


**PRELIMINARY**  
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MITSUBISHI Pch POWER MOSFET

# FX3ASJ-3

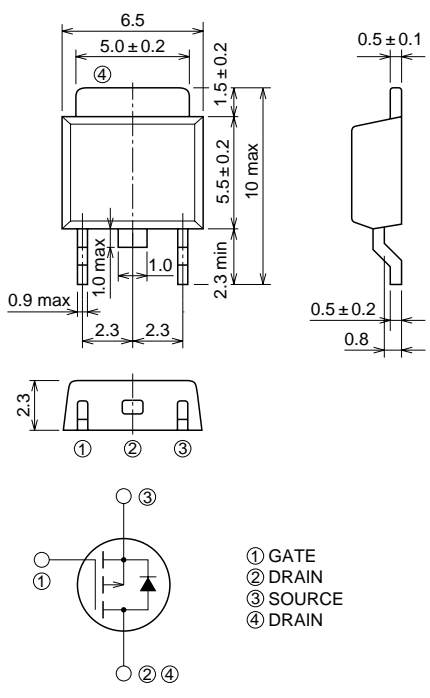
HIGH-SPEED SWITCHING USE

**FX3ASJ-3**



- 4V DRIVE
- $V_{DSS}$  ..... -150V
- $r_{DS(ON)}$  (MAX) .....  $1.2\Omega$
- $I_D$  ..... -3A
- 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)

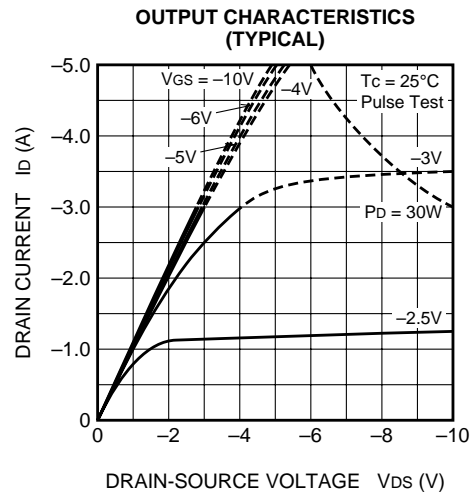
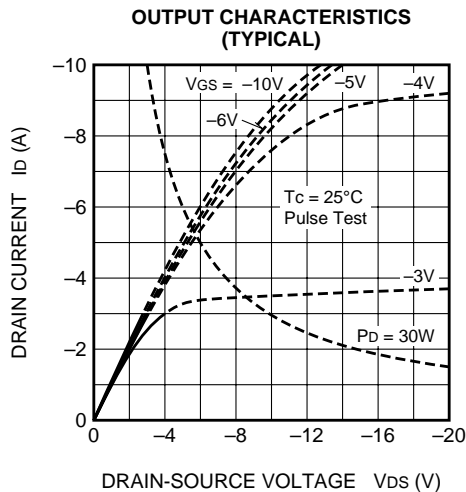
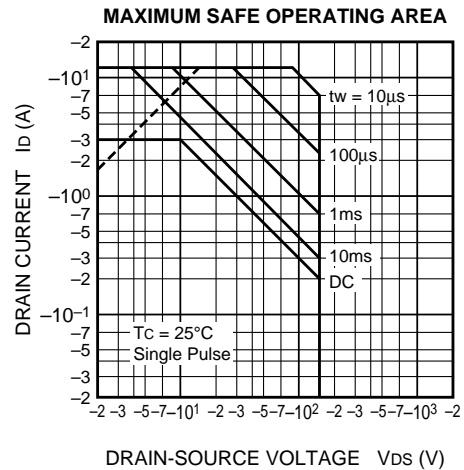
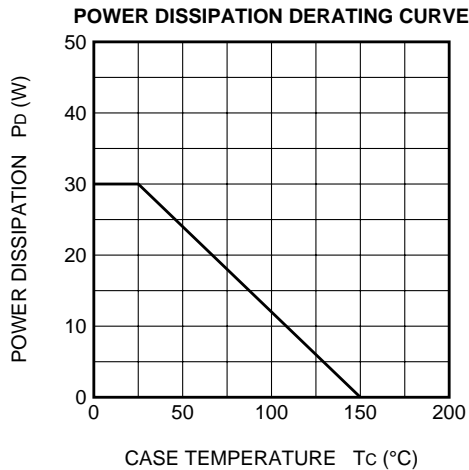
| Symbol    | Parameter                        | Conditions     | Ratings    | Unit |
|-----------|----------------------------------|----------------|------------|------|
| $V_{DSS}$ | Drain-source voltage             | $V_{GS} = 0V$  | -150       | V    |
| $V_{GSS}$ | Gate-source voltage              | $V_{DS} = 0V$  | $\pm 20$   | V    |
| $I_D$     | Drain current                    |                | -3         | A    |
| $I_{DM}$  | Drain current (Pulsed)           |                | -12        | A    |
| $I_{DA}$  | Avalanche drain current (Pulsed) | $L = 100\mu H$ | -3         | A    |
| $I_S$     | Source current                   |                | -3         | A    |
| $I_{SM}$  | Source current (Pulsed)          |                | -12        | A    |
| $P_D$     | Maximum power dissipation        |                | 30         | W    |
| $T_{ch}$  | Channel temperature              |                | -55 ~ +150 | °C   |
| $T_{stg}$ | Storage temperature              |                | -55 ~ +150 | °C   |
| —         | Weight                           | Typical value  | 0.26       | g    |

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**ELECTRICAL CHARACTERISTICS** (Tch = 25°C)

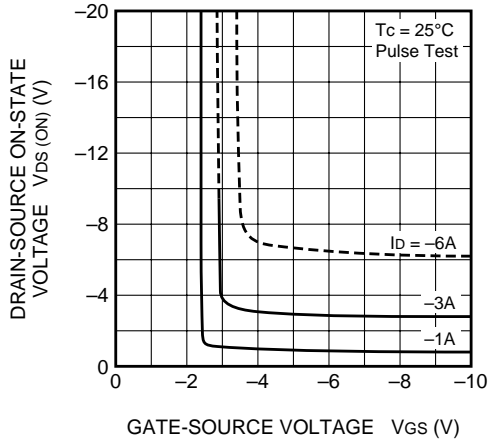
| Symbol    | Parameter                        | Test conditions                                    | Limits             |       |       | Unit |
|-----------|----------------------------------|--|--------------------|-------|-------|------|
|           |                                  |  | Min.               | Typ.  | Max.  |      |
| V(BR)DSS  | Drain-source breakdown voltage   | ID = -1mA, VGS = 0V                                | -150               | —     | —     | V    |
| IGSS      | Gate-source leakage current      | VGS = ±20V, VDS = 0V                               | —                  | —     | ±0.1  | μA   |
| IDSS      | Drain-source leakage current     | VDS = -150V, 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 = -1A, VGS = -10V                               | —                  | 0.93  | 1.20  | Ω    |
| rDS(ON)   | Drain-source on-state resistance | ID = -1A, VGS = -4V                                | —                  | 1.02  | 1.32  | Ω    |
| VDS(ON)   | Drain-source on-state voltage    | ID = -1A, VGS = -10V                               | —                  | -0.93 | -1.20 | V    |
| yfs       | Forward transfer admittance      | ID = -1A, VDS = -5V                                | —                  | 3.0   | —     | S    |
| Ciss      | Input capacitance                | VDS = -10V, VGS = 0V, f = 1MHz                     | —                  | 1170  | —     | pF   |
| Coss      | Output capacitance               |  | —                  | 81    | —     | pF   |
| Crss      | Reverse transfer capacitance     |  | —                  | 31    | —     | pF   |
| td(on)    | Turn-on delay time               |  | —                  | 9     | —     | ns   |
| tr        | Rise time                        | VDD = -80V, ID = -1A, VGS = -10V, RGEN = RGS = 50Ω | —                  | 7     | —     | ns   |
| td(off)   | Turn-off delay time              |  | —                  | 82    | —     | ns   |
| tf        | Fall time                        |  | —                  | 33    | —     | ns   |
| VSD       | Source-drain voltage             |  | IS = -1A, VGS = 0V | —     | -1.0  | -1.5 |
| Rth(ch-c) | Thermal resistance               | Channel to case                                    | —                  | —     | 4.17  | °C/W |
| trr       | Reverse recovery time            | IS = -3A, dis/dt = 100A/μs                         | —                  | 80    | —     | ns   |

**PERFORMANCE CURVES**

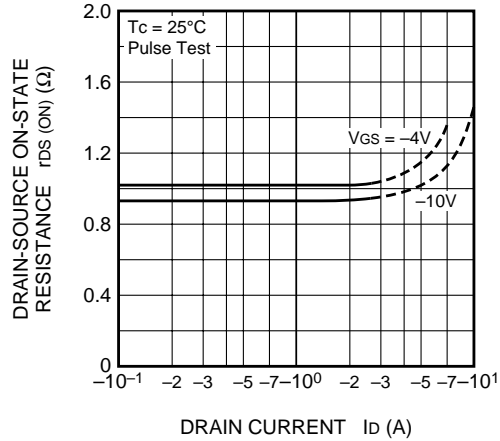


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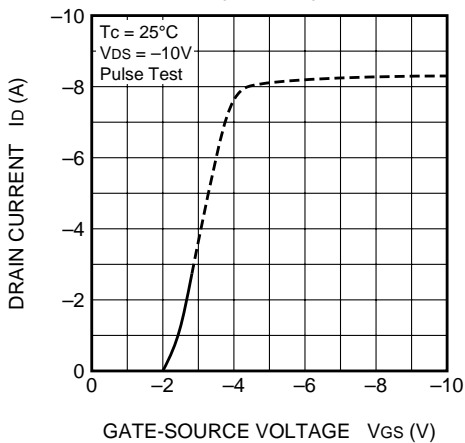
**ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)**



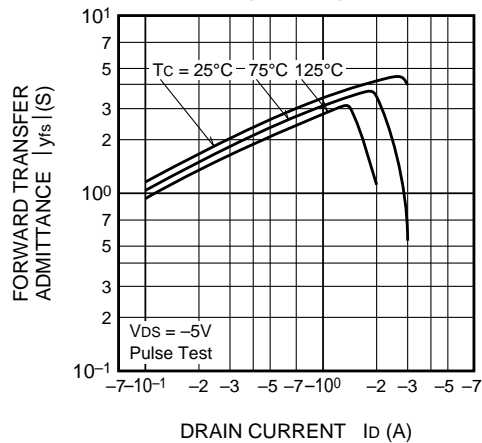
**ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)**



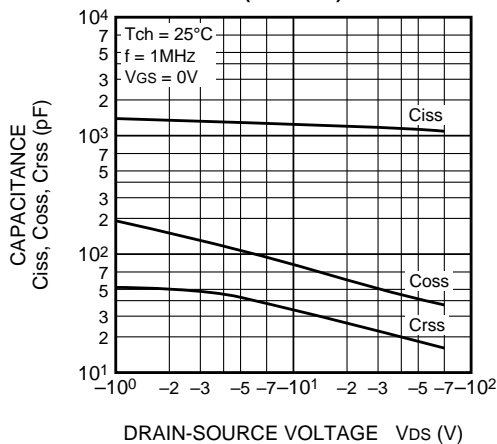
**TRANSFER CHARACTERISTICS (TYPICAL)**



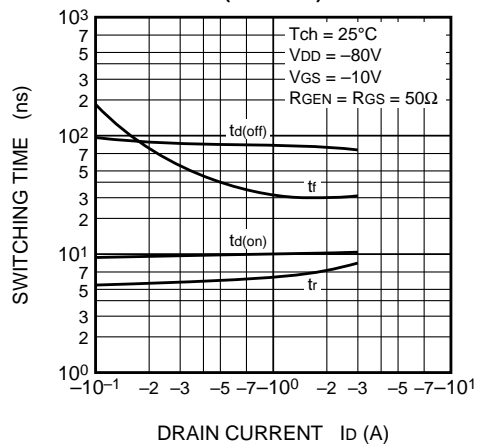
**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)**



**CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)**



**SWITCHING CHARACTERISTICS (TYPICAL)**



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