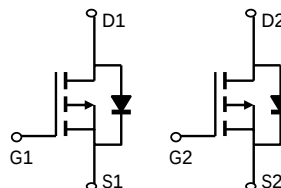
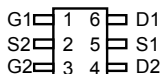


AO6801
Dual P-Channel Enhancement Mode Field Effect Transistor
General Description

The AO6801 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. *Standard Product AO6801 is Pb-free (meets ROHS & Sony 259 specifications). AO6801L is a Green Product ordering option. AO6801 and AO6801L are electrically identical.*

Features

V_{DS} (V) = -30V
 I_D = -2.3 A (V_{GS} = -10V)
 $R_{DS(ON)}$ < 135m Ω (V_{GS} = -10V)
 $R_{DS(ON)}$ < 185m Ω (V_{GS} = -4.5V)
 $R_{DS(ON)}$ < 265m Ω (V_{GS} = -2.5V)

 TSOP6
 Top View

Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^A	I_D	-2.3	A
$T_A=25^\circ\text{C}$		-1.8	
Pulsed Drain Current ^B	I_{DM}	-20	
Power Dissipation ^A	P_D	1.15	W
$T_A=25^\circ\text{C}$		0.73	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^A	$R_{\theta JA}$	78	110	$^\circ\text{C/W}$
$t \leq 10\text{s}$				
Maximum Junction-to-Ambient ^A	$R_{\theta JA}$	106	150	$^\circ\text{C/W}$
Steady-State				
Maximum Junction-to-Lead ^C	$R_{\theta JL}$	64	80	$^\circ\text{C/W}$
Steady-State				

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =-250μA, V _{GS} =0V	-30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V T _J =55°C			-1 -5	μA
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} =±12V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.6	-1	-1.4	V
I _{D(ON)}	On state drain current	V _{GS} =-4.5V, V _{DS} =-5V	-20			A
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-2.3A T _J =125°C		107	135	mΩ
		V _{GS} =-4.5V, I _D =-2A		135	185	
		V _{GS} =-2.5V, I _D =-1A		195	265	mΩ
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-2.3A		8		S
V _{SD}	Diode Forward Voltage	I _S =-1A, V _{GS} =0V		-0.85	-1	V
I _S	Maximum Body-Diode Continuous Current				-1.35	A
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, f=1MHz		409		pF
C _{oss}	Output Capacitance			55		pF
C _{rss}	Reverse Transfer Capacitance			42		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz		12		Ω
SWITCHING PARAMETERS						
Q _g	Total Gate Charge	V _{GS} =-4.5V, V _{DS} =-15V, I _D =-2.0A		4.9		nC
Q _{gs}	Gate Source Charge			0.6		nC
Q _{gd}	Gate Drain Charge			1.6		nC
t _{D(on)}	Turn-On DelayTime	V _{GS} =-10V, V _{DS} =-15V, R _L =7.5Ω, R _{GEN} =3Ω		6.9		ns
t _r	Turn-On Rise Time			3.3		ns
t _{D(off)}	Turn-Off DelayTime			38.5		ns
t _f	Turn-Off Fall Time			13.2		ns
t _{rr}	Body Diode Reverse Recovery Time	I _F =-2.0A, dI/dt=100A/μs		15		ns
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =-2.0A, dI/dt=100A/μs		8		nC

A: The value of R_{θJA} is measured with the device mounted on 1in² 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.

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

C: The R_{θJA} is the sum of the thermal impedance from junction to lead R_{θJL} and lead to ambient.

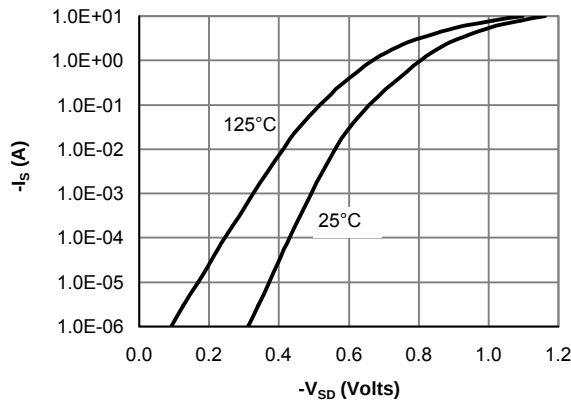
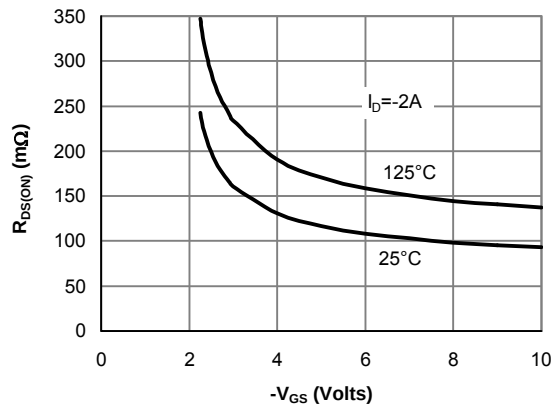
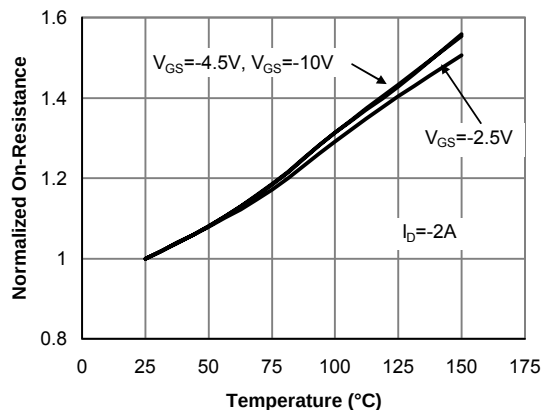
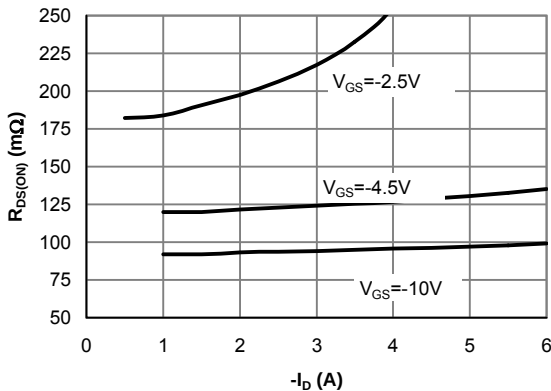
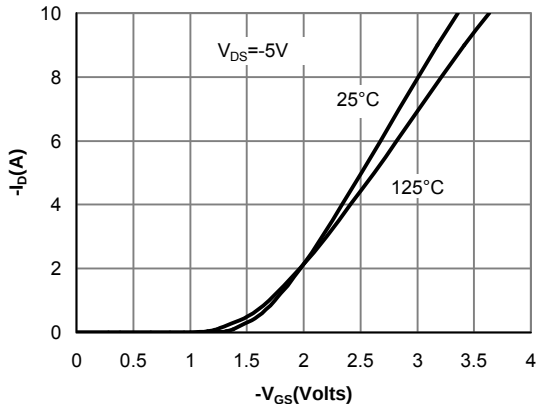
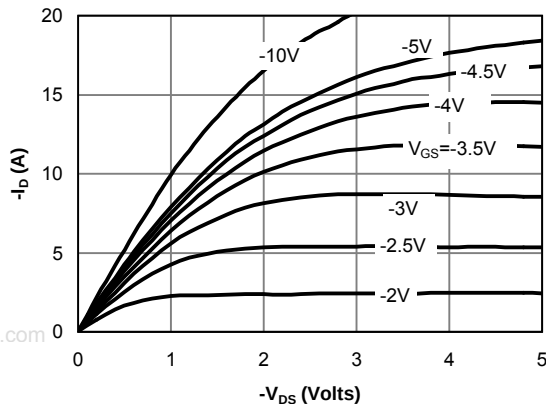
D: The static characteristics in Figures 1 to 6,12,14 are obtained using 80μs pulses, duty cycle 0.5% max.

E: These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.

Rev 2 : June 2005

THIS PRODUCT HAS BEEN DESIGNED AND QUALIFIED FOR THE CONSUMER MARKET. APPLICATIONS OR USES AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS ARE NOT AUTHORIZED. AOS DOES NOT ASSUME ANY LIABILITY ARISING OUT OF SUCH APPLICATIONS OR USES OF ITS PRODUCTS. AOS RESERVES THE RIGHT TO IMPROVE PRODUCT DESIGN, FUNCTIONS AND RELIABILITY WITHOUT NOTICE.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

