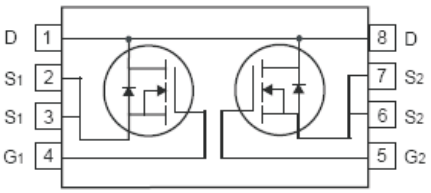
Dual N-Channel Enhancement Mode MOSFET

FEATURES

**8205A**
**N-Channel MOSFET**

5A,20V.$r_{DS(on)}$ = 0.025 Ω @ $V_{GS}$ = 4.5 V

$r_{DS(on)}$ = 0.040 Ω @ $V_{GS}$ = 2.5 V.





Absolute Maximum Ratings (TA=25oC, unless otherwise noted)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 20 | V |
| Gate-Source Voltage | $V_{GS}$ | ±8 | V |
| Continuous Drain Current | $I_D$ | 5 | A |
| Pulsed Drain Current | $I_{DM}$ | 20 | A |
| Maximum Power Dissipation $T_A$ = 25℃ | $P_D$ | 2.0 | W |
| $T_A$ = 70℃ | | 1.6 | W |
| Thermal Resistance,Junction-to-Ambient | $R_{\theta JA}$ | 78 | ℃/W |
| Thermal Resistance,Junction-to-Case | $R_{\theta JC}$ | 40 | ℃/W |
| Jumction temperature and Storage temperature | $T_j$.$T_{stg}$ | -55 to +150 | ℃ |

## 8205A Electrical Characteristics (TA=25°C, unless otherwise noted)

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{DSS}$ | $V_{GS}$ = 0 V, $I_D$ = 250 μA | 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 | $I_{GSS}$ | $V_{DS}$ = 0V , $V_{GS}$ = ±8V | | | ±50 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$ , $I_D$ = 250uA | 0.5 | | 1.0 | V |
| Drain-Source On-State Resistance * | $r_{DS(on)}$ | $V_{GS}$ = 4.5V , $I_D$ = 5A | | 0.020 | 0.025 | Ω |
| | | $V_{GS}$ = 2.5V , $I_D$ = 4A | | 0.035 | 0.040 | |
| On-State Drain Current * | $I_{D(on)}$ | $V_{DS}$ = 5V , $V_{GS}$ = 4.5V | 15 | | | A |
| Forward Transconductance * | $g_{fs}$ | $V_{DS}$ = 5V , $I_D$ =3A | | 11 | | S |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ = 10 V, $V_{GS}$ = 0 V,f = 1.0 MHz | | 700 | | pF |
| Output Capacitance | $C_{oss}$ | | | 175 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 85 | | pF |
| Total Gate Charge | $Q_g$ | $V_{DS}$ = 10V , $V_{GS}$ = 4.5V , $I_D$ = 3A | | 7 | 10 | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 1.2 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 1.9 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}$ = 10V<br>$I_D$ = 1A , $V_{GS}$ = 4.5V , $R_G$ = 6Ω | | 8 | 16 | ns |
| Rise Time | $t_r$ | | | 10 | 18 | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 18 | 29 | |
| Fall Time | $t_f$ | | | 5 | 10 | |
| Maximum Continuous Drain-Source Diode Forward Current | $I_S$ | | | | 1.3 | A |
| Diode Forward Voltage * | $V_{SD}$ | $I_S$ = 1.7 A, $V_{GS}$ = 0 V | | 0.65 | 1.2 | V |

* Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.