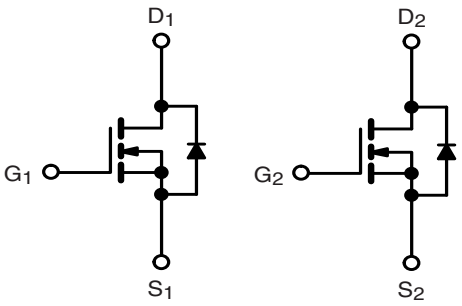
General Description

The AO4826 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications.

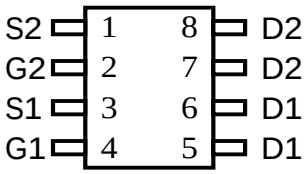


General Features

V_{DS} = 60V I_D =6.3 A

$R_{DS(ON)}$ < 25mΩ @ V_{GS}=10V

$R_{DS(ON)}$ < 30mΩ @ V_{GS}=4.5V



ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	60	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 = 0.1 mH	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	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to +175	°C

THERMAL RESISTANCE RATINGS

PARAMETER		SYMBOL	LIMIT	UNIT
Junction-to-Ambient	PCB Mount [c]	R_{thJA}	110	°C/W
Junction-to-Foot (Drain)		R_{thJF}	34	

Notes

a. Package limited.

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

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

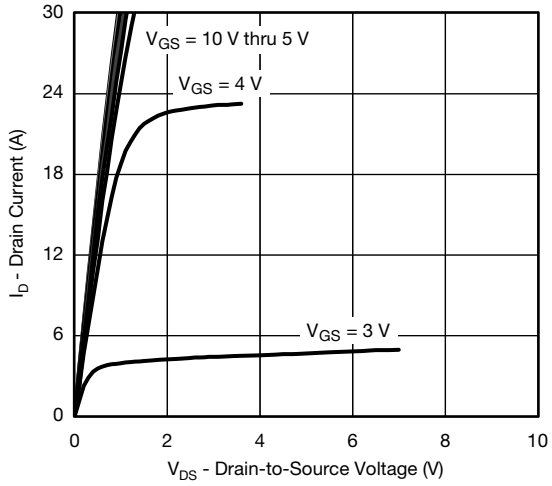
SPECIFICATIONS (T_C = 25 °C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0 V, I_D = 250 µA		60	-	-	V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA		1	1.5	2.5	
Gate-Source Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V		-	-	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V	V_{DS} = 60 V	-	-	1	µA
		V_{GS} = 0 V	V_{DS} = 60 V, T_J = 125 °C	-	-	50	
		V_{GS} = 0 V	V_{DS} = 60 V, T_J = 175 °C	-	-	150	
On-State Drain Current [a]	$I_{D(on)}$	V_{GS} = 10 V	V_{DS} ≥ 5 V	20	-	-	A
Drain-Source On-State Resistance [a]	$R_{DS(on)}$	V_{GS} = 10 V	I_D = 4.5 A		20	25	mΩ
		V_{GS} = 4.5 V	I_D = 4 A		22	30	
Forward Transconductance [f]	g_{fs}	V_{DS} = 15 V, I_D = 4.5 A		-	15	-	S
Input Capacitance	C_{iss}	V_{GS} = 0 V	V_{DS} = 25 V, f = 1 MHz	-	600	750	pF
Output Capacitance	C_{oss}			-	110	140	
Reverse Transfer Capacitance	C_{rss}			-	50	62	
Total Gate Charge [c]	Q_g	V_{GS} = 10 V	V_{DS} = 30 V, I_D = 5.3 A	-	11.7	18	nC
Gate-Source Charge [c]	Q_{gs}			-	1.8	2.7	
Gate-Drain Charge [c]	Q_{gd}			-	2.8	4.2	
Gate Resistance	R_g	f = 1 MHz		1.3	-	6	Ω
Turn-On Delay Time [c]	$t_{d(on)}$	V_{DD} = 30 V, R_L = 6.8 Ω I_D ≅ 4.4 A, V_{GEN} = 10 V, R_g = 1 Ω		-	7	11	ns
Rise Time [c]	t_r			-	3.3	5	
Turn-Off Delay Time [c]	$t_{d(off)}$			-	22.4	33.5	
Fall Time [c]	t_f			-	2.1	3.2	
Pulsed Current [a]	I_{SM} [b]			-	-	28	A
Forward Voltage	V_{SD}	I_F = 2 A, V_{GS} = 0 V		-	0.75	1.1	V

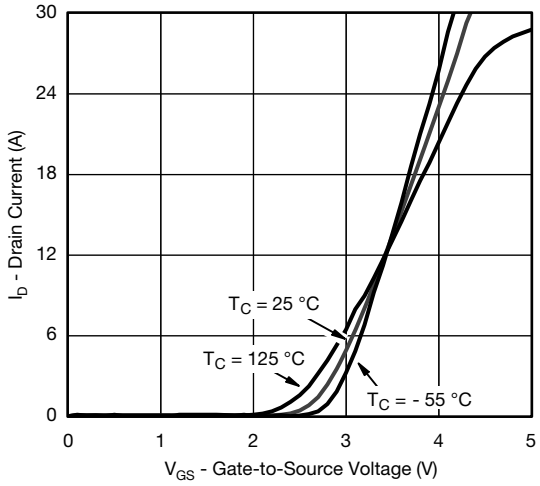
Notes

a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.
b. Guaranteed by design, not subject to production testing.
c. Independent of operating temperature.

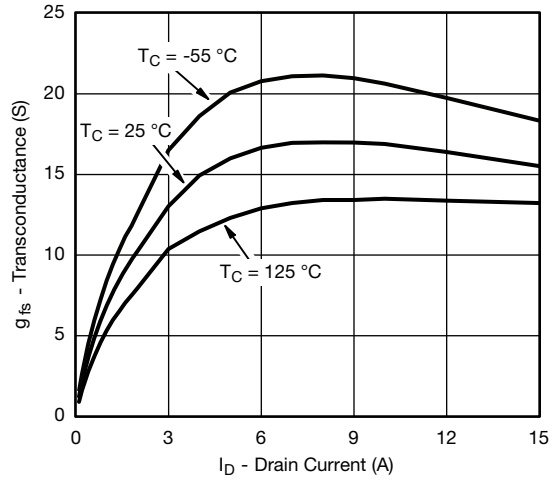
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



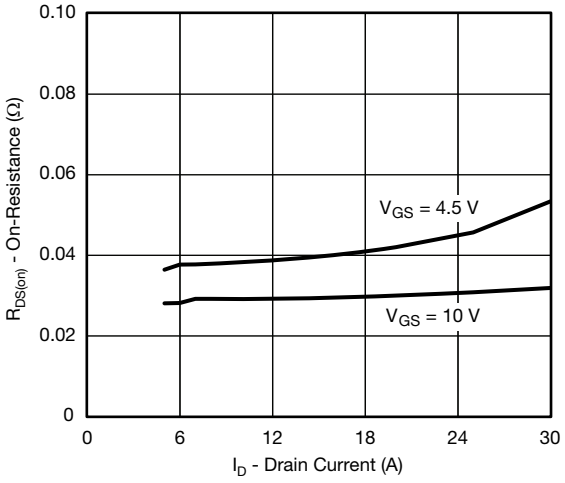
Output Characteristics



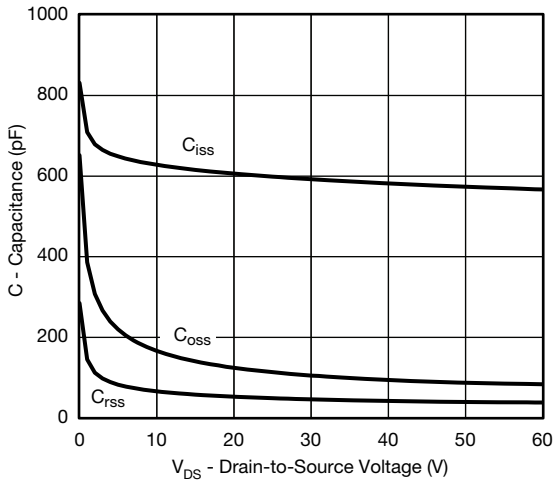
Transfer Characteristics



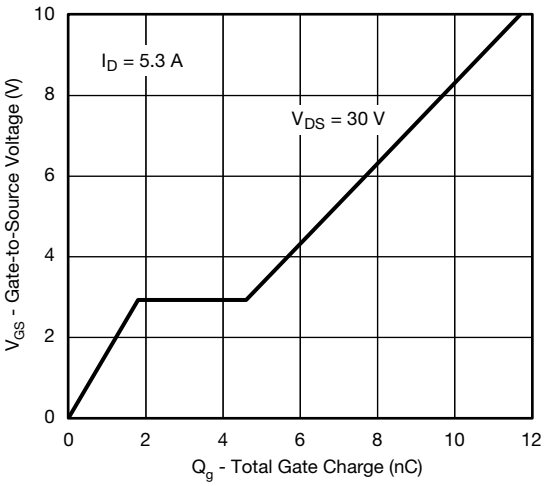
Transconductance



On-Resistance vs. Drain Current

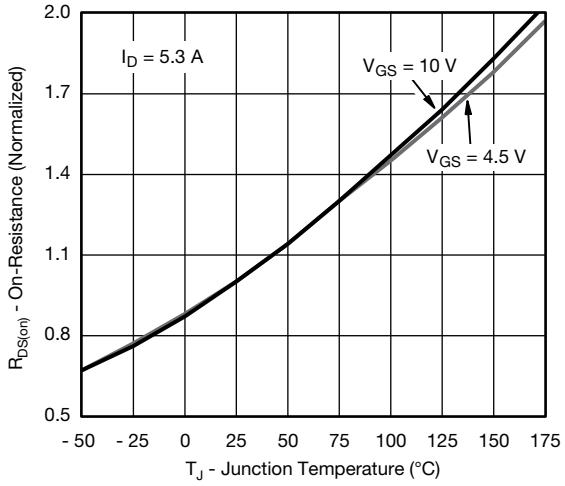


Capacitance

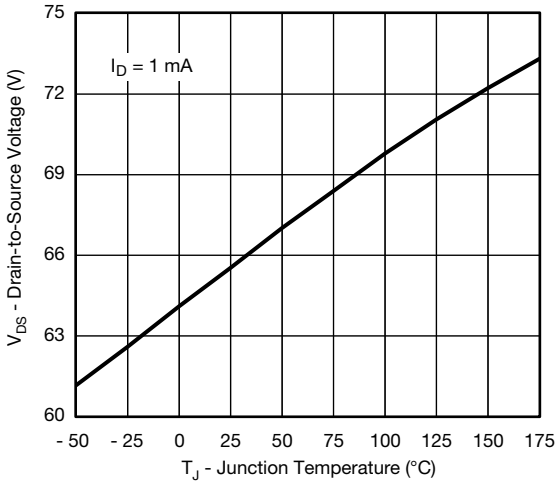


Gate Charge

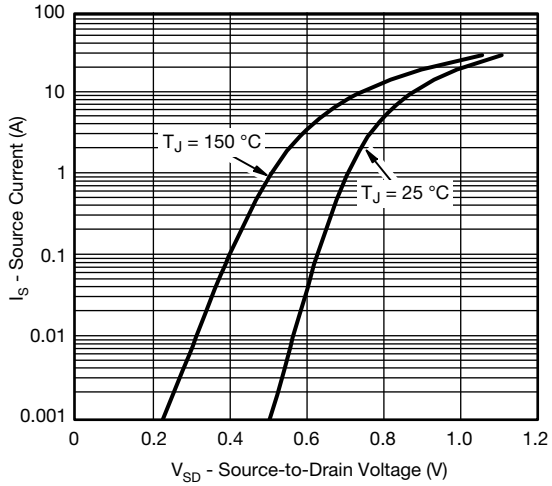
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



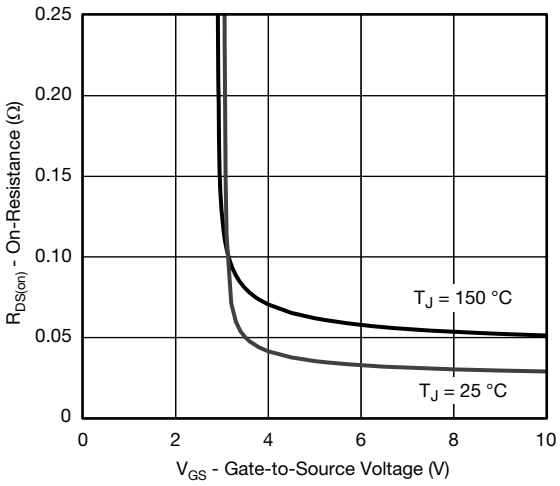
On-Resistance vs. Junction Temperature



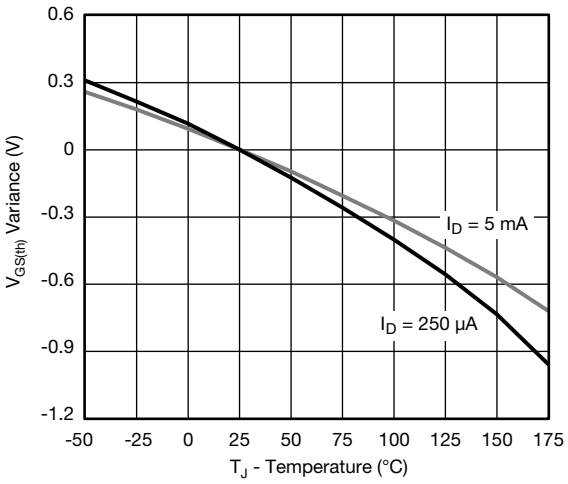
Drain Source Breakdown vs. Junction Temperature



Source Drain Diode Forward Voltage

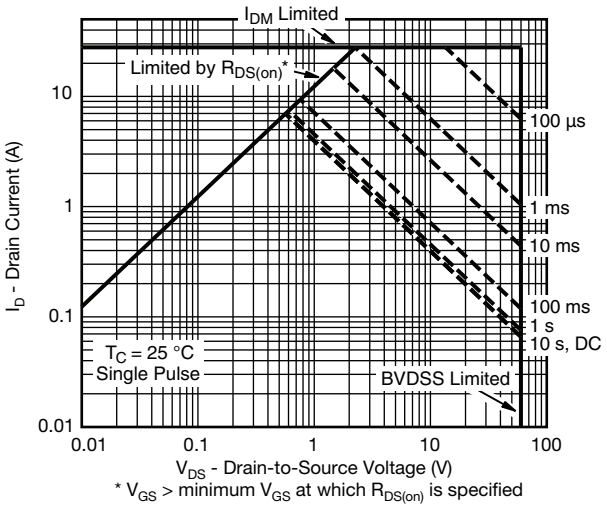


On-Resistance vs. Gate-to-Source Voltage

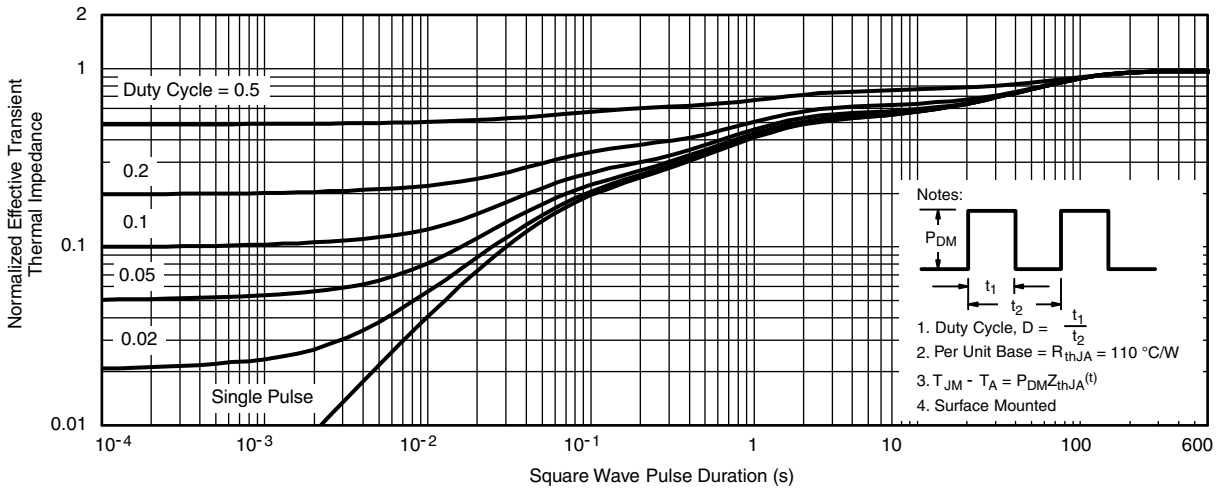


Threshold Voltage

THERMAL RATINGS (T_A = 25 °C, unless otherwise noted)

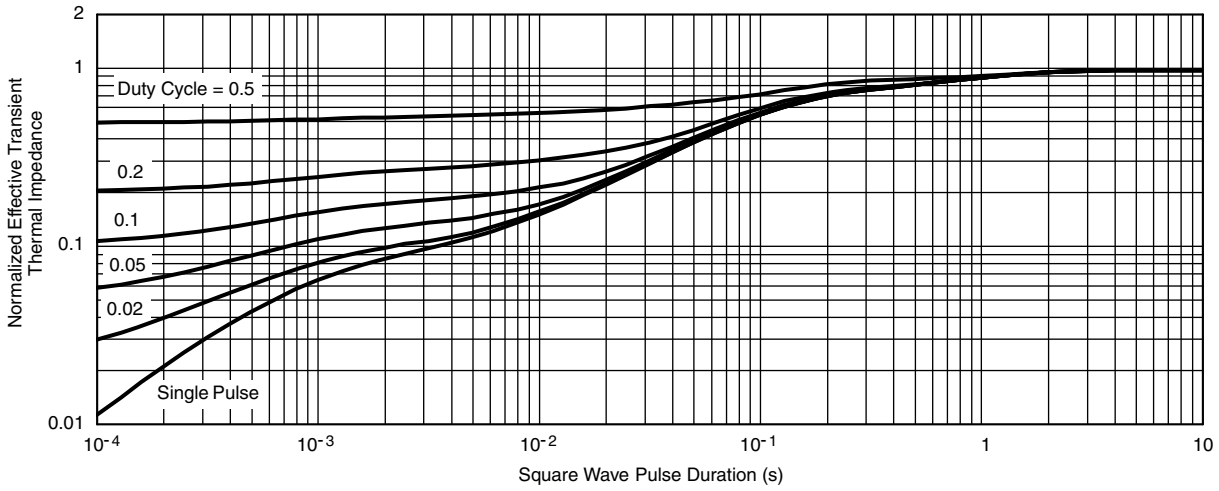


Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient

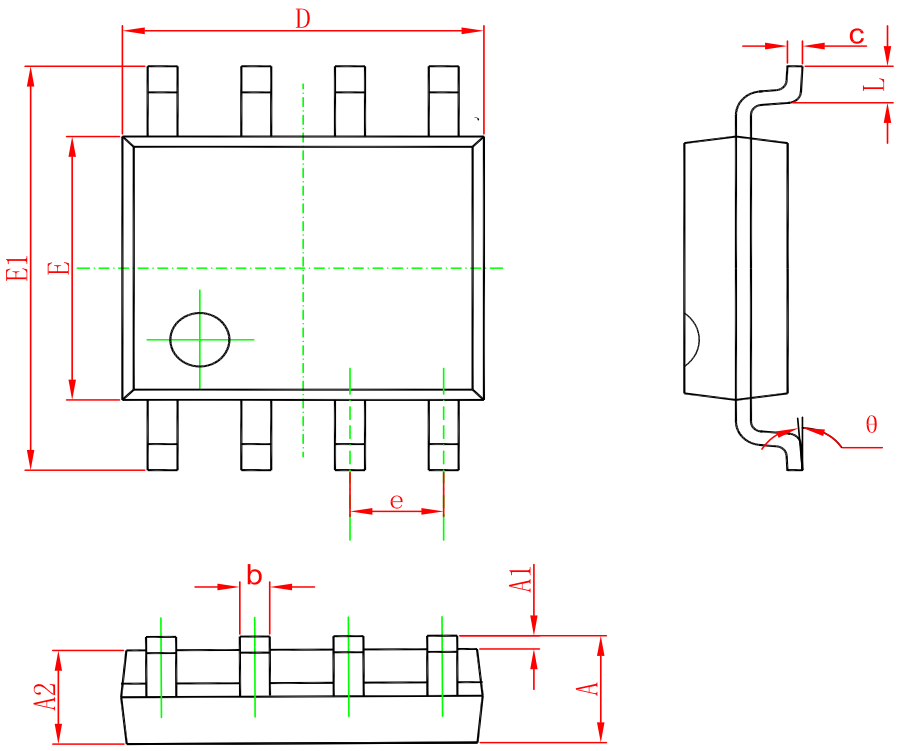
THERMAL RATINGS (T_A = 25 °C, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Foot

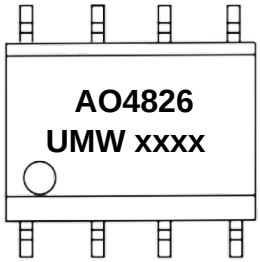
PACKAGE OUTLINE DIMENSIONS

SOP-8



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
θ	0°	8°	0°	8°

Marking



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Ordering information

Order code	Package	Baseqty	Deliverymode
UMW AO4826	SOP-8	3000	Tape and reel

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