



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





**AO6808**

**Dual N-Channel Enhancement Mode Field Effect Transistor**

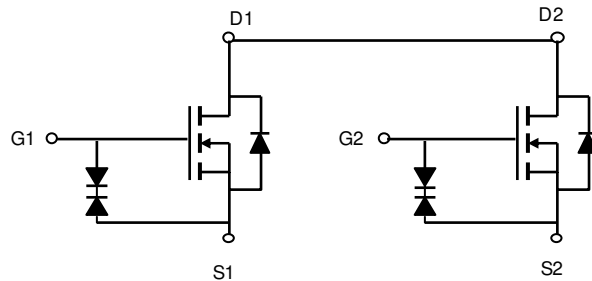
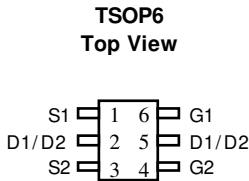


**General Description**

The AO6808/L uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch. It is ESD protected.  
*AO6808 and AO6808L are electrically identical.*  
*-RoHS Compliant*  
*-AO6808L is Halogen Free*

**Features**

- $V_{DS} = 20V$
- $I_D = 6A$  ( $V_{GS} = 4.5V$ )
- $R_{DS(ON)} = 19m\Omega$  (typical) ( $V_{GS} = 4.5V$ )
- $R_{DS(ON)} = 20m\Omega$  (typical) ( $V_{GS} = 4.0V$ )
- $R_{DS(ON)} = 21m\Omega$  (typical) ( $V_{GS} = 3.1V$ )
- $R_{DS(ON)} = 23m\Omega$  (typical) ( $V_{GS} = 2.5V$ )



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

Parameter	Symbol	10 Sec	Steady State	Units	
Drain-Source Voltage	$V_{DS}$	20		V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$		V	
Continuous Drain Current <sup>A</sup>	$I_D$	$T_A=25^\circ C$	6	4.6	A
		$T_A=70^\circ C$	4.6	3.7	
Pulsed Drain Current <sup>B</sup>	$I_{DM}$	60			
Power Dissipation <sup>A</sup>	$P_D$	$T_A=25^\circ C$	1.3	0.8	W
		$T_A=70^\circ C$	0.8	0.5	
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 <sup>A</sup> $t \leq 10s$	$R_{\theta JA}$	76	95	$^\circ C/W$
Maximum Junction-to-Ambient <sup>A</sup> Steady State		118	150	$^\circ C/W$
Maximum Junction-to-Lead <sup>C</sup> Steady State	$R_{\theta JL}$	54	68	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>STATIC PARAMETERS</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}$ , $V_{GS} = 0\text{V}$	20			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 20\text{V}$ , $V_{GS} = 0\text{V}$ $T_J = 55^\circ\text{C}$			1 5	$\mu\text{A}$
$I_{GSS}$	Gate-Body leakage current	$V_{DS} = 0\text{V}$ , $V_{GS} = \pm 10\text{V}$			$\pm 10$	$\mu\text{A}$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$	0.5	0.75	1	V
$I_{D(ON)}$	On state drain current	$V_{GS} = 4.5\text{V}$ , $V_{DS} = 5\text{V}$	60			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS} = 4.5\text{V}$ , $I_D = 6.0\text{A}$ $T_J = 125^\circ\text{C}$	15 21	19 27	23 33	$\text{m}\Omega$
		$V_{GS} = 4.0\text{V}$ , $I_D = 5.5\text{A}$	15	20	25	$\text{m}\Omega$
		$V_{GS} = 3.1\text{V}$ , $I_D = 5\text{A}$	16	21	27	$\text{m}\Omega$
		$V_{GS} = 2.5\text{V}$ , $I_D = 2\text{A}$	17	23	30	$\text{m}\Omega$
$g_{FS}$	Forward Transconductance	$V_{DS} = 5\text{V}$ , $I_D = 6.0\text{A}$		34		S
$V_{SD}$	Diode Forward Voltage	$I_S = 1\text{A}$ , $V_{GS} = 0\text{V}$		0.65	1	V
$I_S$	Maximum Body-Diode Continuous Current				1.3	A
<b>DYNAMIC PARAMETERS</b>						
$C_{iss}$	Input Capacitance	$V_{GS}=0\text{V}$ , $V_{DS}=10\text{V}$ , $f=1\text{MHz}$		620	780	pF
$C_{oss}$	Output Capacitance			125		pF
$C_{rss}$	Reverse Transfer Capacitance			64		pF
<b>SWITCHING PARAMETERS</b>						
$Q_g(10\text{V})$	Total Gate Charge	$V_{GS} = 10\text{V}$ , $V_{DS} = 10\text{V}$ , $I_D = 6\text{A}$		16.2	21	nC
$Q_g(4.5\text{V})$	Total Gate Charge			7.7	10	nC
$Q_{gs}$	Gate Source Charge			1.5		nC
$Q_{gd}$	Gate Drain Charge			2.7		nC
$t_{D(on)}$	Turn-On Delay Time	$V_{GS}=10\text{V}$ , $V_{DS}=10\text{V}$ , $R_L=1.7\Omega$ , $R_{GEN}=3\Omega$		236		ns
$t_r$	Turn-On Rise Time			448		ns
$t_{D(off)}$	Turn-Off Delay Time			9.5		$\mu\text{s}$
$t_f$	Turn-Off Fall Time			4.1		$\mu\text{s}$
$t_{rr}$	Body Diode Reverse Recovery Time	$I_F=6\text{A}$ , $dI/dt=100\text{A}/\mu\text{s}$		25	33	ns
$Q_{rr}$	Body Diode Reverse Recovery Charge	$I_F=6\text{A}$ , $dI/dt=100\text{A}/\mu\text{s}$		9		nC

A: The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ . In any given application depends on the user's specific board design. The current rating is based on the  $t \leq 10\text{s}$  thermal resistance rating.

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.

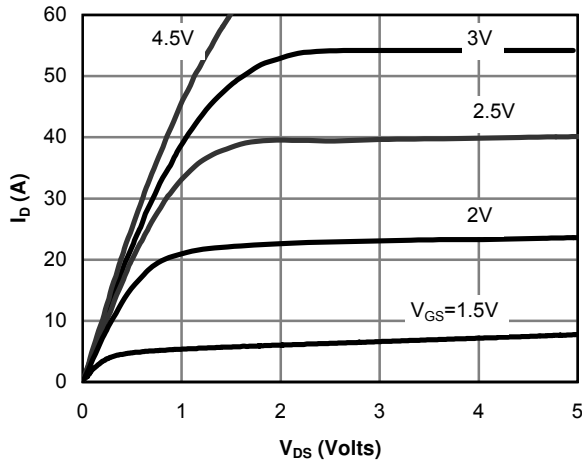
D. The static characteristics in Figures 1 to 6 are obtained using  $< 300\mu\text{s}$  pulses, duty cycle 0.5% max.

E. These tests are performed with the device mounted on 1 in<sup>2</sup> 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.

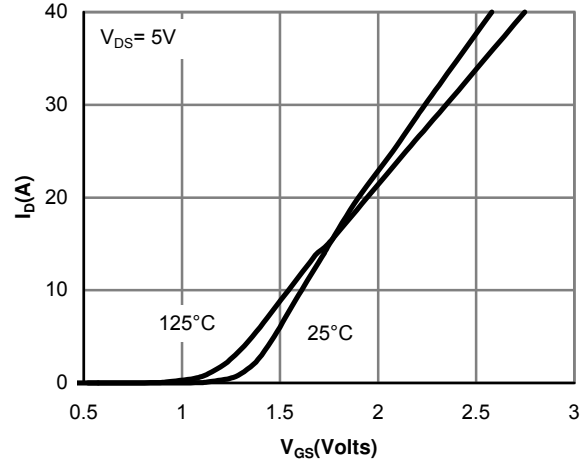
Rev0 April 2008

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.

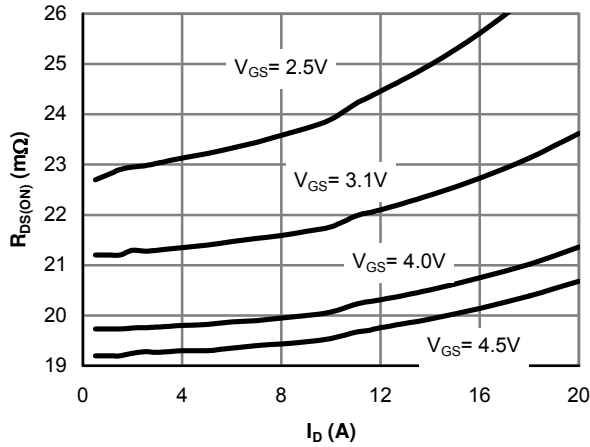
**TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS**



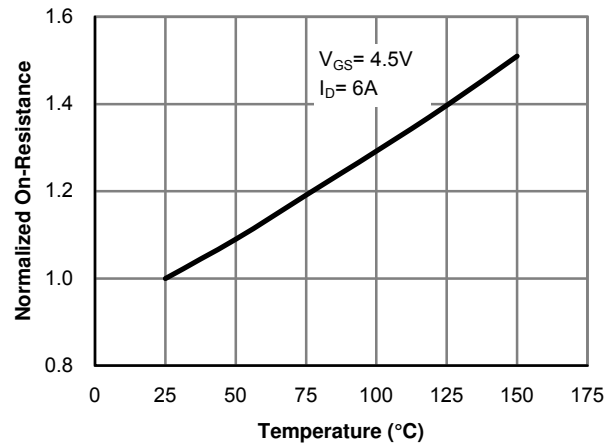
**Figure 1: On-Region Characteristics**



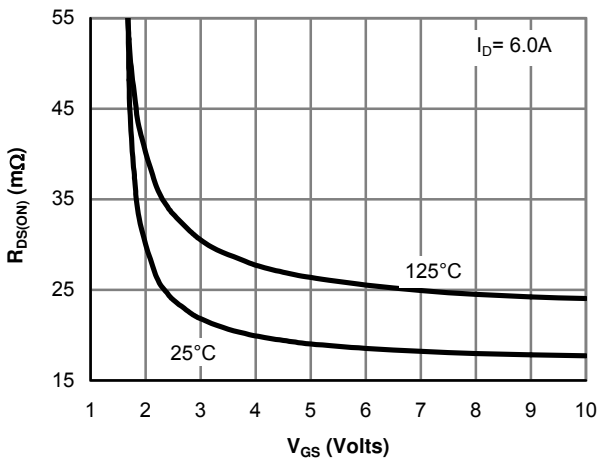
**Figure 2: Transfer Characteristics**



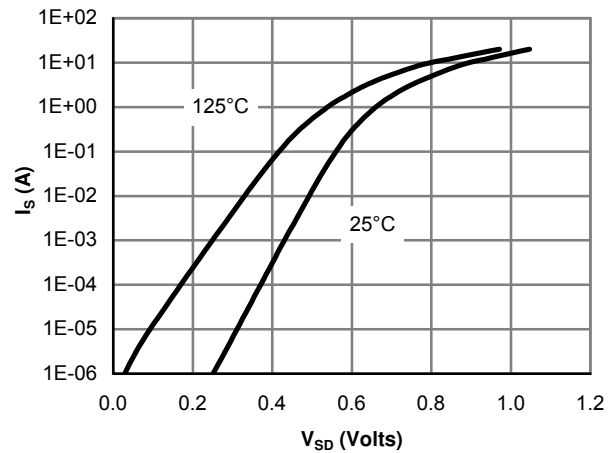
**Figure 3: On-Resistance vs. Drain Current and Gate Voltage**



**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

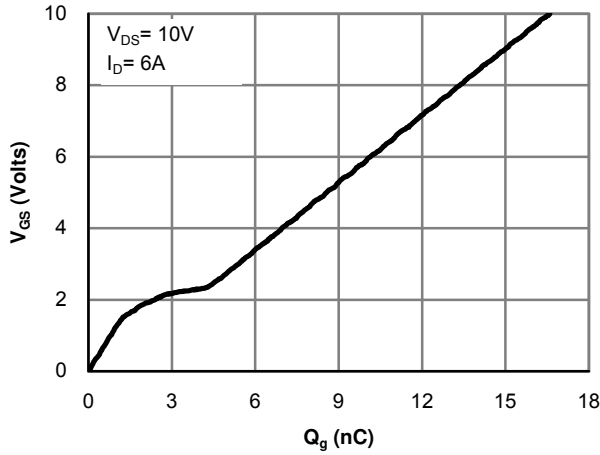


Figure 7: Gate-Charge Characteristics

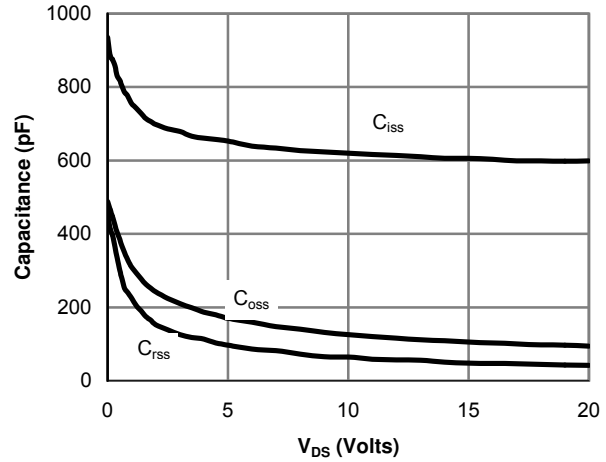


Figure 8: Capacitance Characteristics

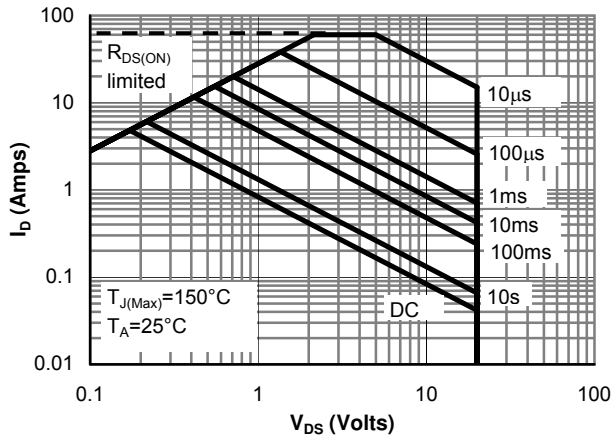


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

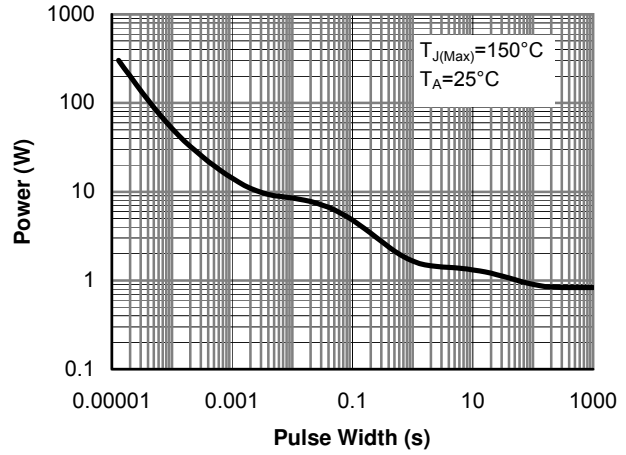


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

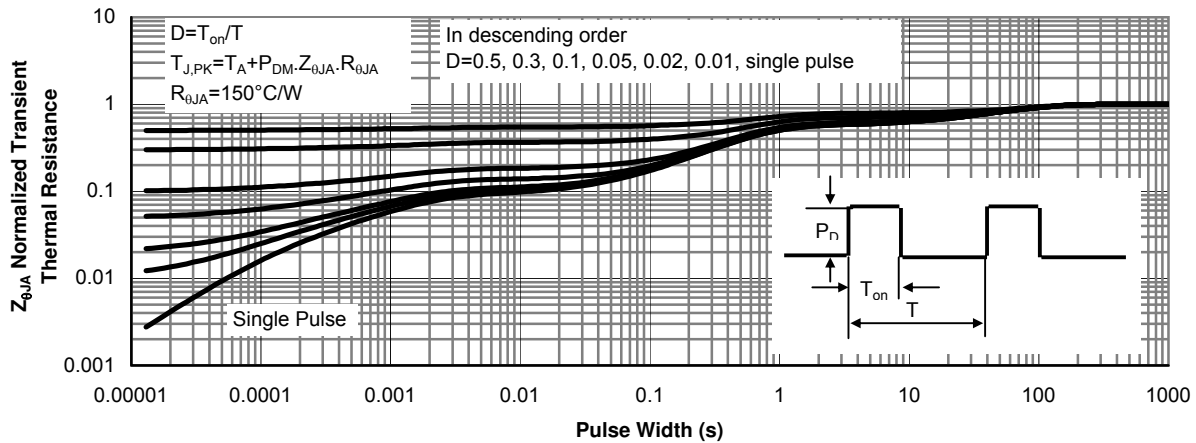


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)