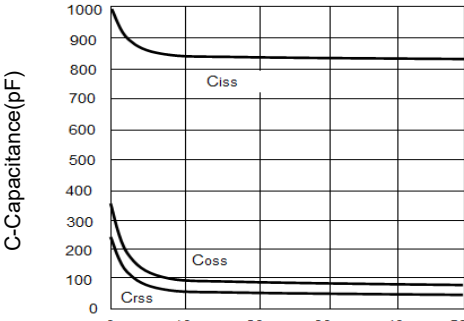
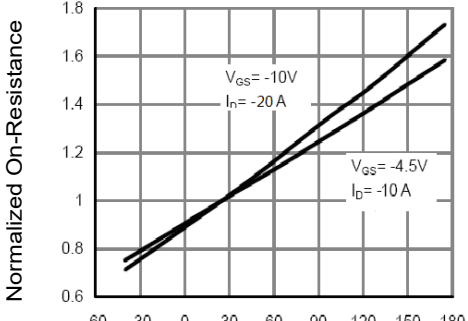
6. Electrical Characteristic ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu\text{A}$, $V_{GS}=0\text{V}$	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-32\text{V}$, $V_{GS}=0\text{V}$			-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-1	-2	-3	V
Forward Transconductance	g_{FS}	$V_{DS}=-5\text{V}$, $I_D=-8\text{A}$		25		S
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$, $I_D=-6\text{A}$		18	22	m Ω
		$V_{GS}=-4.5\text{V}$, $I_D=-5\text{A}$		22	25	m Ω
Input Capacitance	C_{iss}	$V_{DS}=-25\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$		840		pF
Output Capacitance	C_{oss}			92		pF
Reverse Transfer Capacitance	C_{rss}			60		pF
Turn-on Delay Time	$t_{D(on)}$	$R_L=1.6\Omega$, $R_{GEN}=3\Omega$ $V_{GS}=-10\text{V}$, $V_{DS}=-20\text{V}$		5		ns
Turn-on Rise Time	t_r			12		ns
Turn-Off Delay Time	$t_{D(off)}$			20		ns
Turn-Off Fall Time	t_f			4.5		ns
Total Gate Charge	Q_g	$V_{GS}=-10\text{V}$, $V_{DS}=-20\text{V}$ $I_D=-5\text{A}$		20		nC
Gate-Source Charge	Q_{gs}			2.5		nC
Gate-Drain Charge	Q_{gd}			4.5		nC
Source-Drain Current(Body Diode)	I_{SD}				-20	A
Forward on Voltage	V_{SD}	$I_S=-20\text{A}$, $V_{GS}=0\text{V}$			-1.2	V

Notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature

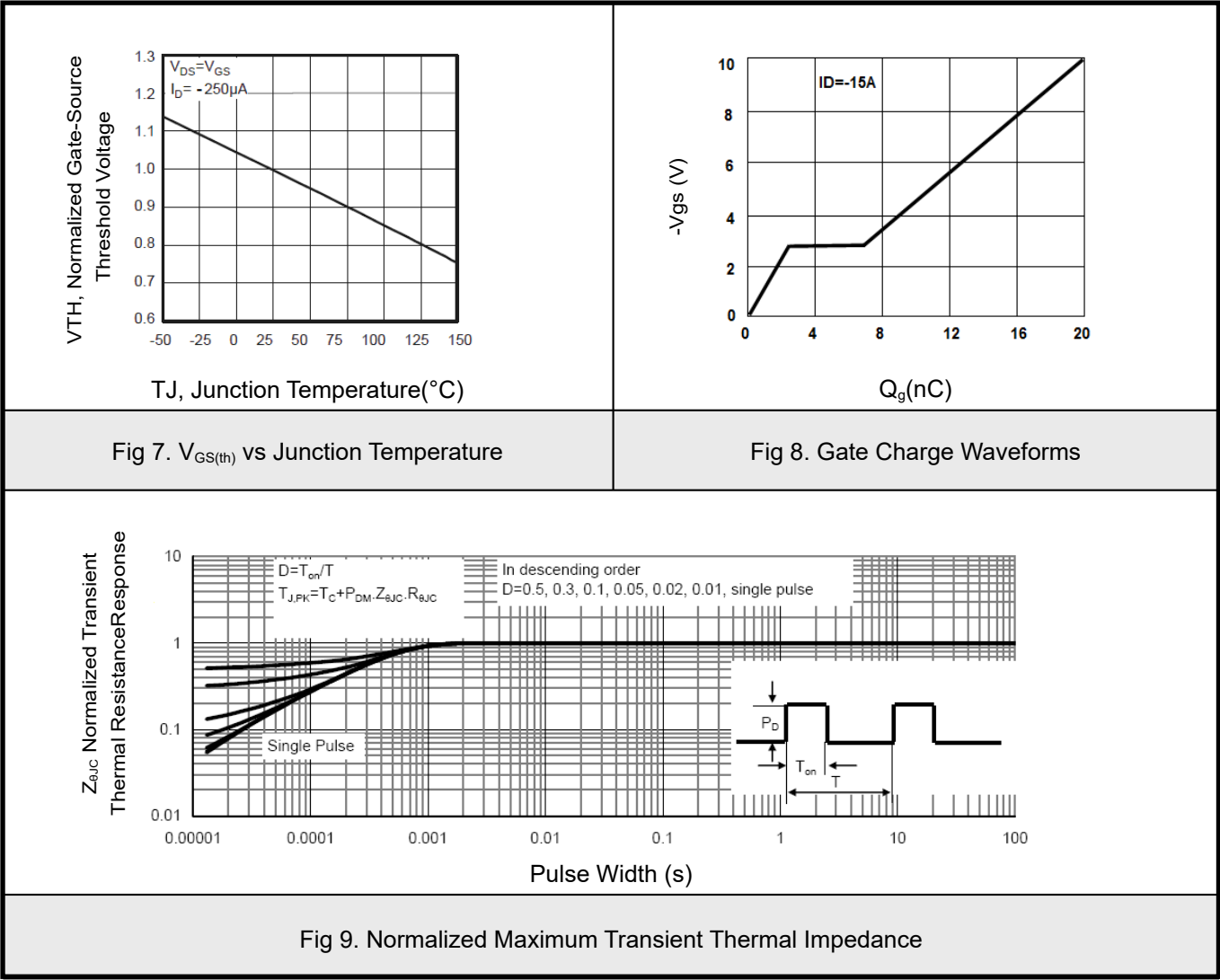


7.1Typical characteristic

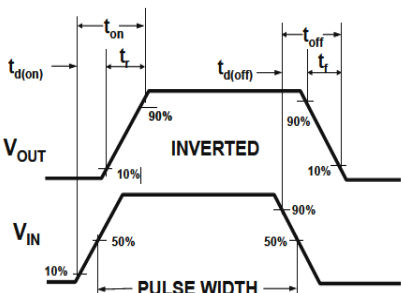
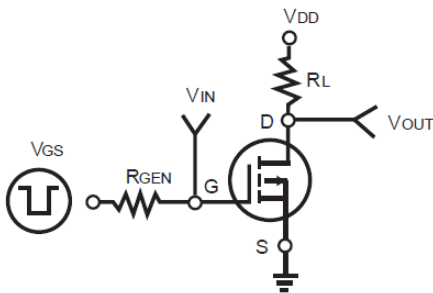
 Power Dissipation(W) -V_{DS} - Drain-to-Source Voltage (V)	 -I_D-Drain Current (A) -V_{DS} - Drain-to-Source Voltage (V)
Fig 1. Typical Output Characteristics	Fig 2. Typical Output Characteristics
 -I_D (A) -V_{DS} (Volts)	 -I_D (A) -V_{GS} (Volts)
Fig 3. Output Characteristics	Fig 4. Transfer Characteristics
 C-Capacitance(pF) -V_{DS} - Drain-to-Source Voltage(V)	 Normalized On-Resistance Temperature (°C)
Fig 5. Capacitance	Fig 6. R _{DS(ON)} vs Junction Temperature



7.2Typical characteristic

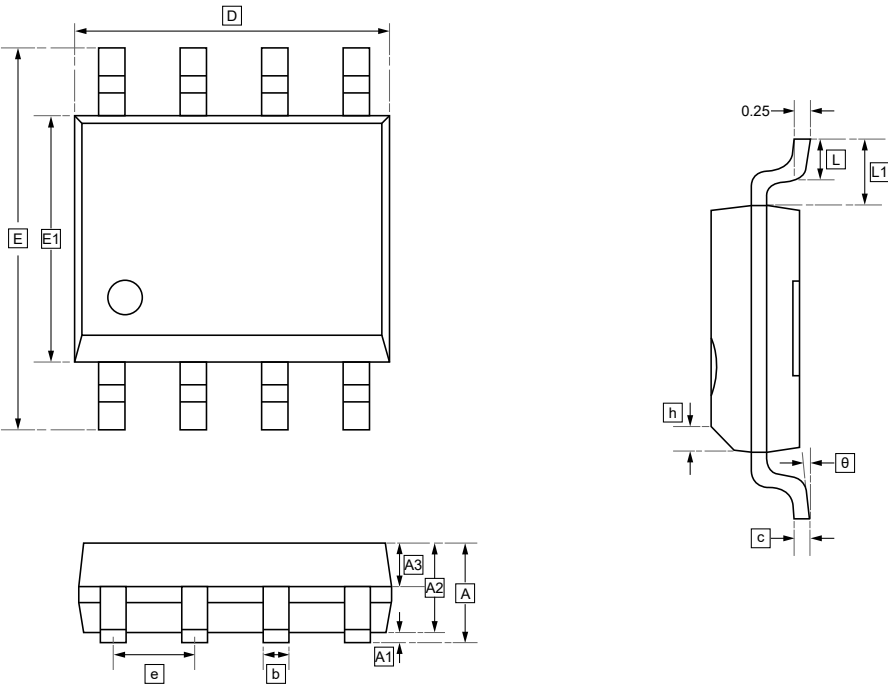


Switch Time Test Circuit and Switching Waveforms:





8.SOP-8 Package Outline Dimensions



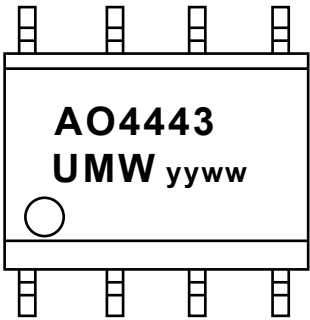
DIMENSIONS (mm are the original dimensions)

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°



9.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW AO4443	SOP-8	3000	Tape and reel



10.Disclaimer

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