

این دیتاشیت توسط توکل الکترونیک تهیه و ارائه شده است.

جهت مشاهده قیمت، موجودی و ثبت سفارش این قطعه به وبسایت توکل الکترونیک مراجعه فرمایید.



مشاهده قیمت و خرید

برای خرید و مشاهده سایر محصولات کلیک کنید

ALPHA & OMEGA  
SEMICONDUCTOR

AO4803

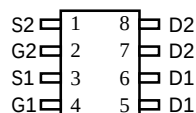
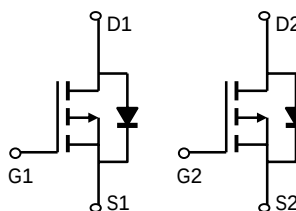
Dual P-Channel Enhancement Mode Field Effect Transistor

## 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

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

SOIC-8  
Top ViewAbsolute Maximum Ratings  $T_A=25^\circ C$  unless otherwise noted

| Parameter                              | Symbol         | Maximum    | Units      |
|----------------------------------------|----------------|------------|------------|
| Drain-Source Voltage                   | $V_{DS}$       | -30        | V          |
| Gate-Source Voltage                    | $V_{GS}$       | $\pm 20$   | V          |
| Continuous Drain Current <sup>A</sup>  | $I_D$          | -5         | A          |
| $T_A=25^\circ C$                       |                | -4.2       |            |
| $T_A=70^\circ C$                       |                |            |            |
| Pulsed Drain Current <sup>B</sup>      | $I_{DM}$       | -20        |            |
| Power Dissipation <sup>A</sup>         | $P_D$          | 2          | W          |
| $T_A=25^\circ C$                       |                |            |            |
| $T_A=70^\circ C$                       |                | 1.4        |            |
| 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> | $R_{\theta JA}$ | 48  | 62.5 | $^\circ C/W$ |
| $t \leq 10s$                             |                 |     |      |              |
| Maximum Junction-to-Ambient <sup>A</sup> | $R_{\theta JA}$ | 74  | 110  | $^\circ C/W$ |
| Steady-State                             |                 |     |      |              |
| Maximum Junction-to-Lead <sup>C</sup>    | $R_{\theta JL}$ | 35  | 40   | $^\circ C/W$ |
| Steady-State                             |                 |     |      |              |

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        | $I_D=-250\mu\text{A}$ , $V_{GS}=0\text{V}$                                         | -30 |          |           | V                |
| $I_{DSS}$                   | Zero Gate Voltage Drain Current       | $V_{DS}=-24\text{V}$ , $V_{GS}=0\text{V}$<br>$T_J=55^\circ\text{C}$                |     |          | -1<br>-5  | $\mu\text{A}$    |
| $I_{GSS}$                   | Gate-Body leakage current             | $V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$                                       |     |          | $\pm 100$ | nA               |
| $V_{GS(th)}$                | Gate Threshold Voltage                | $V_{DS}=V_{GS}$ , $I_D=-250\mu\text{A}$                                            | -1  | -1.8     | -3        | V                |
| $I_{D(ON)}$                 | On state drain current                | $V_{GS}=-4.5\text{V}$ , $V_{DS}=-5\text{V}$                                        | -20 |          |           | A                |
| $R_{DS(ON)}$                | Static Drain-Source On-Resistance     | $V_{GS}=-10\text{V}$ , $I_D=5.0\text{A}$<br>$T_J=125^\circ\text{C}$                |     | 39<br>54 | 52<br>70  | $\text{m}\Omega$ |
|                             |                                       | $V_{GS}=-4.5\text{V}$ , $I_D=-4\text{A}$                                           |     | 67       | 87        | $\text{m}\Omega$ |
| $g_{FS}$                    | Forward Transconductance              | $V_{DS}=-5\text{V}$ , $I_D=-5\text{A}$                                             | 6   | 8.6      |           | S                |
| $V_{SD}$                    | Diode Forward Voltage                 | $I_S=-1\text{A}$ , $V_{GS}=0\text{V}$                                              |     | -0.77    | -1        | V                |
| $I_S$                       | Maximum Body-Diode Continuous Current |                                                                                    |     |          | -2.8      | A                |
| <b>DYNAMIC PARAMETERS</b>   |                                       |                                                                                    |     |          |           |                  |
| $C_{iss}$                   | Input Capacitance                     | $V_{GS}=0\text{V}$ , $V_{DS}=-15\text{V}$ , $f=1\text{MHz}$                        |     | 700      |           | pF               |
| $C_{oss}$                   | Output Capacitance                    |                                                                                    |     | 120      |           | pF               |
| $C_{rss}$                   | Reverse Transfer Capacitance          |                                                                                    |     | 75       |           | pF               |
| $R_g$                       | Gate resistance                       | $V_{GS}=0\text{V}$ , $V_{DS}=0\text{V}$ , $f=1\text{MHz}$                          |     | 10       |           | $\Omega$         |
| <b>SWITCHING PARAMETERS</b> |                                       |                                                                                    |     |          |           |                  |
| $Q_g(10\text{V})$           | Total Gate Charge (10V)               | $V_{GS}=-10\text{V}$ , $V_{DS}=-15\text{V}$ , $I_D=-5\text{A}$                     |     | 14.7     |           | nC               |
| $Q_g(4.5\text{V})$          | 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                     | $V_{GS}=-10\text{V}$ , $V_{DS}=-15\text{V}$ , $R_L=3\Omega$ ,<br>$R_{GEN}=3\Omega$ |     | 8.3      |           | ns               |
| $t_r$                       | Turn-On Rise Time                     |                                                                                    |     | 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      | $I_F=-5\text{A}$ , $dI/dt=100\text{A}/\mu\text{s}$                                 |     | 23.5     |           | ns               |
| $Q_{rr}$                    | Body Diode Reverse Recovery Charge    | $I_F=-5\text{A}$ , $dI/dt=100\text{A}/\mu\text{s}$                                 |     | 13.4     |           | nC               |

A: The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ\text{C}$ . The value 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, 12, 14 are obtained using 80 $\mu\text{s}$  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.

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## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

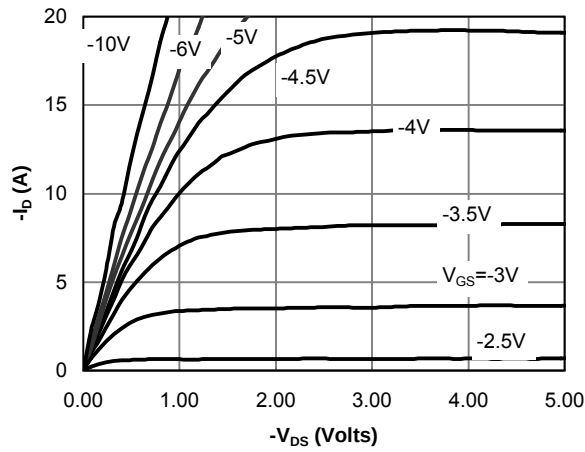


Figure 1: On-Region Characteristics

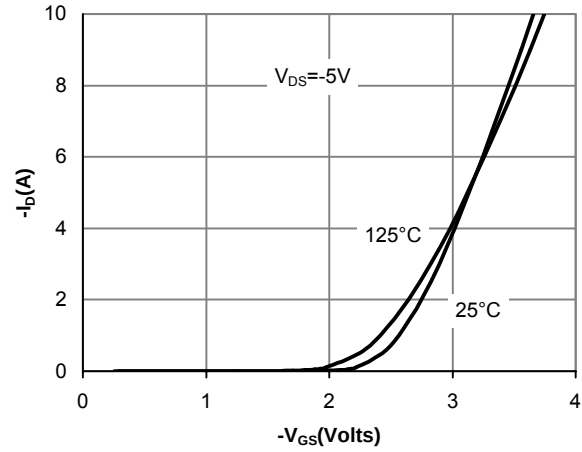


Figure 2: Transfer Characteristics

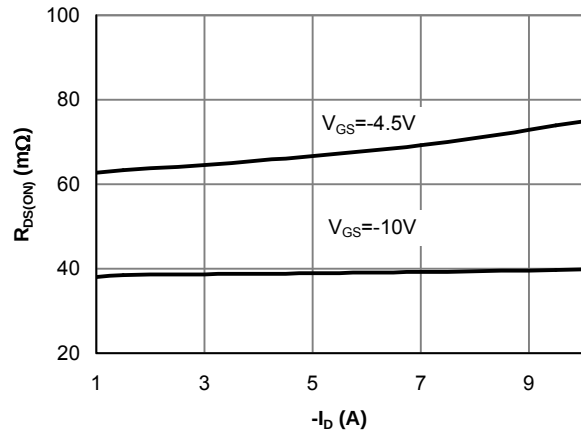


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

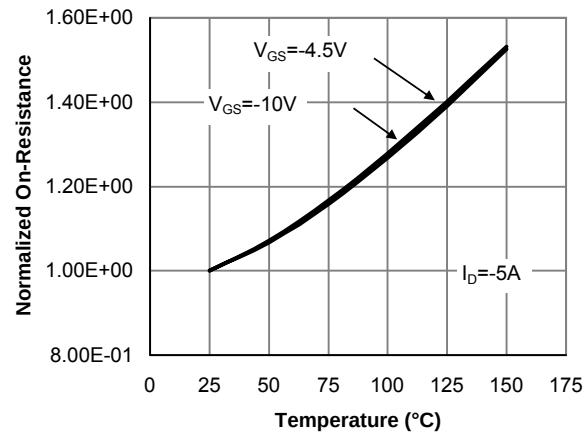


Figure 4: On-Resistance vs. Junction Temperature

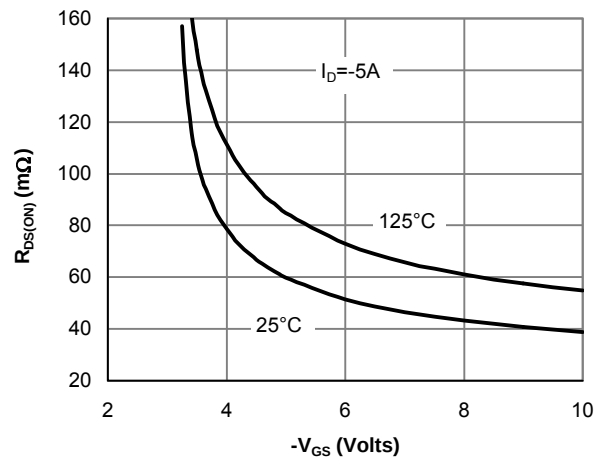


Figure 5: On-Resistance vs. Gate-Source Voltage

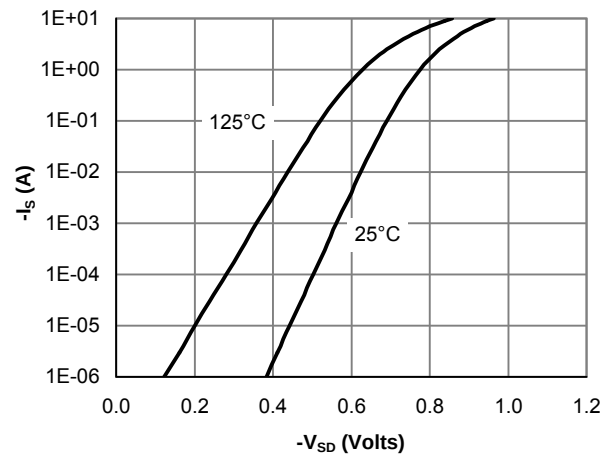


Figure 6: Body-Diode Characteristics

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