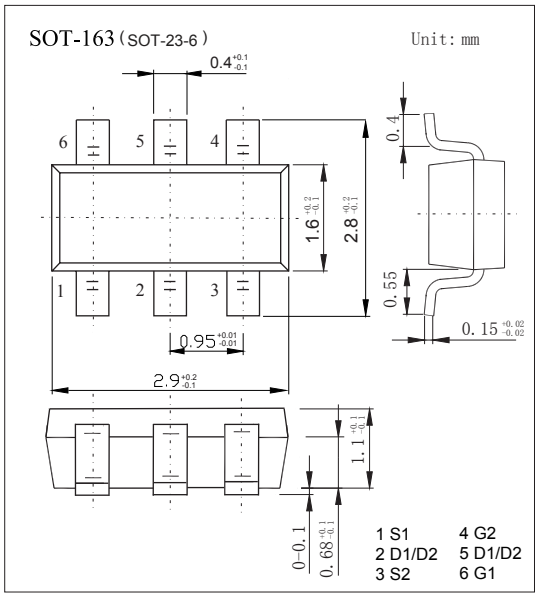
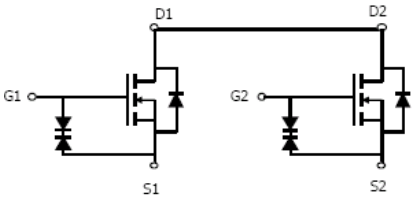
# Dual N-Channel MOSFET
# AO6808




## ■ Features

- $V_{DS}$ (V) = 20V
- $I_D$ =6 A ($V_{GS}$ = 4.5V)
- $R_{DS(ON)}$ < 23mΩ ($V_{GS}$ = 4.5V)
- $R_{DS(ON)}$ < 25mΩ ($V_{GS}$ = 4V)
- $R_{DS(ON)}$ < 27mΩ ($V_{GS}$ = 3.1V)
- $R_{DS(ON)}$ < 30mΩ ($V_{GS}$ = 2.5V)
- ESD Rating: 2000V HBM




## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | | Symbol | 10 Sec | Steady State | Unit |
|---|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 20 | | V |
| Gate-Source Voltage | | $V_{GS}$ | ±12 | | |
| Continuous Drain Current | TA=25℃ | $I_D$ | 6 | 4.6 | A |
| | TA=70℃ | | 4.6 | 3.7 | |
| Pulsed Drain Current | | $I_{DM}$ | 60 | | |
| Power Dissipation | TA=25℃ | $P_D$ | 1.3 | 0.8 | W |
| | TA=70℃ | | 0.8 | 0.5 | |
| Thermal Resistance.Junction- to-Ambient | | $R_{thJA}$ | 95 | 150 | ℃/W |
| Thermal Resistance.Junction- to-Lead | | $R_{thJL}$ | - | 68 | |
| Junction Temperature | | $T_J$ | 150 | | ℃ |
| Storage Temperature Range | | $T_{stg}$ | -55 to 150 | | |

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■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{DSS}$ | $I_D$=250μA, $V_{GS}$=0V | 20 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=20V, $V_{GS}$=0V | | | 1 | uA |
| | | $V_{DS}$=20V, $V_{GS}$=0V, $T_J$=55℃ | | | 5 | |
| Gate-Body Leakage Current | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=±10V | | | ±10 | uA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ , $I_D$=250 uA | 0.5 | | 1 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$=4.5V, $I_D$=6A | | | 23 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$=6A $T_J$=125℃ | | | 33 | |
| | | $V_{GS}$=4V, $I_D$=5.5A | | | 25 | |
| | | $V_{GS}$=3.1V, $I_D$=5A | | | 27 | |
| | | $V_{GS}$=2.5V, $I_D$=2A | | | 30 | |
| On State Drain Current | $I_{D(ON)}$ | $V_{GS}$=4.5V, $V_{DS}$=5V | 60 | | | A |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=5V, $I_D$=6A | | 34 | | S |
| Input Capacitance | $C_{iss}$ | $V_{GS}$=0V, $V_{DS}$=10V, f=1MHz | | 620 | 780 | pF |
| Output Capacitance | $C_{oss}$ | | | 125 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 64 | | |
| Total Gate Charge (10V) | $Q_g$ | $V_{GS}$=10V, $V_{DS}$=10V, $I_D$=6A | | 16.2 | 21 | nC |
| Total Gate Charge (4.5V) | | | | 7.7 | 10 | |
| Gate Source Charge | $Q_{gs}$ | | | 1.5 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 2.7 | | |
| Turn-On DelayTime | $t_{d(on)}$ | $V_{GS}$=10V, $V_{DS}$=10V, $R_L$=1.7Ω,$R_G$=3Ω | | 236 | | ns |
| Turn-On Rise Time | $t_r$ | | | 448 | | |
| Turn-Off DelayTime | $t_{d(off)}$ | | | 9.5 | | us |
| Turn-Off Fall Time | $t_f$ | | | 4.1 | | |
| Body Diode Reverse Recovery Time | $t_{rr}$ | $I_F$= 6A, dI/dt= 100A/us | | 25 | 33 | ns |
| Body Diode Reverse Recovery Charge | $Q_{rr}$ | | | 9 | | nC |
| Maximum Body-Diode Continuous Current | $I_S$ | | | | 1.3 | A |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=1A,$V_{GS}$=0V | | | 1 | V |

* The static characteristics in Figures 1 to 6 are obtained using <300us pulses, duty cycle 0.5% max.

■ Marking

| Marking | H8** |
|---|---|

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■ Typical Characterisitics

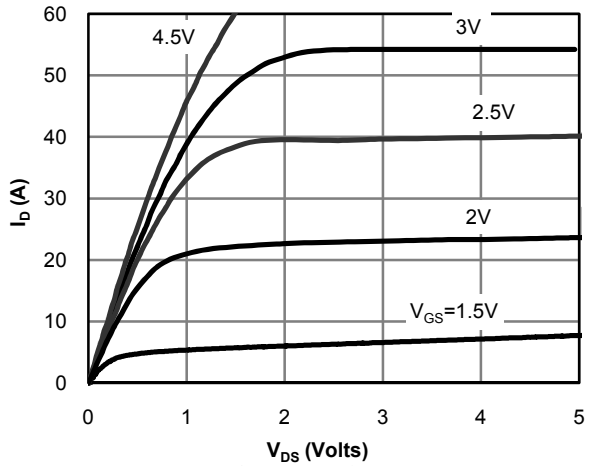


Figure 1: On-Region Characteristics

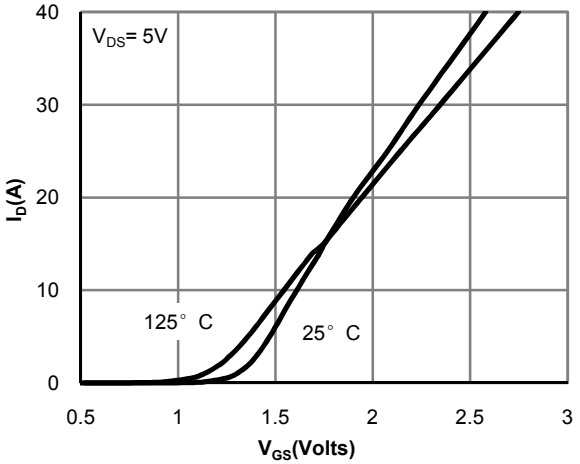


Figure 2: Transfer Characteristics

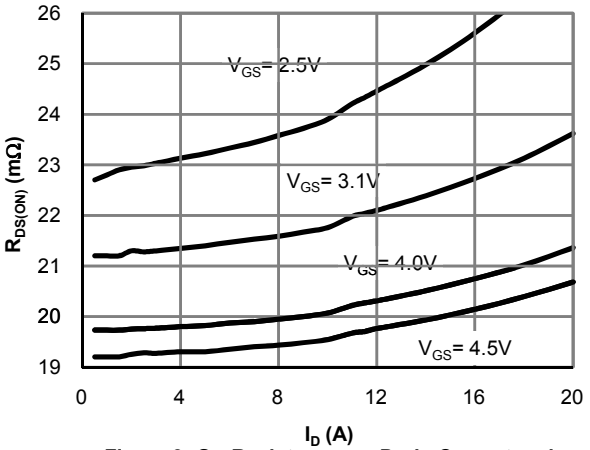


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

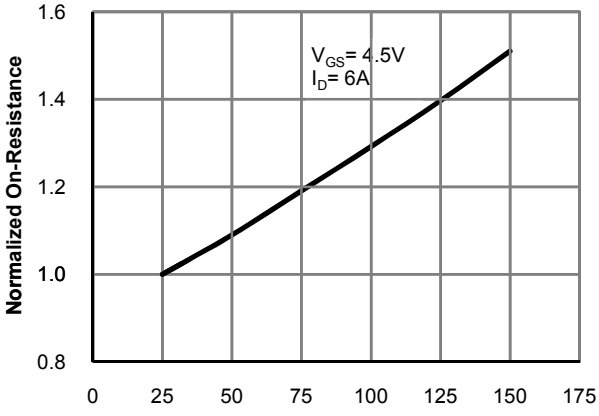


Figure 4: On-Resistance vs. Junction Temperature

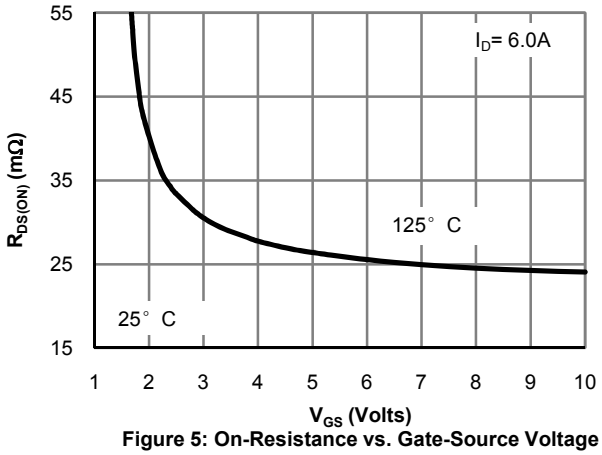


Figure 5: On-Resistance vs. Gate-Source Voltage

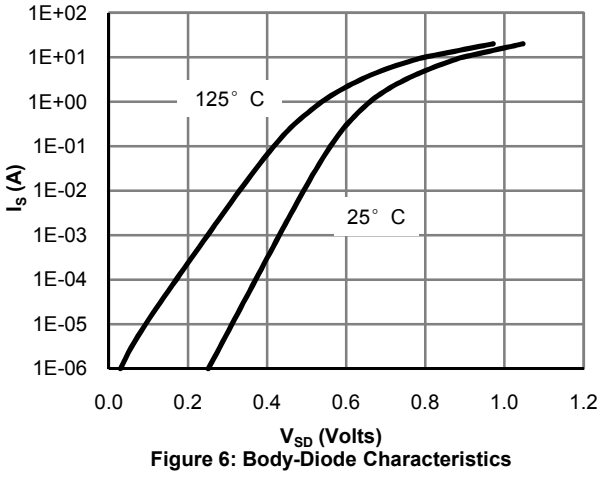


Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

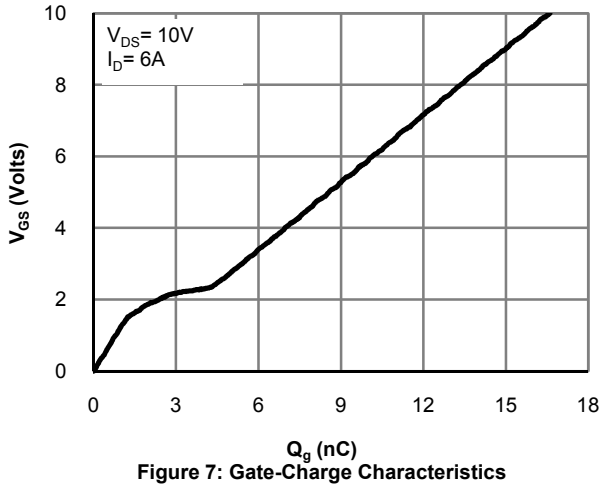


**Figure 7: Gate-Charge Characteristics**

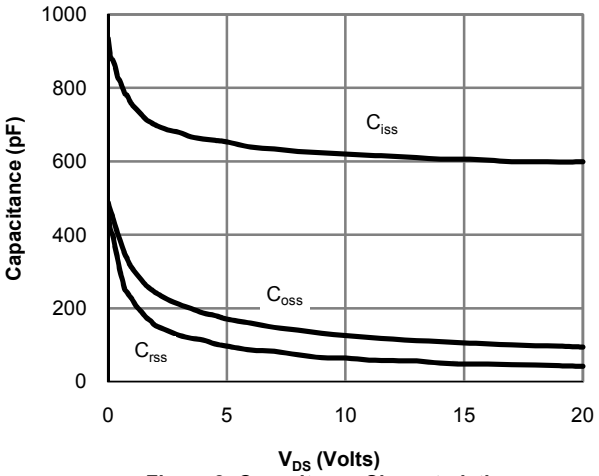


**Figure 8: Capacitance Characteristics**

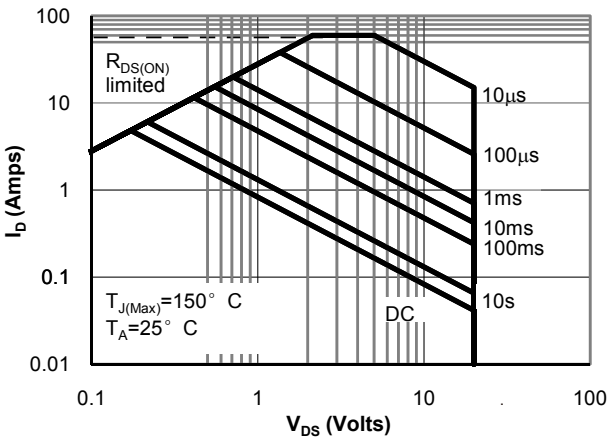


**Figure 9: Maximum Forward Biased Safe Operating Area (Note E)**

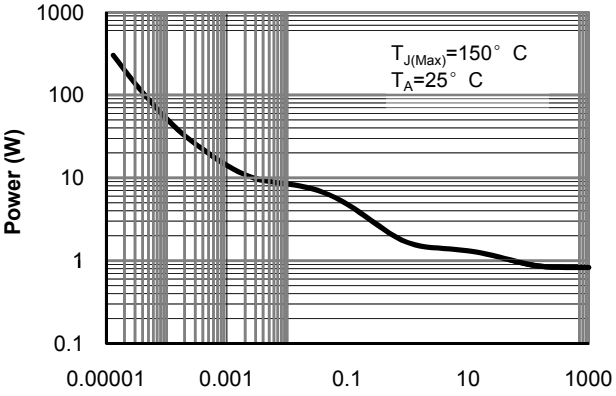


**Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)**

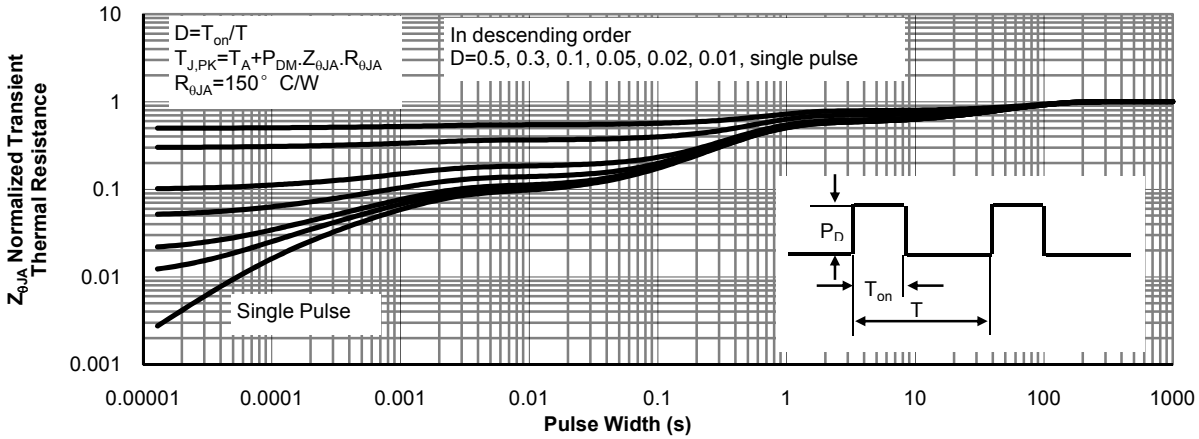


**Figure 11: Normalized Maximum Transient Thermal Impedance(Note E)**