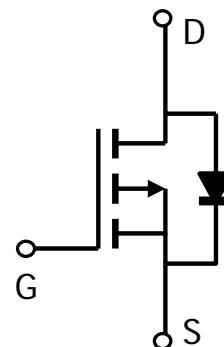


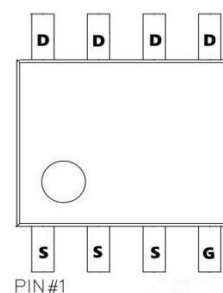
General Description

The AO4485 uses advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use as a DC-DC converter application.



Features

- V_{DS} (V) = -40V
- I_D = -10A
- $R_{DS(ON)} < 15m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 20m\Omega$ ($V_{GS} = -4.5V$)



Absolute Maximum Ratings $T_J=25^\circ C$ unless otherwise noted

Parameter	Symbol	10 Sec	Steady State	Units
Drain-Source Voltage	V_{DS}	-40		V
Gate-Source Voltage	V_{GS}	± 20		V
Continuous Drain Current ^A	I_D	$T_A=25^\circ C$	-12	A
		$T_A=70^\circ C$	-9	
Pulsed Drain Current ^B	I_{DM}	-120		W
Avalanche Current ^G	I_{AR}	-28		
Repetitive avalanche energy $L=0.3mH$ ^G	E_{AR}	118		
Power Dissipation ^A	P_D	$T_A=25^\circ C$	3.1	1.7
		$T_A=70^\circ C$	2.0	1.1
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150		$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^A	$R_{\theta JA}$	31	40	$^\circ C/W$
Maximum Junction-to-Ambient ^A		Steady State	59	75
Maximum Junction-to-Lead ^C	$R_{\theta JL}$	16	24	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units	
STATIC PARAMETERS							
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D = -250\mu\text{A}, V_{GS} = 0\text{V}$	-40			V	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -40\text{V}, V_{GS} = 0\text{V}$ $T_J = 55^{\circ}\text{C}$			-1 -5	μA	
I_{GSS}	Gate-Body leakage current	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			± 100	nA	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-1	-1.5	-2.5	V	
$I_{D(ON)}$	On state drain current	$V_{GS} = -10\text{V}, V_{DS} = -5\text{V}$	-120			A	
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS} = -10\text{V}, I_D = -10\text{A}$		12.5	15	$\text{m}\Omega$	
		$V_{GS} = -4.5\text{V}, I_D = -8\text{A}$		16	20		
g_{FS}	Forward Transconductance	$V_{DS} = -5\text{V}, I_D = -10\text{A}$		25		S	
V_{SD}	Diode Forward Voltage	$I_S = -1\text{A}, V_{GS} = 0\text{V}$		-0.7	-1	V	
I_S	Maximum Body-Diode Continuous Current				-3	A	
DYNAMIC PARAMETERS							
C_{iss}	Input Capacitance	$V_{GS}=0\text{V}, V_{DS}=-20\text{V}, f=1\text{MHz}$		2500	3000	pF	
C_{oss}	Output Capacitance			260			pF
C_{riss}	Reverse Transfer Capacitance			180			
R_g	Gate resistance	$V_{GS}=0\text{V}, V_{DS}=0\text{V}, f=1\text{MHz}$	2.5	4	6	Ω	
SWITCHING PARAMETERS							
$Q_g(10\text{V})$	Total Gate Charge	$V_{GS}=-10\text{V}, V_{DS}=-20\text{V}, I_D=-10\text{A}$		42	55	nC	
$Q_g(4.5\text{V})$	Total Gate Charge			18.6			
Q_{gs}	Gate Source Charge			7			
Q_{gd}	Gate Drain Charge			8.6			
$t_{D(on)}$	Turn-On DelayTime	$V_{GS}=-10\text{V}, V_{DS}=-20\text{V},$ $R_L = 2\Omega, R_{GEN}=3\Omega$		9.4		ns	
t_r	Turn-On Rise Time			20			
$t_{D(off)}$	Turn-Off DelayTime			55			
t_f	Turn-Off Fall Time			30			
t_{rr}	Body Diode Reverse Recovery Time		$I_F=-10\text{A}, dI/dt=100\text{A}/\mu\text{s}$		38		49
Q_{rr}	Body Diode Reverse Recovery Charge	$I_F=-10\text{A}, dI/dt=100\text{A}/\mu\text{s}$		47		nC	

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

D: The static characteristics in Figures 1 to 6 are obtained using $t \leq 300\mu\text{s}$ pulses, duty cycle 0.5% max.

E: These tests are performed with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The SOA curve provides a single pulse rating.

F: The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.

G: E_{AR} and I_{AR} ratings are based on low frequency and duty cycles to keep $T_J=25\text{C}$.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

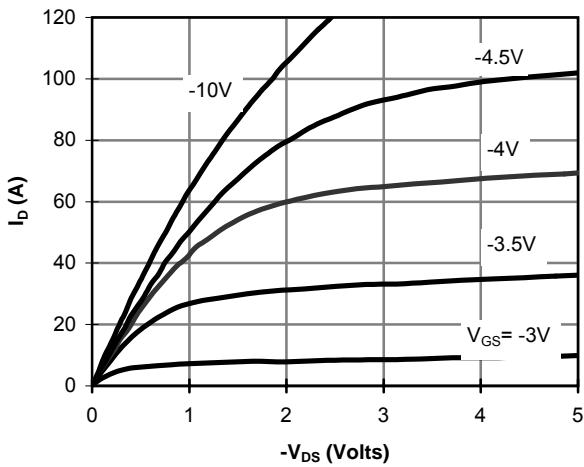


Figure 1: On-Region Characteristics

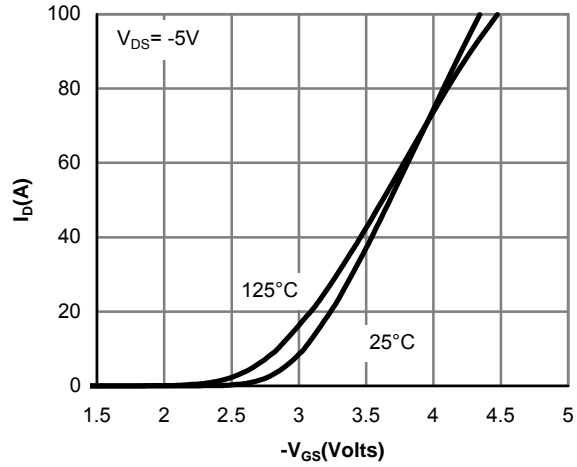


Figure 2: Transfer Characteristics

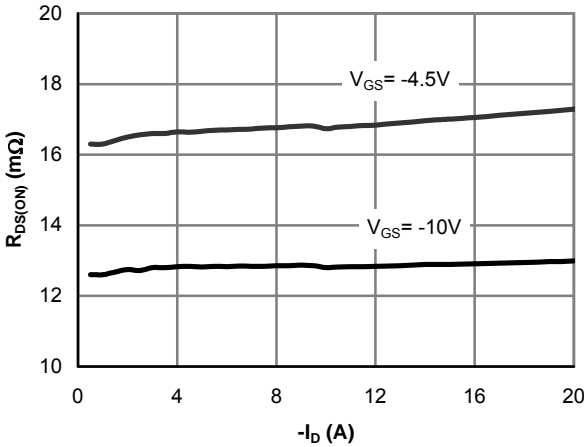


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

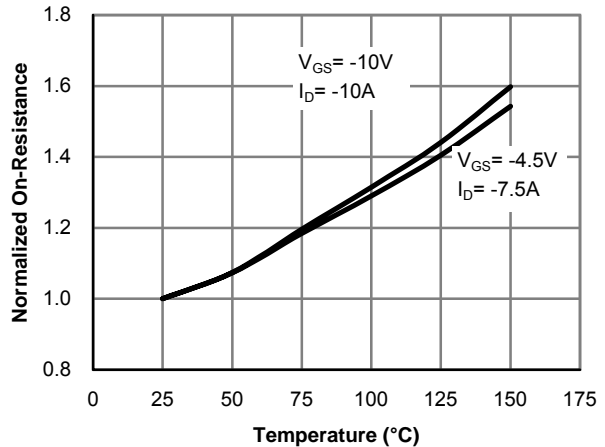


Figure 4: On-Resistance vs. Junction Temperature

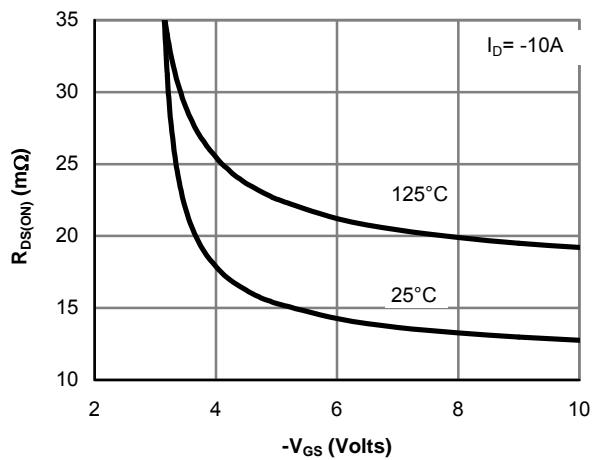


Figure 5: On-Resistance vs. Gate-Source Voltage

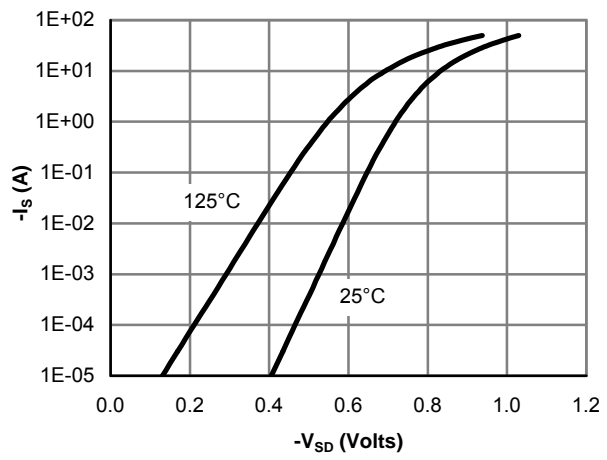


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

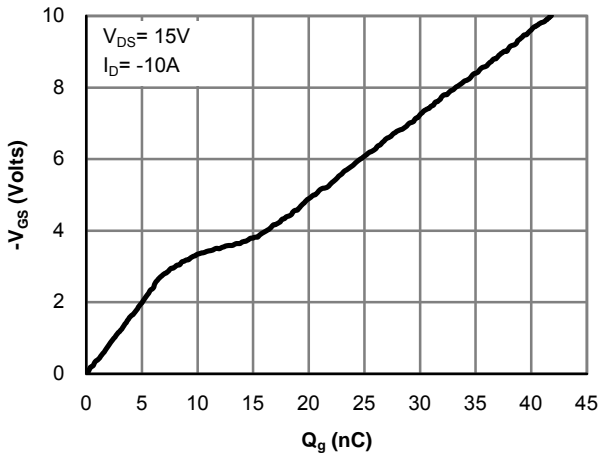


Figure 7: Gate-Charge Characteristics

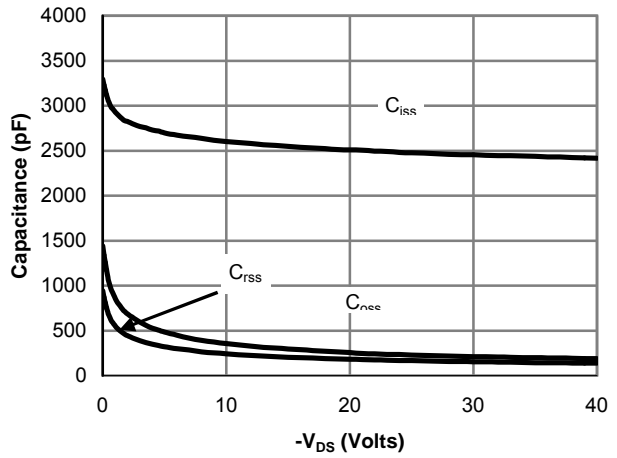


Figure 8: Capacitance Characteristics

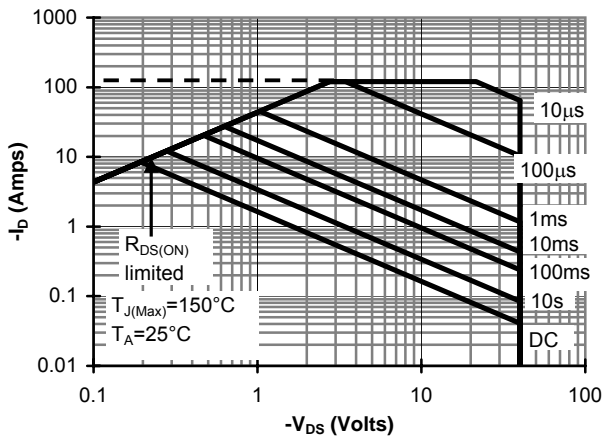


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

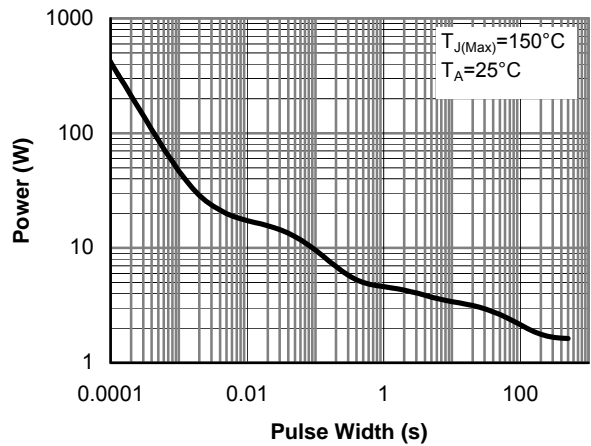


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

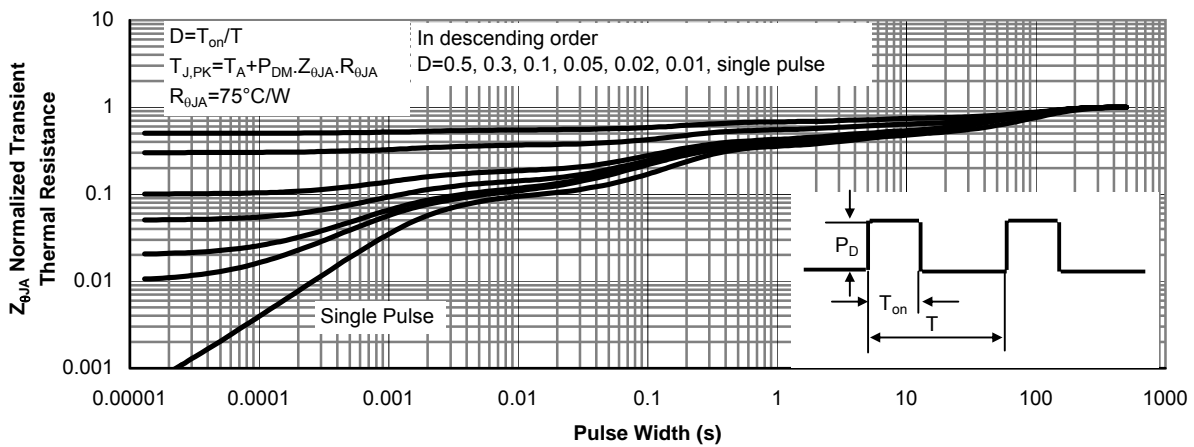
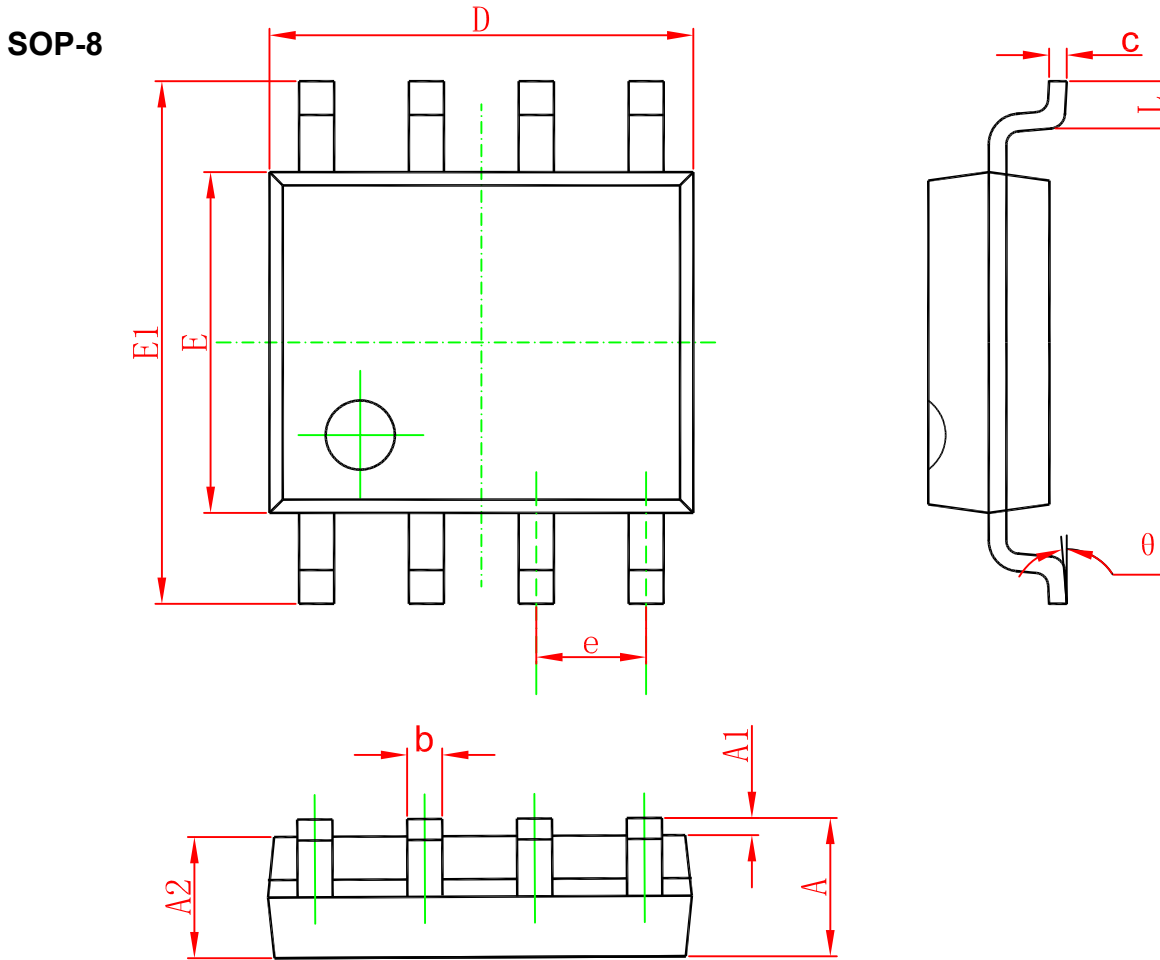


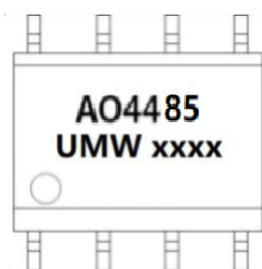
Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
theta	0°	8°	0°	8°

Marking



("xxxx"代表年份周期)

Ordering information

Order code	Package	Baseqty	Deliverymode
UMW AO4485	SOP-8	3000	Tape and reel

单击下面可查看定价，库存，交付和生命周期等信息

[>>UMW\(友台半导体\)](#)