



AO4828, AO4828L (Lead-Free) Dual N-Channel Enhancement Mode Field Effect Transistor

General Description

The AO4828 uses advanced trench technology to provide excellent $R_{\text{DS(ON)}}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications. AO4828L is offered in a lead-free package.

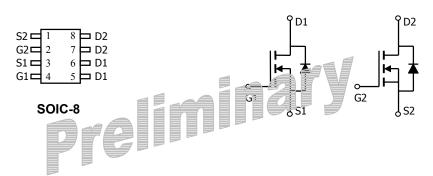
Features

 $V_{DS}(V) = 60V$

 $I_{D} = 4.5A$

 $R_{DS(ON)}$ < 56m Ω (V_{GS} = 10V)

 $R_{DS(ON)}$ < 77m Ω (V_{GS} = 4.5V)



Absolute Maximum Ratings T _A =25°C unless otherwise noted									
Parameter		Symbol	Maximum	Units					
Drain-Source Voltage		V_{DS}	60	V					
Gate-Source Voltage		V_{GS}	±20	V					
Continuous Drain	T _A =25°C		4.5						
Current ^A	T _A =70°C	I _D	3.6	Α					
Pulsed Drain Current ^B		I _{DM}	20						
	T _A =25°C	В	2	W					
Power Dissipation	T _A =70°C	$-P_{D}$	1.28	VV					
Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150	°C					

Thermal Characteristics									
Parameter	Symbol	Тур	Max	Units					
Maximum Junction-to-Ambient A	t ≤ 10s	$R_{\theta JA}$	48	62.5	°C/W				
Maximum Junction-to-Ambient ^A	Steady-State	κ_{θ} JA	74	110	°C/W				
Maximum Junction-to-Lead ^C	Steady-State	$R_{ heta JL}$	35	60	°C/W				

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Тур	Max	Units			
STATIC PARAMETERS									
BV _{DSS}	Drain-Source Breakdown Voltage	I_D =250 μ A, V_{GS} =0V	60			V			
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} =0V			1	μА			
	Osta Dadulaska sa sumant	T _J =55°C			5				
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} = ±20V			100	nA			
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS} I_{D}=250\mu A$	1	2.1	3	V			
$I_{D(ON)}$	On state drain current	V_{GS} =10V, V_{DS} =5V	20			Α			
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =4.5A		46	56	mΩ			
		V _{GS} =4.5V, I _D =3A		64	77	mΩ			
g _{FS}	Forward Transconductance	V_{DS} =5V, I_{D} =4.5A		11	7.7	S			
V _{SD}	Diode Forward Voltage	$I_S=1A, V_{GS}=0V$		0.74	1	V			
Is	Maximum Body-Diode Continuous Current			0.7 1	3	A			
	PARAMETERS				Ū	,,			
C _{iss}	Input Capacitance			450	540	pF			
C _{oss}	Output Capacitance	V_{GS} =0V, V_{DS} =30V, f=1MHz		60		pF			
C _{rss}	Reverse Transfer Capacitance] [25		pF			
R_g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.65	2	Ω			
SWITCHII	NG PARAMETERS								
Q _g (10V)	Total Gate Charge			8.5	10.5	nC			
Q _g (4.5V)	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =4.5A		4.3	5.5	nC			
Q_gs	Gate Source Charge	V _{GS} -10V, V _{DS} -30V, I _D -4.3A		1.6		nC			
Q_{gd}	Gate Drain Charge]		2.2		nC			
$t_{D(on)}$	Turn-On DelayTime			4.7		ns			
t _r	Turn-On Rise Time	V_{GS} =10V, V_{DS} =30V, R_{L} =6.7 Ω ,		2.3		ns			
$t_{D(off)}$	Turn-Off DelayTime	R_{GEN} =3 Ω		15.7		ns			
t _f	Turn-Off Fall Time			1.9		ns			
t _{rr}	Body Diode Reverse Recovery Time	I _F =4.5A, dI/dt=100A/μs		27.5	35	ns			
Q_{rr}	Body Diode Reverse Recovery Charge	I _F =4.5A, dI/dt=100A/μs		32		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°C. The value in any a given application depends on the user's specific board design. The current rating is based on the t≤ 10s thermal resistance rating.

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

C. The R $_{\theta JA}$ is the sum of the thermal impedence from junction to lead R $_{\theta JL}$ and lead to ambient.

D. The static characteristics in Figures 1 to 6 are obtained using $80\mu s$ pulses, duty cycle 0.5% max.

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