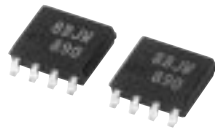


MITSUBISHI Pch POWER MOSFET

# FY8ABJ-03

HIGH-SPEED SWITCHING USE

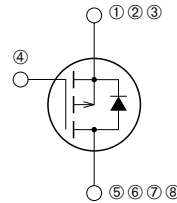
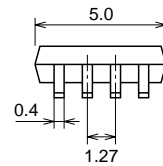
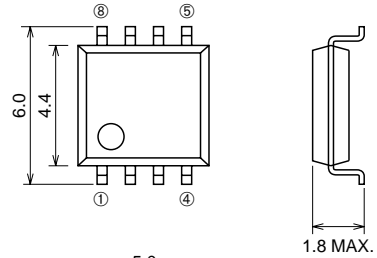
## FY8ABJ-03



- 4V DRIVE
- V<sub>DSS</sub> ..... -30V
- r<sub>DS (ON)</sub> (MAX) ..... 20mΩ
- I<sub>D</sub> ..... -8A

## OUTLINE DRAWING

Dimensions in mm



- ① ② ③ SOURCE
- ④ GATE
- ⑤ ⑥ ⑦ ⑧ DRAIN

SOP-8

## APPLICATION

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

## MAXIMUM RATINGS (T<sub>c</sub> = 25°C)

| Symbol           | Parameter                        | Conditions           | Ratings    | Unit |
|------------------|----------------------------------|----------------------|------------|------|
| V <sub>DSS</sub> | Drain-source voltage             | V <sub>GS</sub> = 0V | -30        | V    |
| V <sub>GSS</sub> | Gate-source voltage              | V <sub>DS</sub> = 0V | ±20        | V    |
| I <sub>D</sub>   | Drain current                    |                      | -8         | A    |
| I <sub>DM</sub>  | Drain current (Pulsed)           |                      | -56        | A    |
| I <sub>DA</sub>  | Avalanche drain current (Pulsed) | L = 10μH             | -8         | A    |
| I <sub>S</sub>   | Source current                   |                      | -2.1       | A    |
| I <sub>SM</sub>  | Source current (Pulsed)          |                      | -8.4       | A    |
| P <sub>D</sub>   | Maximum power dissipation        |                      | 2.0        | W    |
| T <sub>ch</sub>  | Channel temperature              |                      | -55 ~ +150 | °C   |
| T <sub>stg</sub> | Storage temperature              |                      | -55 ~ +150 | °C   |
| —                | Weight                           | Typical value        | 0.07       | g    |

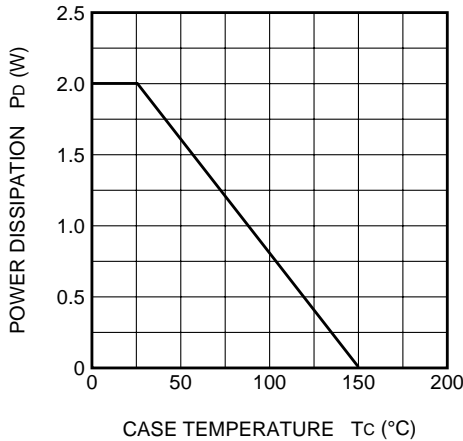
Sep.1998

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

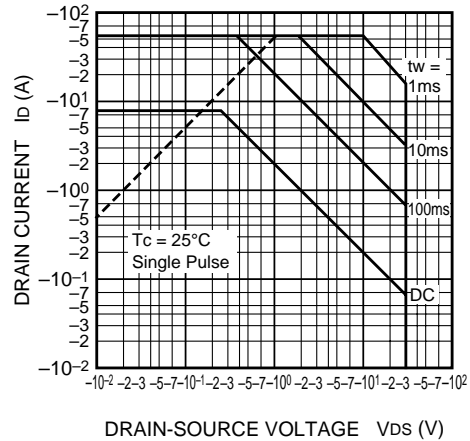
| Symbol    | Parameter                        | Test conditions                                    | Limits |       |       | Unit |
|-----------|----------------------------------|--|--------|-------|-------|------|
|           |                                  |  | Min.   | Typ.  | Max.  |      |
| V(BR)DSS  | Drain-source breakdown voltage   | Id = -1mA, VGS = 0V                                | -30    | —     | —     | V    |
| IGSS      | Gate-source leakage current      | VGS = ±20V, VDS = 0V                               | —      | —     | ±0.1  | μA   |
| IDSS      | Drain-source leakage current     | VDS = -30V, VGS = 0V                               | —      | —     | -0.1  | mA   |
| VGS(th)   | Gate-source threshold voltage    | Id = -1mA, VDS = -10V                              | -1.5   | -2.0  | -2.5  | V    |
| rDS(ON)   | Drain-source on-state resistance | Id = -8A, VGS = -10V                               | —      | 14    | 20    | mΩ   |
| rDS(ON)   | Drain-source on-state resistance | Id = -4A, VGS = -4V                                | —      | 26    | 37    | mΩ   |
| VDS(ON)   | Drain-source on-state voltage    | Id = -8A, VGS = -10V                               | —      | 0.112 | 0.160 | V    |
| yfs       | Forward transfer admittance      | Id = -8A, VDS = -10V                               | —      | 19    | —     | S    |
| Ciss      | Input capacitance                | VDS = -10V, VGS = 0V, f = 1MHz                     | —      | 3650  | —     | pF   |
| Coss      | Output capacitance               |  | —      | 900   | —     | pF   |
| Crss      | Reverse transfer capacitance     |  | —      | 385   | —     | pF   |
| td(on)    | Turn-on delay time               | VDD = -15V, Id = -4A, VGS = -10V, RGEN = RGS = 50Ω | —      | 30    | —     | ns   |
| tr        | Rise time                        |  | —      | 55    | —     | ns   |
| td(off)   | Turn-off delay time              |  | —      | 250   | —     | ns   |
| tf        | Fall time                        |  | —      | 105   | —     | ns   |
| VSD       | Source-drain voltage             | IS = -2.1A, VGS = 0V                               | —      | -0.77 | -1.20 | V    |
| Rth(ch-a) | Thermal resistance               | Channel to ambient                                 | —      | —     | 62.5  | °C/W |
| trr       | Reverse recovery time            | IS = -2.1A, dis/dt = 50A/μs                        | —      | 100   | —     | ns   |

**PERFORMANCE CURVES**

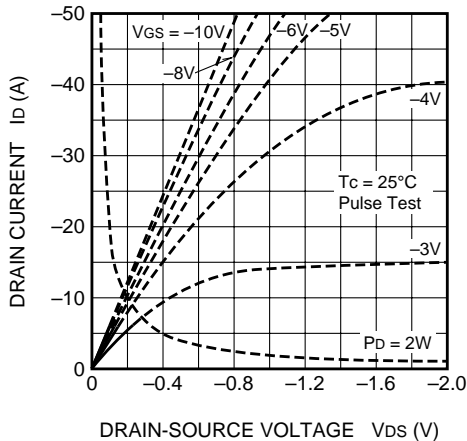
**POWER DISSIPATION DERATING CURVE**



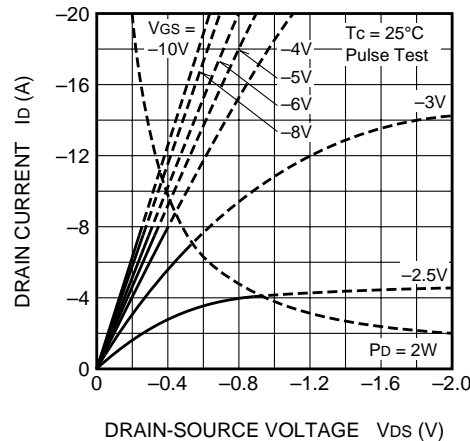
**MAXIMUM SAFE OPERATING AREA**



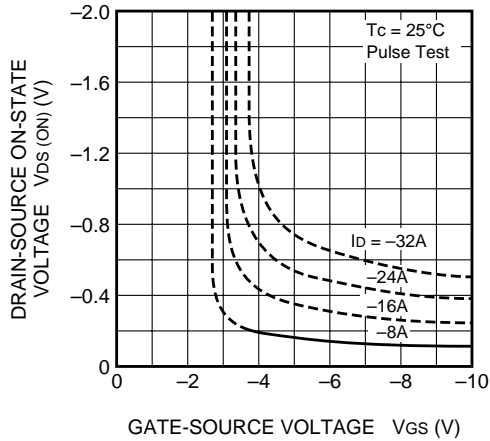
**OUTPUT CHARACTERISTICS (TYPICAL)**



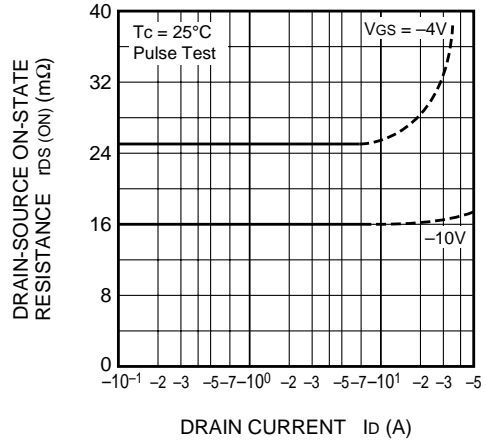
**OUTPUT CHARACTERISTICS (TYPICAL)**



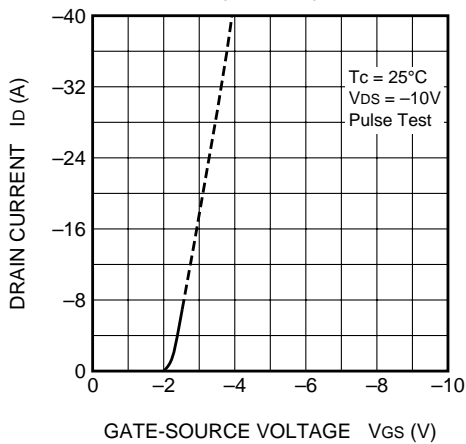
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



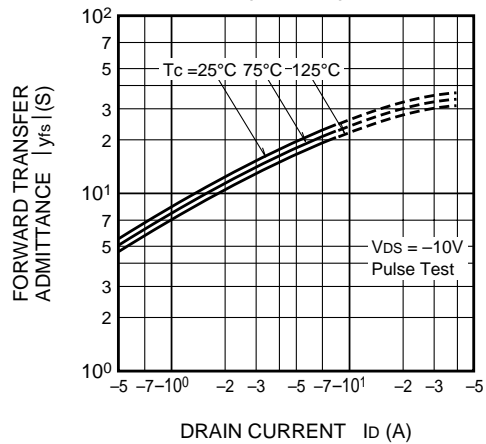
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



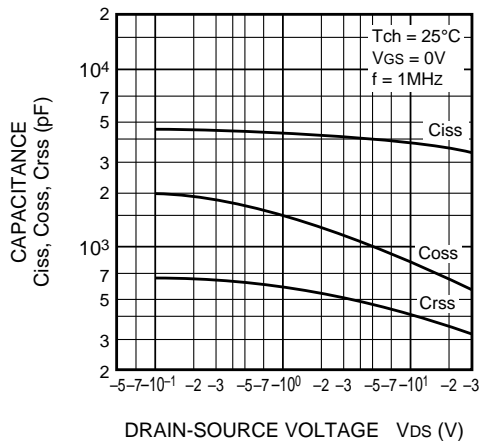
TRANSFER CHARACTERISTICS (TYPICAL)



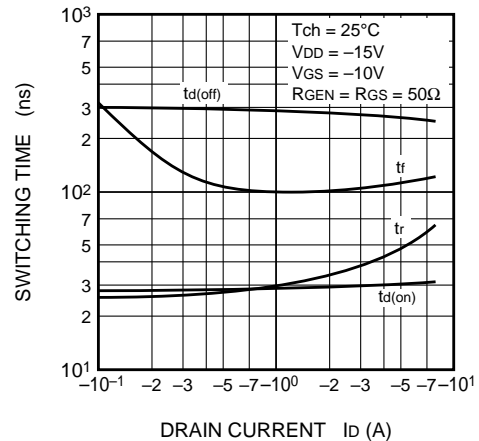
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



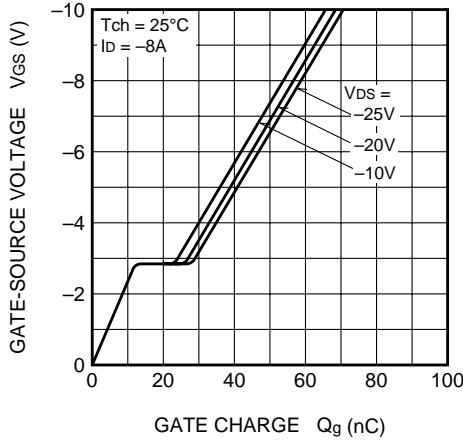
CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



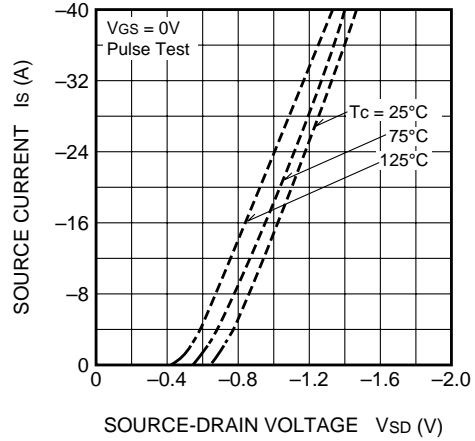
SWITCHING CHARACTERISTICS (TYPICAL)



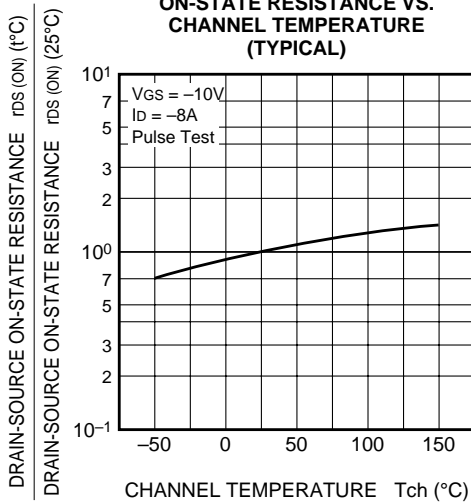
**GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)**



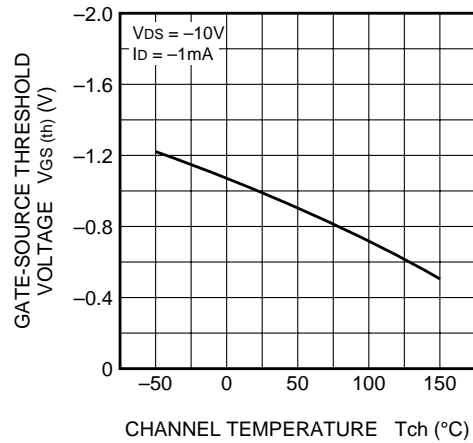
**SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)**



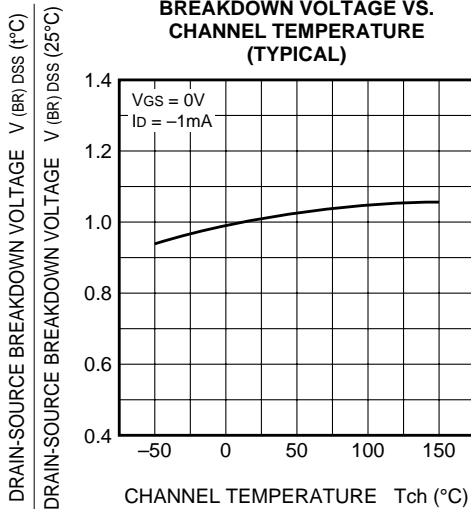
**ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)**



**THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)**



**BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS**

