ALPHA & OMEGA SEMICONDUCTOR

AO6804A

20V Dual N-Channel MOSFET

General Description

The AO6804A 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 applications.

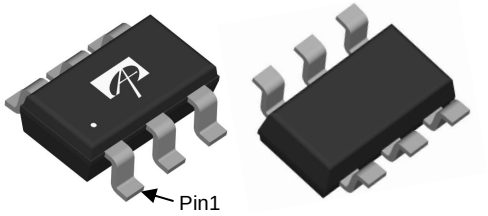
Product Summary

V_{DS} = 20V
I_D = 5.0A (V_{GS} = 4.5V)
$R_{DS(ON)}$ < 28mΩ (V_{GS} = 4.5V)
$R_{DS(ON)}$ < 30mΩ (V_{GS} = 4.0V)
$R_{DS(ON)}$ < 34mΩ (V_{GS} = 3.1V)
$R_{DS(ON)}$ < 39mΩ (V_{GS} = 2.5V)

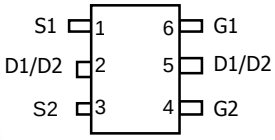
Green Product

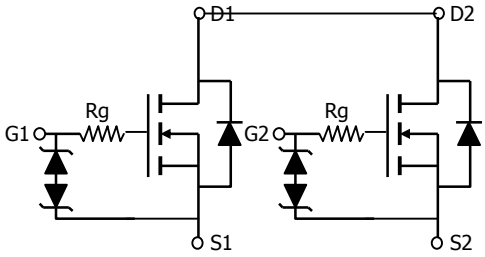
TSOP6

Top View **Bottom View**



Top View





Absolute Maximum Ratings T_A=25°C unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [A]	T_A=25°C	I_D	5	A
	T_A=70°C		4	
Pulsed Drain Current [B]		I_{DM}	25	
Power Dissipation [A]	T_A=25°C	P_D	1.3	W
	T_A=70°C		0.8	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	76	95	°C/W
Maximum Junction-to-Ambient [A]	Steady State		118	150	°C/W
Maximum Junction-to-Lead [C]	Steady State	$R_{\theta JL}$	54	68	°C/W

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	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 20V, V_{GS} = 0V			1	µA
		T_J = 55°C			5	
I_{GSS}	Gate-Body leakage current	V_{DS} = 0V, V_{GS} = ±10V			±10	υA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 250µA	0.5	0.7	1	V
$I_{D(ON)}$	On state drain current	V_{GS} = 4.5V, V_{DS} = 5V	25			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS} = 4.5V, I_D = 5.0A	18	23	28	mΩ
		T_J=125°C	26	33	40	
		V_{GS} = 4.0V, I_D = 4.5A	19	24	30	mΩ
		V_{GS} = 3.1V, I_D = 4.5A	20	27	34	mΩ
		V_{GS} = 2.5V, I_D = 4.0A	21	30	39	mΩ
g_{FS}	Forward Transconductance	V_{DS} = 5V, I_D = 5.0A		18		S
V_{SD}	Diode Forward Voltage	I_S = 1A,V_{GS} = 0V		0.65	1	V
I_S	Maximum Body-Diode Continuous Current				1.3	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, f=1MHz		180	225	pF
C_{oss}	Output Capacitance			95		pF
C_{rss}	Reverse Transfer Capacitance			18		pF
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz		2.7	4	kΩ
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}= 4.5V, V_{DS}= 10V, I_D= 5A		5.6	7.5	nC
Q_{gs}	Gate Source Charge			0.85		nC
Q_{gd}	Gate Drain Charge			1.7		nC
$t_{D(on)}$	Turn-On DelayTime	V_{GS}=10V, V_{DS}=10V, R_L=2.0Ω, R_{GEN}=3Ω		172		ns
t_r	Turn-On Rise Time			368		ns
$t_{D(off)}$	Turn-Off DelayTime			2.94		υs
t_f	Turn-Off Fall Time			2.5		υs
t_{rr}	Body Diode Reverse Recovery Time	I_F=5A, dI/dt=100A/µs		32	43	ns
Q_{rr}	Body Diode Reverse Recovery Charge	I_F=5A, dI/dt=100A/µs		3.2		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. 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 $R_{\theta JA}$ 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 < 300µs 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.

Rev2: Nov. 2010

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

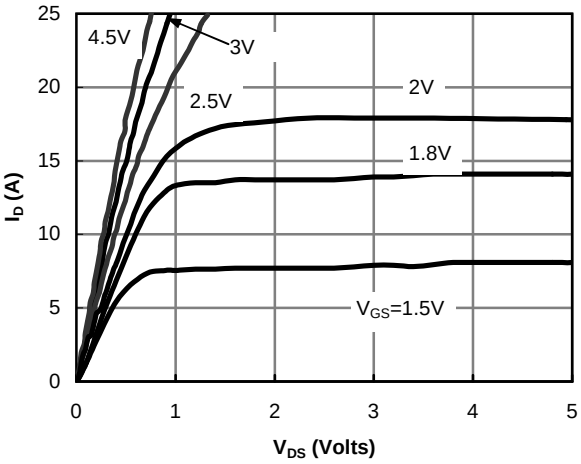


Figure 1: On-Region Characteristics

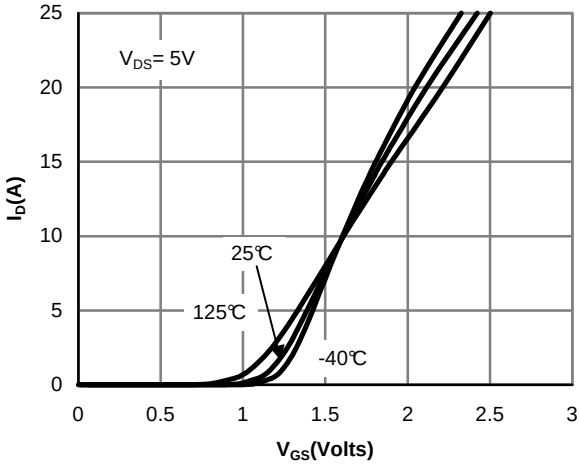


Figure 2: Transfer Characteristics

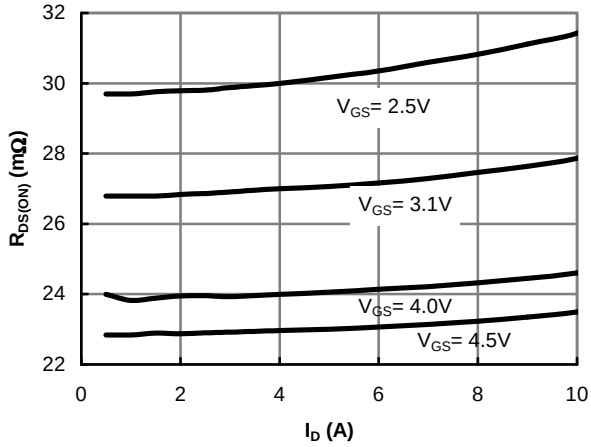


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

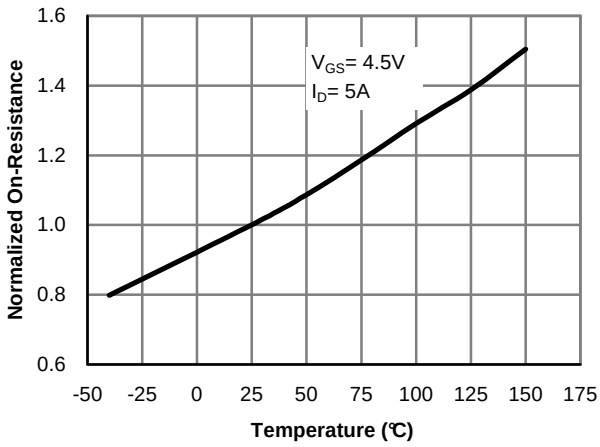


Figure 4: On-Resistance vs. Junction Temperature

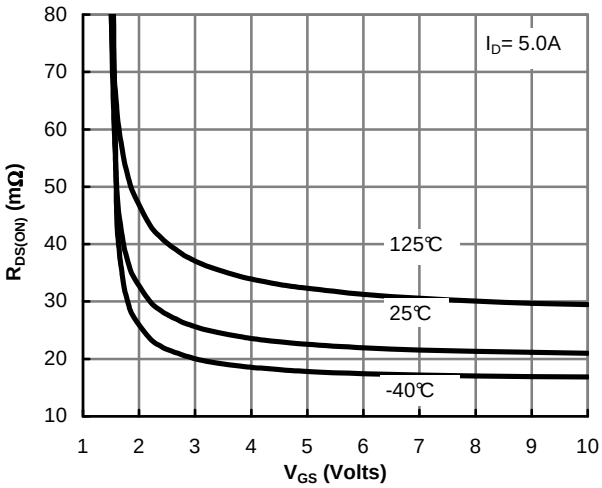


Figure 5: On-Resistance vs. Gate-Source Voltage

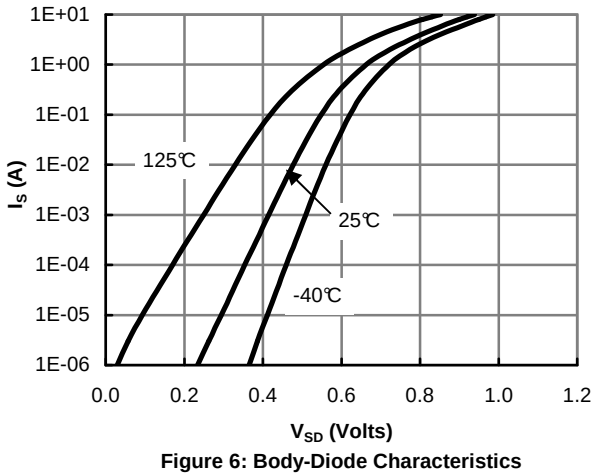


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

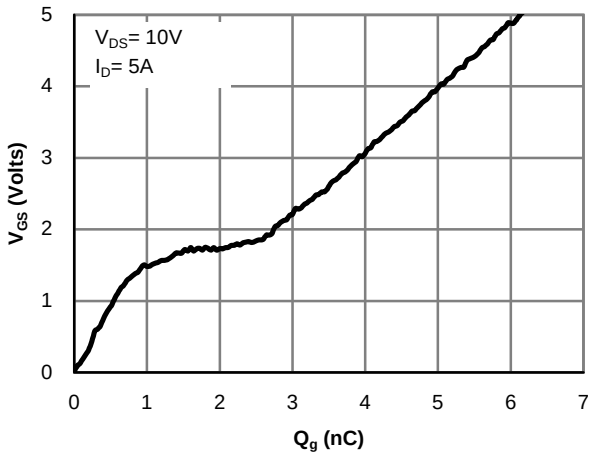


Figure 7: Gate-Charge Characteristics

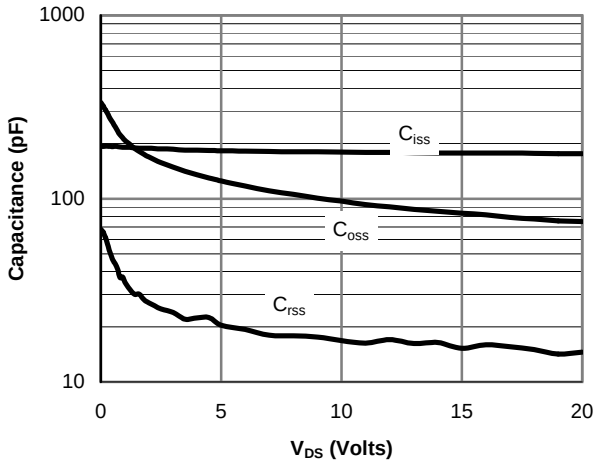


Figure 8: Capacitance Characteristics

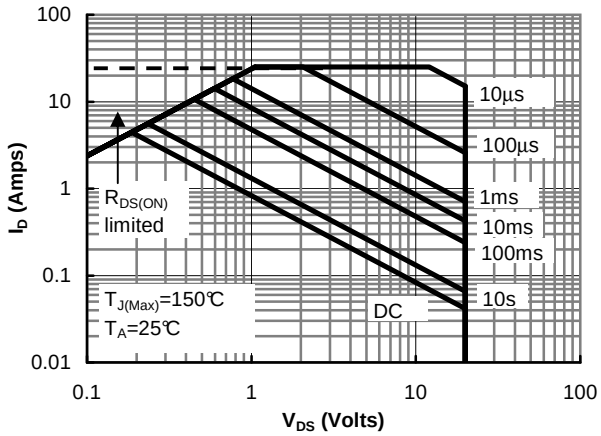


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

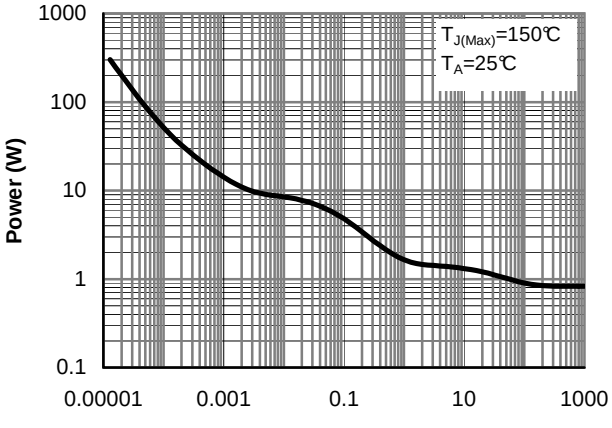


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

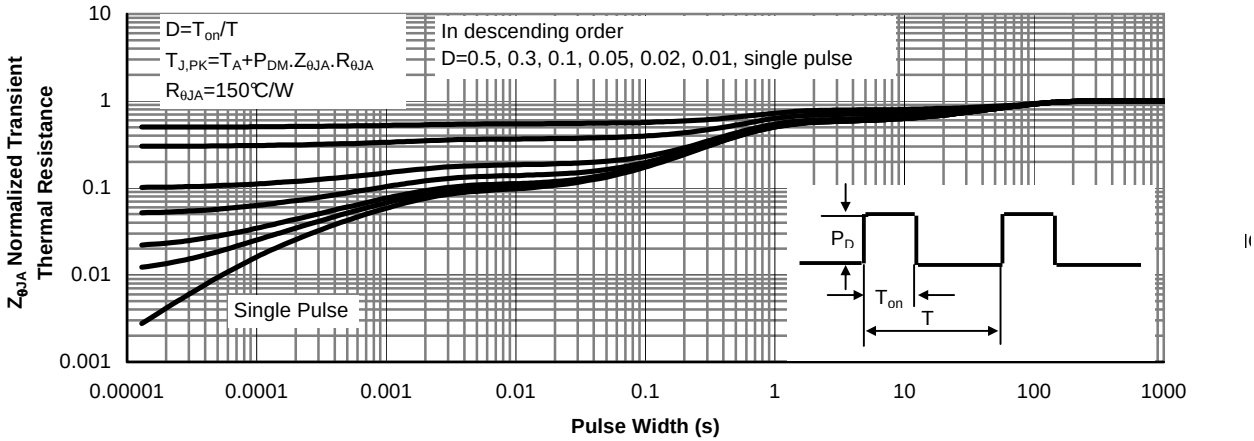
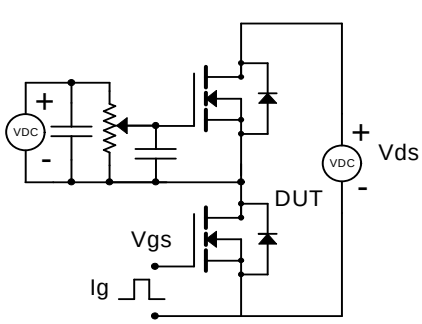
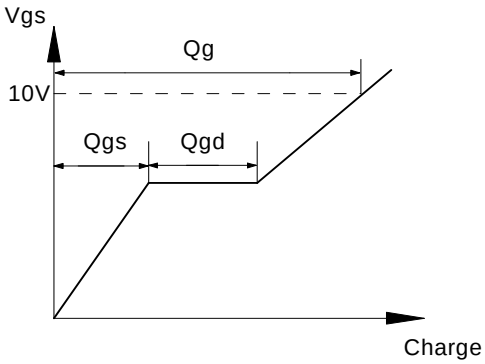


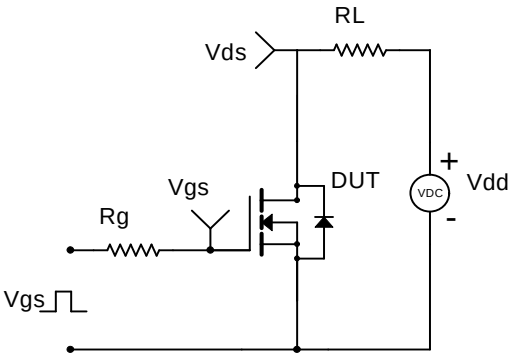
Figure 11: Normalized Maximum Transient Thermal Impedance(Note E)

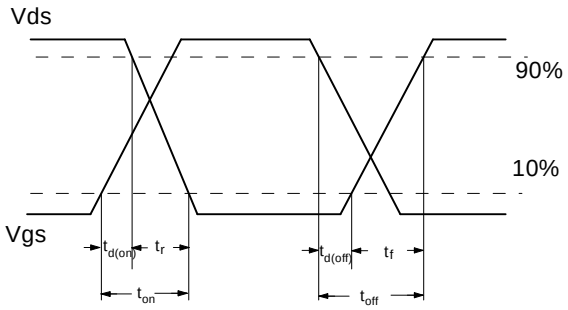
Gate Charge Test Circuit & Waveform



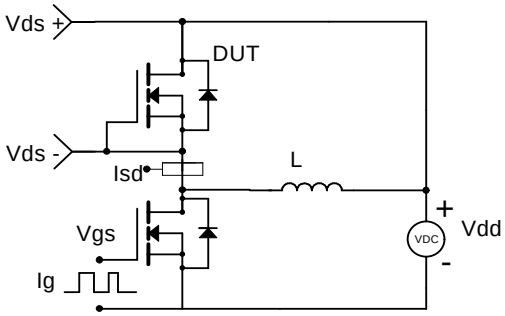


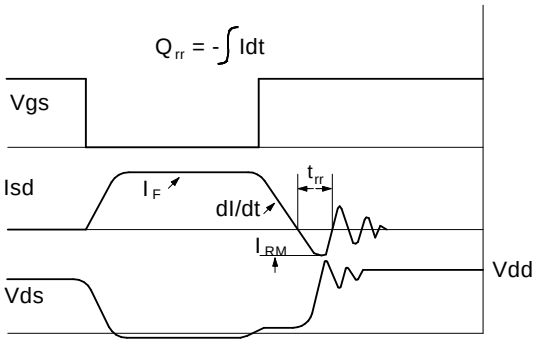
Resistive Switching Test Circuit & Waveforms





Diode Recovery Test Circuit & Waveforms





ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.