

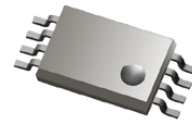
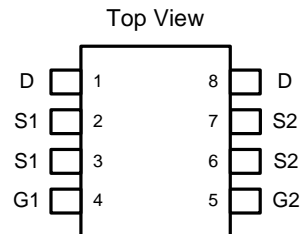
FS8205A

Dual N-Channel Enhancement Mode MOSFET

Features

- 20V/6A,
 $R_{DS(ON)} < 25m\Omega @ V_{GS}=4.5V$
 $R_{DS(ON)} < 34m\Omega @ V_{GS}=2.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

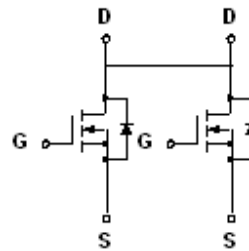
Pin Description



TSSOP-8

Applications

- Portable Equipment and Battery Powered Systems.



N Channel MOSFET

FS8205A

Absolute Maximum Ratings (T_A=25°C Unless Otherwise Noted)

| Symbol | Parameter | Rating | Unit | |
|--------------------|--|-----------------------|------|----|
| V _{DSS} | Drain-Source Voltage | 20 | V | |
| V _{GSS} | Gate-Source Voltage | ±8 | | |
| I _D * | Continuous Drain Current | 6 | A | |
| I _{DM} * | 300µs Pulsed Drain Current | | | 20 |
| I _S * | Diode Continuous Forward Current | 1 | A | |
| T _J | Maximum Junction Temperature | 150 | °C | |
| T _{STG} | Storage Temperature Range | -55 to 150 | | |
| P _D * | Maximum Power Dissipation | T _A =25°C | 1.25 | W |
| | | T _A =100°C | 0.5 | |
| R _{θJA} * | Thermal Resistance-Junction to Ambient | 100 | °C/W | |

Notes :

*Surface Mounted on 1in² pad area, t ≤ 10sec.

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

| Symbol | Parameter | Test Condition | 8205A | | | Unit |
|----------------------------------|----------------------------------|---|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Static Characteristics | | | | | | |
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _{DS} =250µA | 20 | | | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =16V, V _{GS} =0V T _J =85°C | | | 1 | µA |
| | | | | | 30 | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _{DS} =250µA | 0.5 | 0.7 | 1.5 | V |
| I _{GSS} | Gate Leakage Current | V _{GS} =±8V, V _{DS} =0V | | | ±100 | nA |
| R _{DS(ON)} ^a | Drain-Source On-state Resistance | V _{GS} =4.5V, I _{DS} =6A | | 20 | 25 | mΩ |
| | | V _{GS} =2.5V, I _{DS} =5.2A | | 27 | 34 | |
| Diode Characteristics | | | | | | |
| V _{SD} ^a | Diode Forward Voltage | I _{SD} =1A, V _{GS} =0V | | 0.8 | 1.3 | V |
| t _{rr} | Reverse Recovery Time | I _{DS} =6A, dI _{SD} /dt=100A/µs | | 14 | | ns |
| Q _{rr} | Reverse Recovery Charge | | | 5 | | nC |

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Electrical Characteristics (Cont.) ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

| Symbol | Parameter | Test Condition | 8205A | | | Unit |
|--|------------------------------|--|-------|------|------|----------|
| | | | Min. | Typ. | Max. | |
| Dynamic Characteristics^b | | | | | | |
| R_G | Gate Resistance | $V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$ | | 5.5 | | Ω |
| C_{iss} | Input Capacitance | $V_{GS}=0V,$ $V_{DS}=10V,$ Frequency=1.0MHz | | 595 | | pF |
| C_{oss} | Output Capacitance | | | 140 | | |
| C_{riss} | Reverse Transfer Capacitance | | | 125 | | |
| $t_{d(ON)}$ | Turn-on Delay Time | $V_{DD}=10V, R_L=10\Omega,$ $I_{DS}=1A, V_{GEN}=4.5V,$ $R_G=6\Omega$ | | 3.5 | 7 | ns |
| T_r | Turn-on Rise Time | | | 13.5 | 25 | |
| $t_{d(OFF)}$ | Turn-off Delay Time | | | 32 | 58 | |
| T_f | Turn-off Fall Time | | | 6.6 | 13 | |
| Gate Charge Characteristics^b | | | | | | |
| Q_g | Total Gate Charge | $I_{DS}=6A, di_{SD}/dt=100A/\mu s$ | | 21 | 29 | nC |
| Q_{gs} | Gate-Source Charge | | | 1.3 | | |
| Q_{gd} | Gate-Drain Charge | | | 3.3 | | |

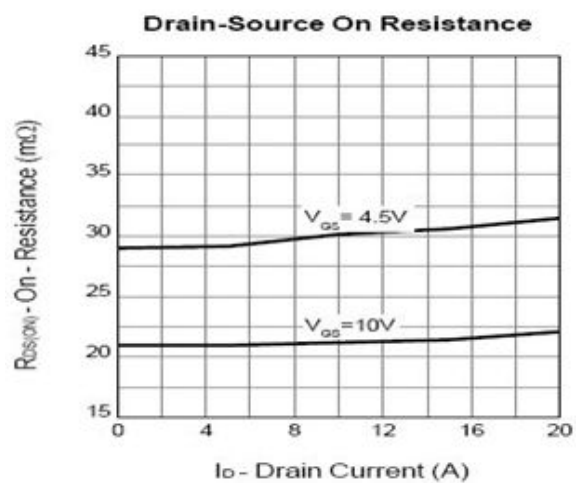
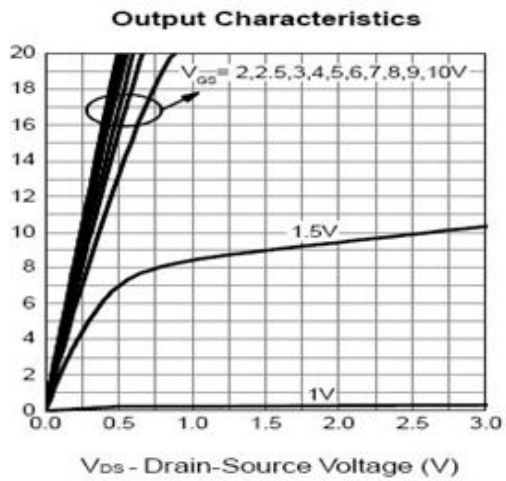
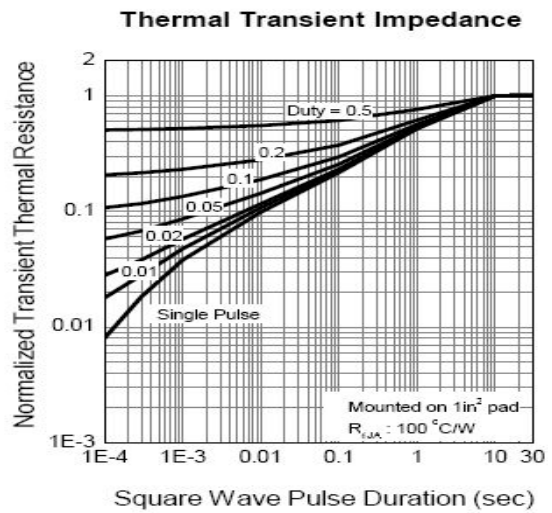
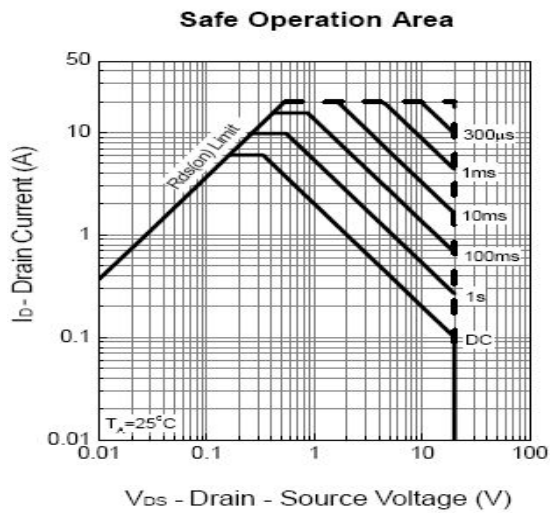
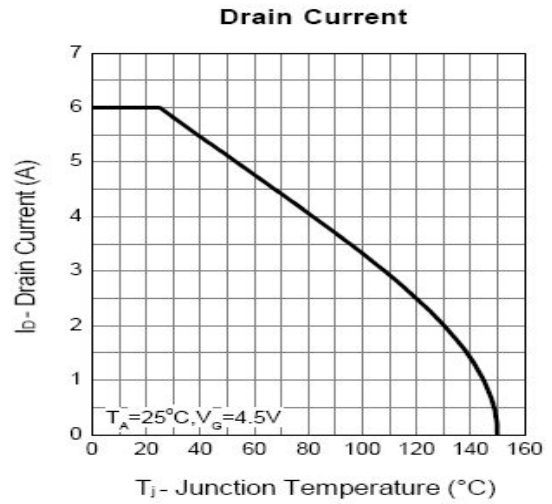
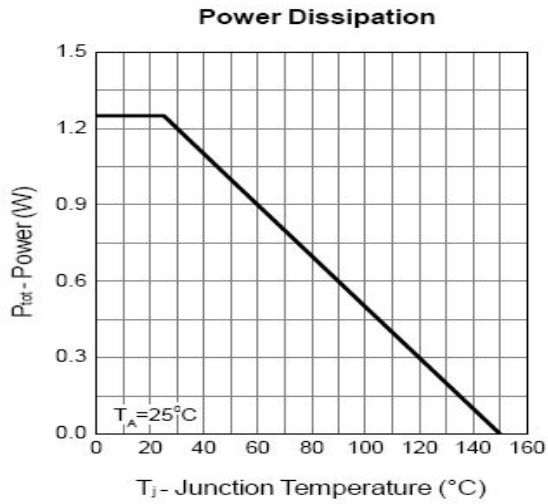
Notes :

a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

b : Guaranteed by design, not subject to production testing.

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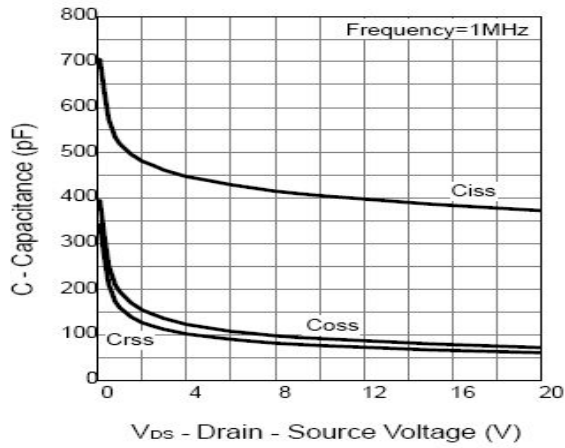
Typical Characteristics



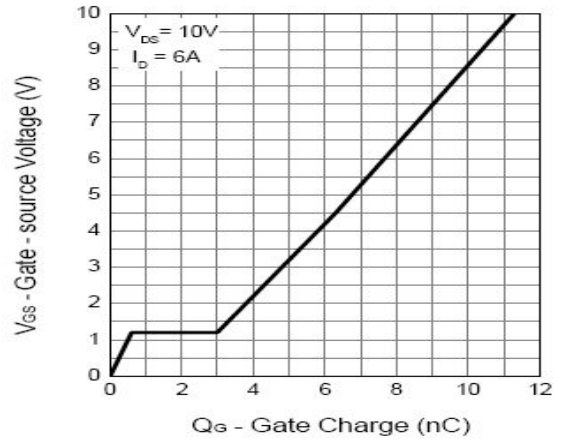
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Typical Characteristics

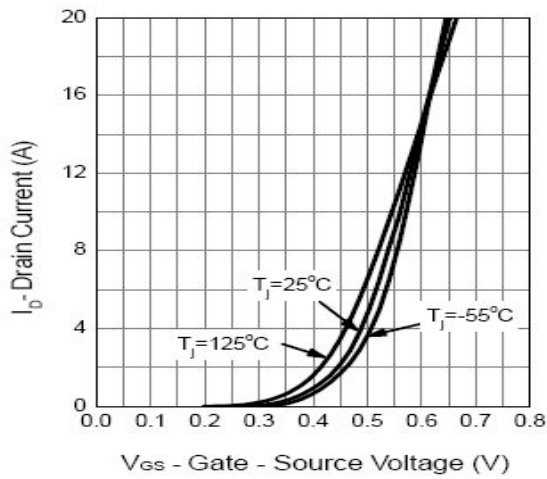
Capacitance



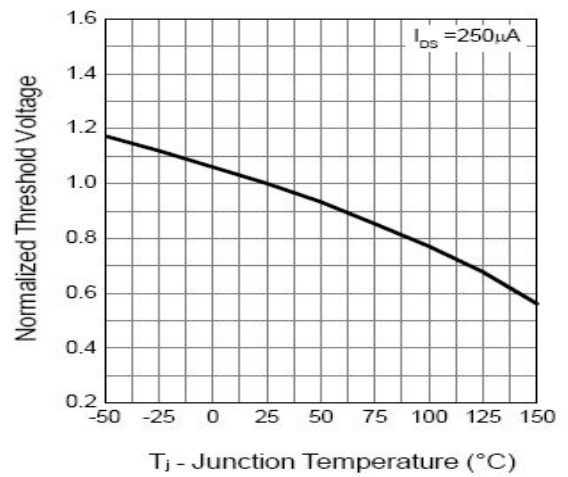
Gate Charge



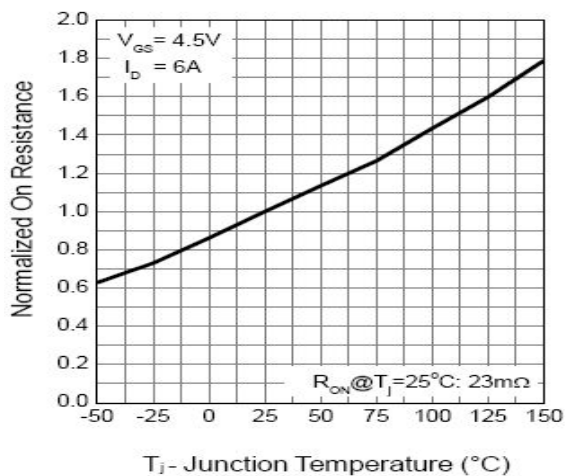
Transfer Characteristics



Gate Threshold Voltage



Drain-Source On Resistance



Source-Drain Diode Forward

