

AO4803

Dual P-Channel Enhancement Mode Field Effect Transistor

General Description

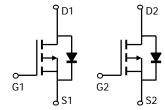
The AO4803 uses advanced trench technology to provide excellent R_{DS(ON)} with low gate charge. This device is suitable for use as a load switch or in PWM applications. Standard Product AO4803 is Pb-free (meets ROHS & Sony 259 specifications). AO4803L is a Green Product ordering option. AO4803 and AO4803L are electrically identical.

Features

 $V_{DS}(V) = -30V$ $I_{D} = -5 \text{ A } (V_{GS} = -10V)$ $R_{DS(ON)} < 52m\Omega (V_{GS} = -10V)$ $R_{DS(ON)} < 87m\Omega (V_{GS} = -4.5V)$







Absolute Maximum Ratings T _A =25°C unless otherwise noted							
Parameter Drain-Source Voltage Gate-Source Voltage		Symbol	Maximum	Units V			
		V_{DS}	-30				
		V_{GS}	±20	V			
Continuous Drain	T _A =25°C		-5				
Current ^A	T _A =70°C	I _D	-4.2	А			
Pulsed Drain Current ^B		I _{DM}	-20				
	T _A =25°C	В	2	10/			
Power Dissipation ^A	T _A =70°C	$-P_D$	1.4	- W			
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	Γ _θ JA	74	110	°C/W			
Maximum Junction-to-Lead ^C	Steady-State	$R_{\theta JL}$	35	40	°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	$I_D = -250 \mu A, V_{GS} = 0 V$		-30			V		
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V T _J =55°C				-1	μА		
						-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	-1.8	-3	V		
$I_{D(ON)}$	On state drain current	V _{GS} =-4.5V, V _{DS} =-5V		-20			Α		
R _{DS(ON)}	Static Drain-Source On-Resistance	V_{GS} =-10V, I_{D} =5.0A	<u> </u>		39	52	mΩ		
			T _J =125°C		54	70			
		V_{GS} =-4.5V, I_D =-4A			67	87	mΩ		
g FS	Forward Transconductance	V_{DS} =-5V, I_D =-5A		6	8.6		S		
V_{SD}	Diode Forward Voltage	I _S =-1A,V _{GS} =0V			-0.77	-1	V		
Is	Maximum Body-Diode Continuous Current					-2.8	Α		
	PARAMETERS								
C _{iss}	Input Capacitance				700		pF		
C _{oss}	Output Capacitance	V_{GS} =0V, V_{DS} =-15V, f=1MHz			120		pF		
C_{rss}	Reverse Transfer Capacitance				75		pF		
R_g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz			10		Ω		
SWITCHII	NG PARAMETERS								
Q _g (10V)	Total Gate Charge (10V)	V _{GS} =-10V, V _{DS} =-15V, I _D =-5A			14.7		nC		
Q _g (4.5V)	Total Gate Charge (4.5V)				7.6		nC		
Q_{gs}	Gate Source Charge				2		nC		
Q_{gd}	Gate Drain Charge				3.8		nC		
t _{D(on)}	Turn-On DelayTime				8.3		ns		
t _r	Turn-On Rise Time	V_{GS} =-10V, V_{DS} =-15V, R_L =3 Ω , R_{GEN} =3 Ω			5		ns		
$t_{D(off)}$	Turn-Off DelayTime				29		ns		
t_f	Turn-Off Fall Time				14		ns		
t _{rr}	Body Diode Reverse Recovery Time	I _F =-5A, dI/dt=100A/μs			23.5		ns		
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =-5A, dI/dt=100A/μs			13.4		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 given application depends on the user's specific board design. The current rating is based on the t≤ 10s thermal resistance rating.

- 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 6,12,14 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.

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