

FS30KMH-06

HIGH-SPEED SWITCHING USE

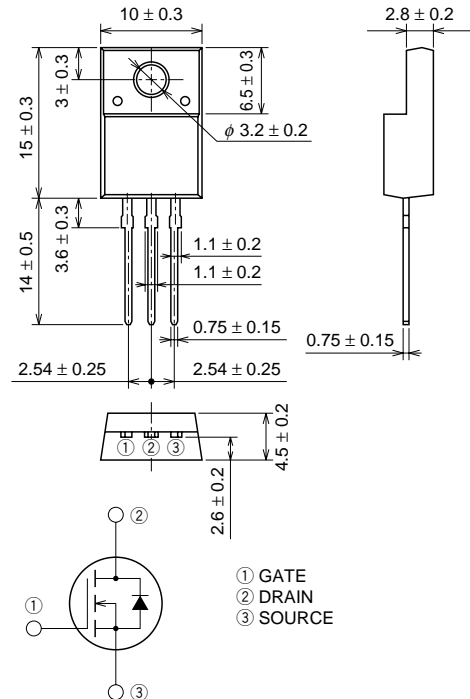
FS30KMH-06



- 2.5V DRIVE
- V_{DSS} 60V
- r_{DS (ON)} (MAX) 30mΩ
- I_D 30A
- Integrated Fast Recovery Diode (TYP.) 65ns
- V_{iso} 2000V

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

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

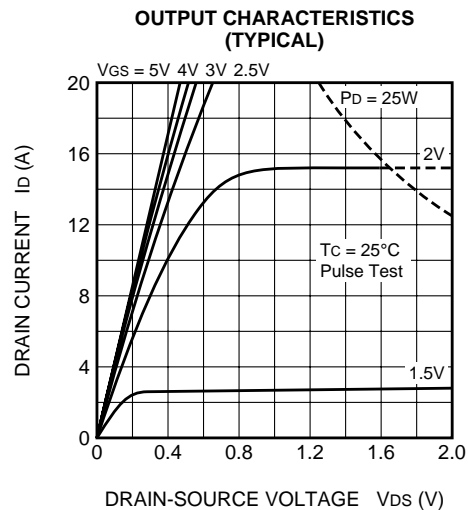
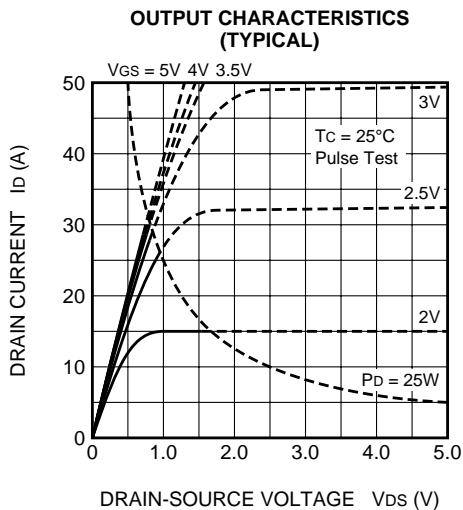
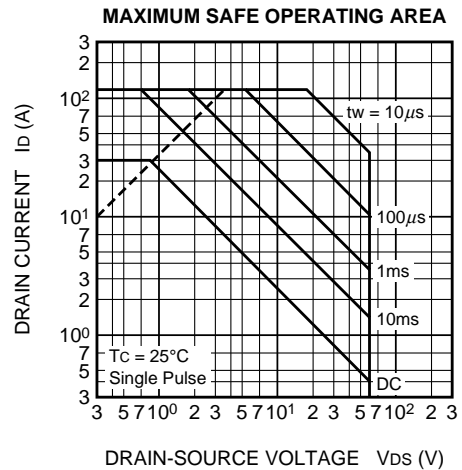
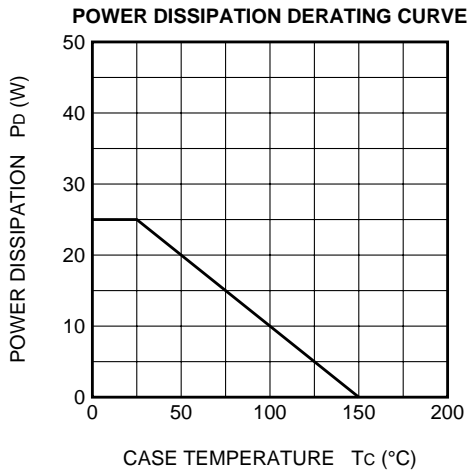
MAXIMUM RATINGS (T_c = 25°C)

| Symbol | Parameter | Conditions | Ratings | Unit |
|------------------|----------------------------------|----------------------------------|------------|------|
| V _{DSS} | Drain-source voltage | V _{GS} = 0V | 60 | V |
| V _{GSS} | Gate-source voltage | V _{DS} = 0V | ±10 | V |
| I _D | Drain current | | 30 | A |
| I _{DM} | Drain current (Pulsed) | | 120 | A |
| I _{DA} | Avalanche drain current (Pulsed) | L = 100μH | 30 | A |
| I _S | Source current | | 30 | A |
| I _{SM} | Source current (Pulsed) | | 120 | A |
| P _D | Maximum power dissipation | | 25 | W |
| T _{ch} | Channel temperature | | -55 ~ +150 | °C |
| T _{stg} | Storage temperature | | -55 ~ +150 | °C |
| V _{iso} | Isolation voltage | AC for 1minute, Terminal to case | 2000 | V |
| — | Weight | Typical value | 2.0 | g |

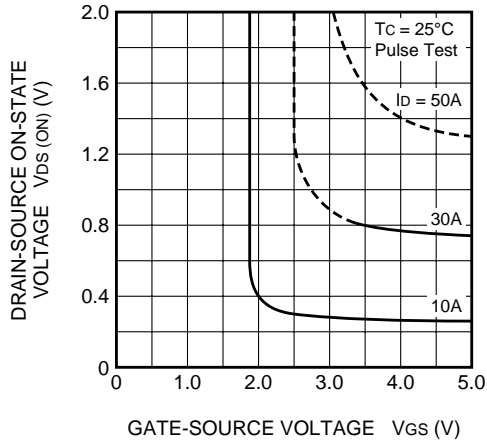
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|-----------|----------------------------------|---|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| V(BR)DSS | Drain-source breakdown voltage | Id = 1mA, VGS = 0V | 60 | — | — | V |
| IGSS | Gate-source leakage current | VGS = ±10V, VDS = 0V | — | — | ±0.1 | μA |
| IDSS | Drain-source leakage current | VDS = 60V, VGS = 0V | — | — | 0.1 | mA |
| VGS(th) | Gate-source threshold voltage | Id = 1mA, VDS = 10V | 0.6 | 0.9 | 1.2 | V |
| rDS(ON) | Drain-source on-state resistance | Id = 15A, VGS = 4V | — | 25 | 30 | mΩ |
| rDS(ON) | Drain-source on-state resistance | Id = 15A, VGS = 2.5V | — | 30 | 39 | mΩ |
| VDS(ON) | Drain-source on-state voltage | Id = 15A, VGS = 4V | — | 0.38 | 0.45 | V |
| yfs | Forward transfer admittance | Id = 15A, VDS = 10V | — | 34 | — | S |
| Ciss | Input capacitance | VDS = 10V, VGS = 0V, f = 1MHz | — | 2000 | — | pF |
| Coss | Output capacitance | | — | 320 | — | pF |
| Crss | Reverse transfer capacitance | | — | 170 | — | pF |
| td(on) | Turn-on delay time | VDD = 30V, Id = 15A, VGS = 4V, RGEN = RGS = 50Ω | — | 33 | — | ns |
| tr | Rise time | | — | 135 | — | ns |
| td(off) | Turn-off delay time | | — | 145 | — | ns |
| tf | Fall time | | — | 150 | — | ns |
| VSD | Source-drain voltage | IS = 15A, VGS = 0V | — | 1.0 | 1.5 | V |
| Rth(ch-c) | Thermal resistance | Channel to case | — | — | 5.00 | °C/W |
| trr | Reverse recovery time | IS = 30A, dis/dt = -100A/μs | — | 65 | — | ns |

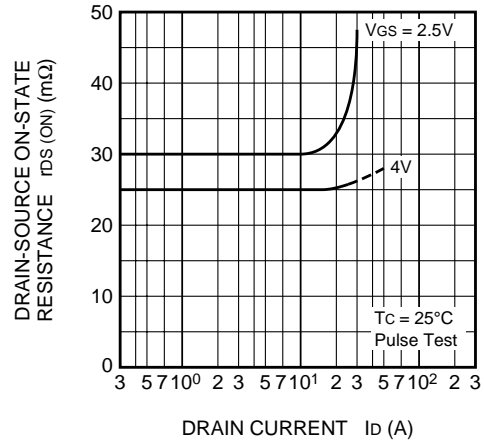
PERFORMANCE CURVES



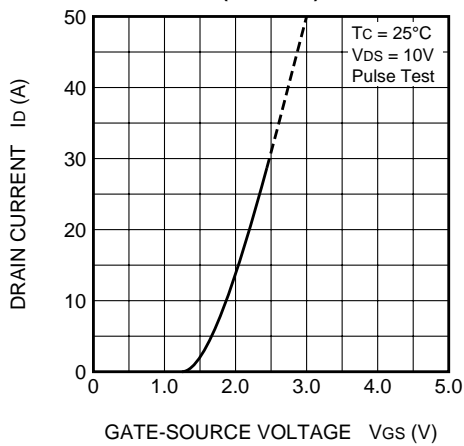
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



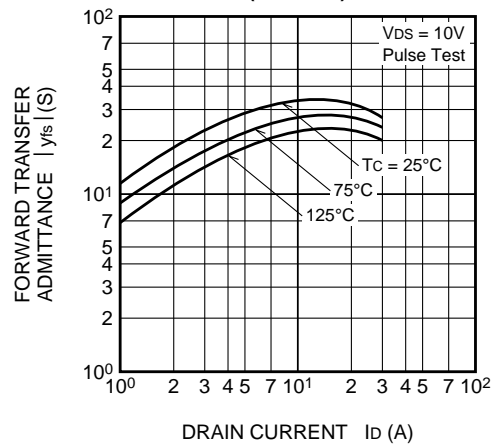
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



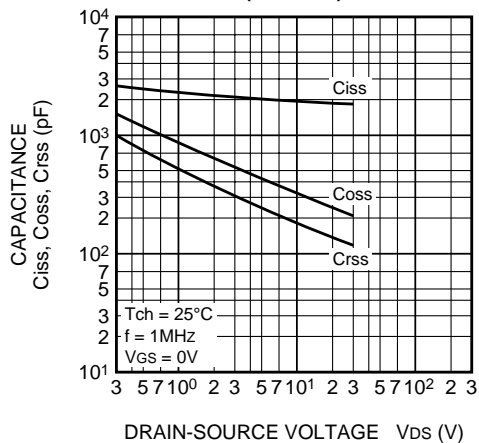
TRANSFER CHARACTERISTICS (TYPICAL)



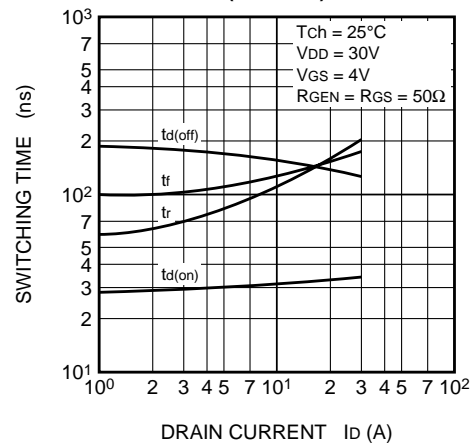
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



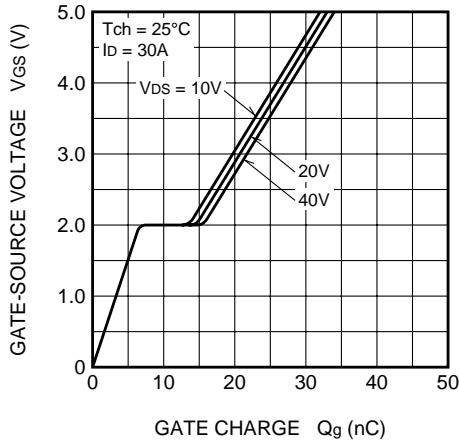
CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



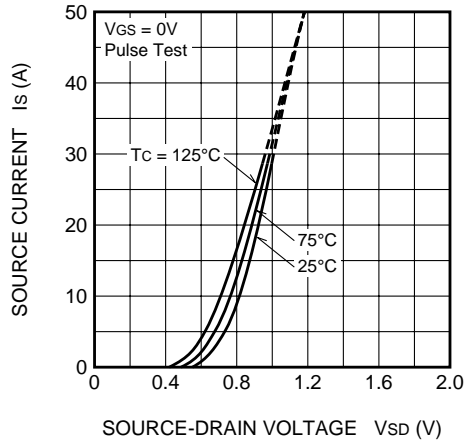
SWITCHING CHARACTERISTICS (TYPICAL)



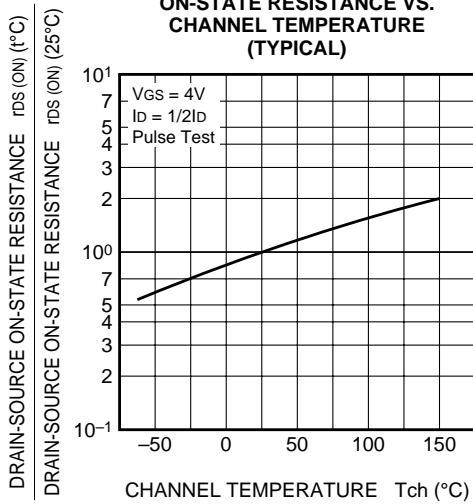
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



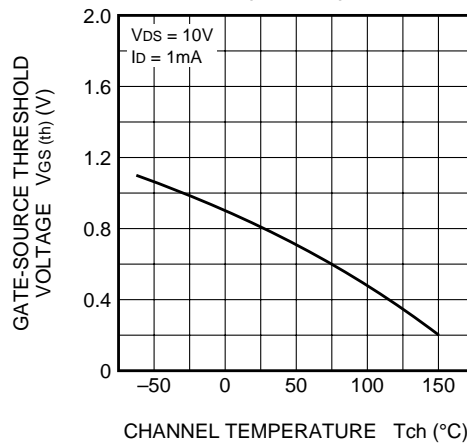
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



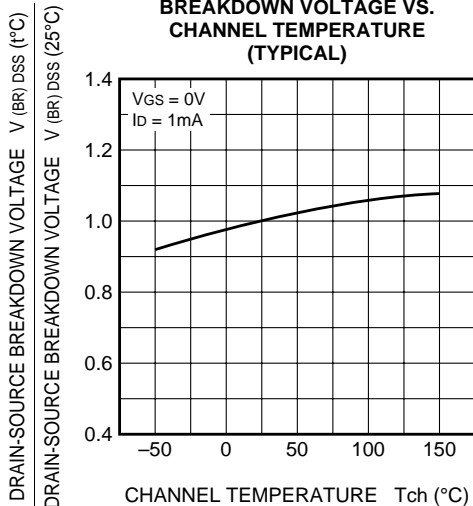
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

