

FS5ASJ-2

HIGH-SPEED SWITCHING USE

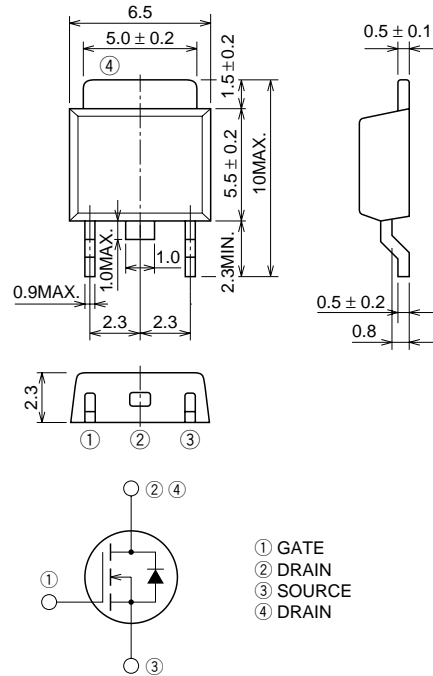
FS5ASJ-2



- 4V DRIVE
- V_{DSS} 100V
- $r_{DS(ON)}(MAX)$ 0.4Ω
- I_D 5A
- Integrated Fast Recovery Diode (TYP.) 80ns

OUTLINE DRAWING

Dimensions in mm



MP-3

APPLICATION

Motor control, Lamp control, Solenoid control
DC-DC converter, etc.

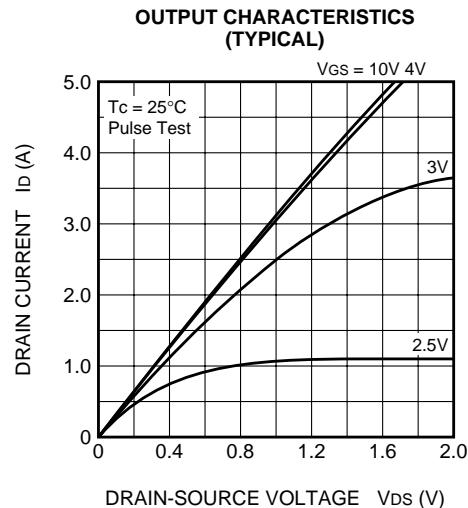
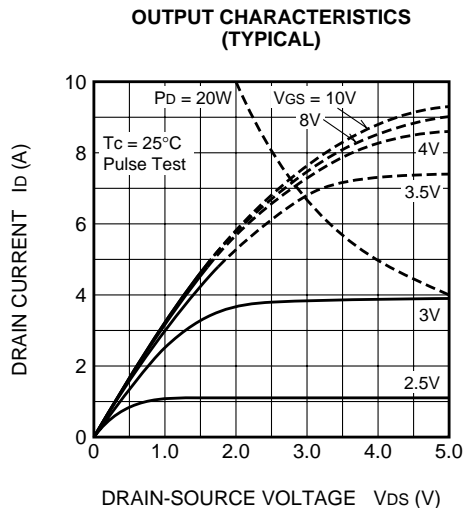
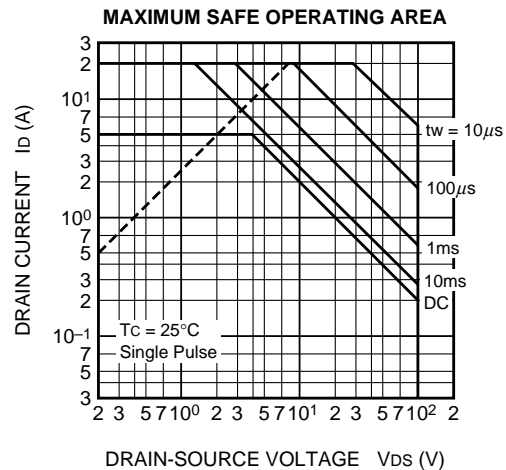
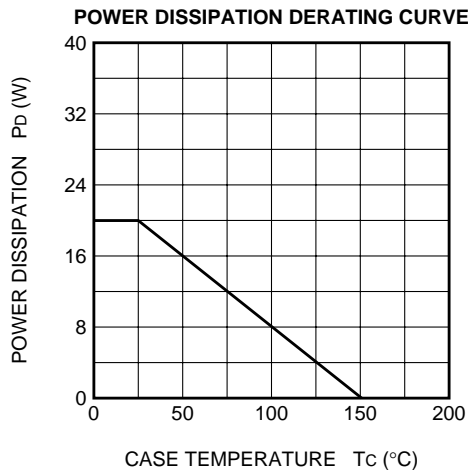
MAXIMUM RATINGS (Tc = 25°C)

| Symbol | Parameter | Conditions | Ratings | Unit |
|-----------|----------------------------------|----------------|------------|------|
| V_{DSS} | Drain-source voltage | $V_{GS} = 0V$ | 100 | V |
| V_{GSS} | Gate-source voltage | $V_{DS} = 0V$ | ± 20 | V |
| I_D | Drain current | | 5 | A |
| I_{DM} | Drain current (Pulsed) | | 20 | A |
| I_{DA} | Avalanche drain current (Pulsed) | $L = 100\mu H$ | 5 | A |
| I_S | Source current | | 5 | A |
| I_{SM} | Source current (Pulsed) | | 20 | A |
| P_D | Maximum power dissipation | | 20 | W |
| T_{ch} | Channel temperature | | -55 ~ +150 | °C |
| T_{stg} | Storage temperature | | -55 ~ +150 | °C |
| — | Weight | Typical value | 0.26 | g |

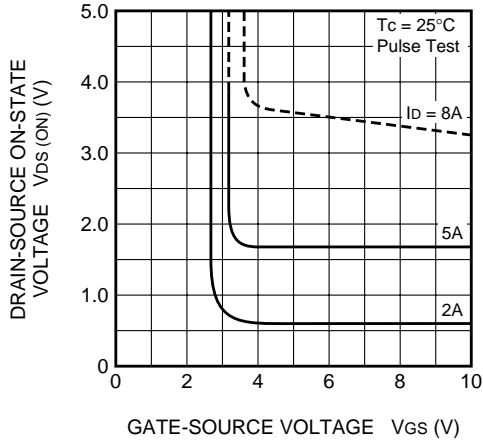
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|------------|----------------------------------|---|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| V (BR) DSS | Drain-source breakdown voltage | Id = 1mA, Vgs = 0V | 100 | — | — | V |
| IgSS | Gate-source leakage current | Vgs = ±20V, Vds = 0V | — | — | ±0.1 | μA |
| IbSS | Drain-source leakage current | Vds = 100V, Vgs = 0V | — | — | 0.1 | mA |
| VGS (th) | Gate-source threshold voltage | Id = 1mA, Vds = 10V | 1.0 | 1.5 | 2.0 | V |
| rDS (ON) | Drain-source on-state resistance | Id = 2A, Vgs = 10V | — | 0.31 | 0.40 | Ω |
| rDS (ON) | Drain-source on-state resistance | Id = 2A, Vgs = 4V | — | 0.34 | 0.46 | Ω |
| VDS (ON) | Drain-source on-state voltage | Id = 2A, Vgs = 10V | — | 0.62 | 0.8 | V |
| yfs | Forward transfer admittance | Id = 2A, Vds = 5V | — | 6 | — | S |
| Ciss | Input capacitance | Vds = 10V, Vgs = 0V, f = 1MHz | — | 360 | — | pF |
| Coss | Output capacitance | | — | 75 | — | pF |
| Crss | Reverse transfer capacitance | | — | 20 | — | pF |
| td (on) | Turn-on delay time | VDD = 50V, Id = 2A, Vgs = 10V, RGEN = RGS = 50Ω | — | 10 | — | ns |
| tr | Rise time | | — | 7 | — | ns |
| td (off) | Turn-off delay time | | — | 35 | — | ns |
| tf | Fall time | | — | 15 | — | ns |
| VSD | Source-drain voltage | Is = 2A, Vgs = 0V | — | 1.0 | 1.5 | V |
| Rth (ch-c) | Thermal resistance | Channel to case | — | — | 6.25 | °C/W |
| trr | Reverse recovery time | Is = 5A, dis/dt = -100A/μs | — | 80 | — | ns |

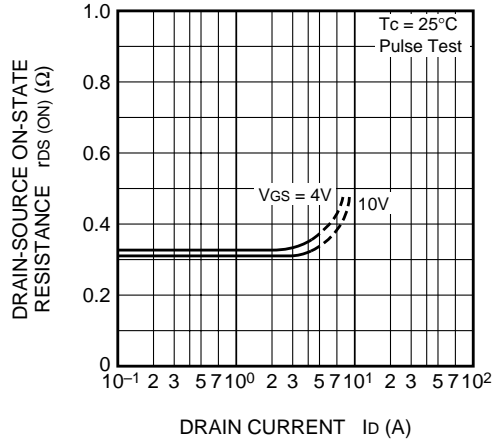
PERFORMANCE CURVES



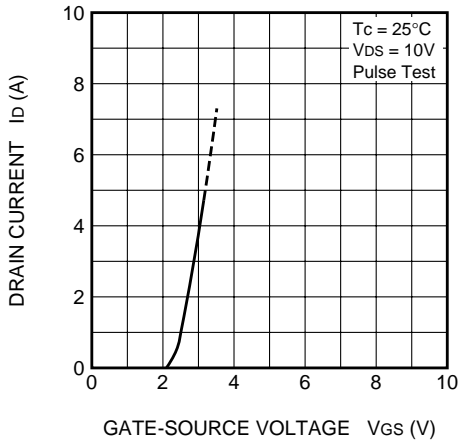
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



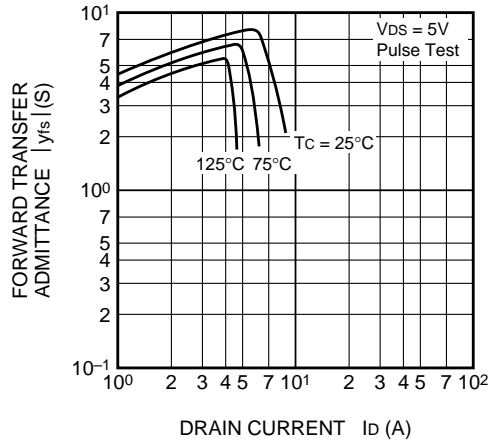
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



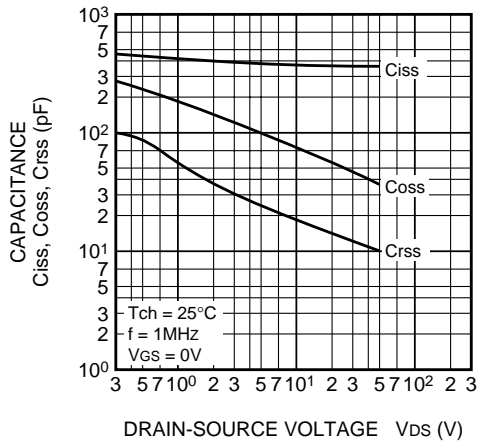
TRANSFER CHARACTERISTICS (TYPICAL)



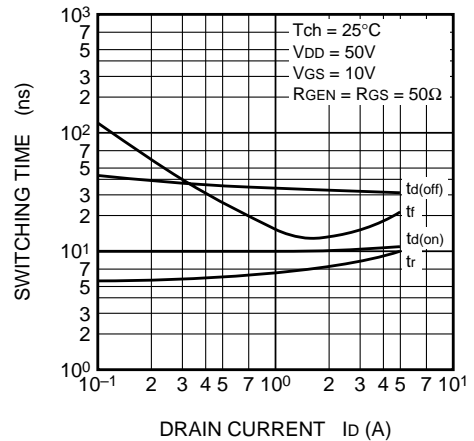
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



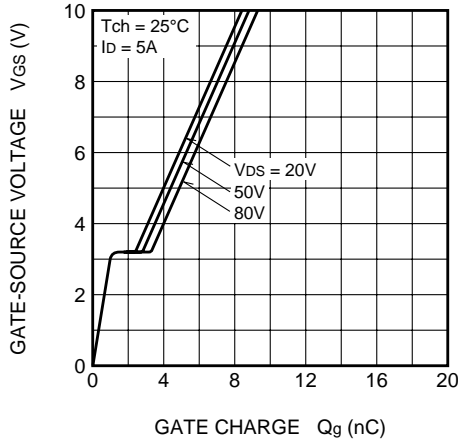
CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



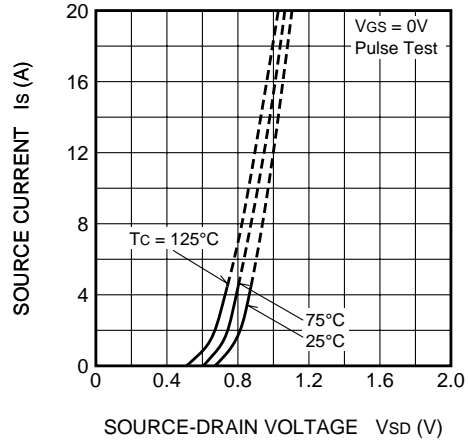
SWITCHING CHARACTERISTICS (TYPICAL)



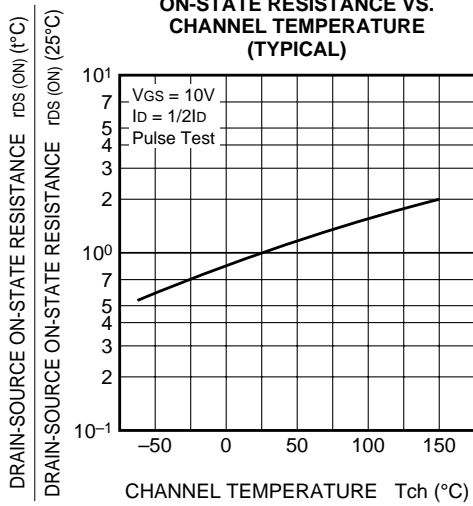
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



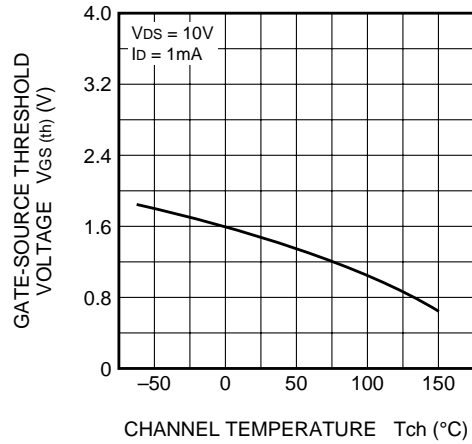
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



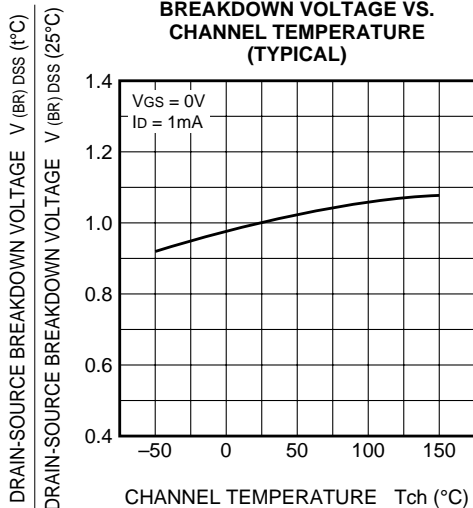
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

