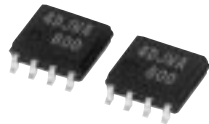


# FY4ADJ-03A

HIGH-SPEED SWITCHING USE

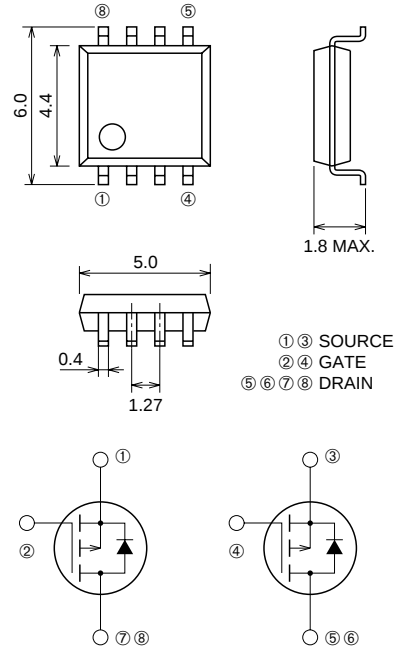
## FY4ADJ-03A



- 4V DRIVE
- $V_{DS}$  ..... -30V
- $r_{DS(ON)}$  (MAX) ..... 80m $\Omega$
- $I_D$  ..... -4A

## OUTLINE DRAWING

Dimensions in mm



SOP-8

## APPLICATION

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

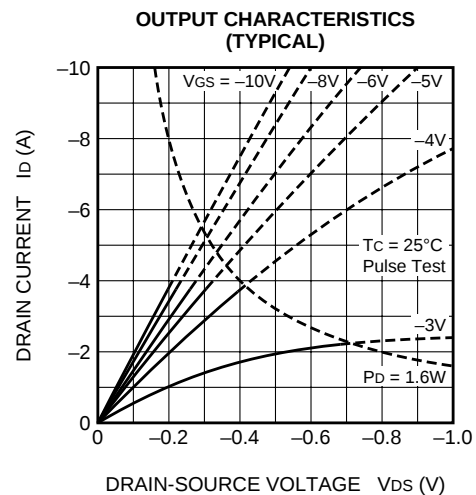
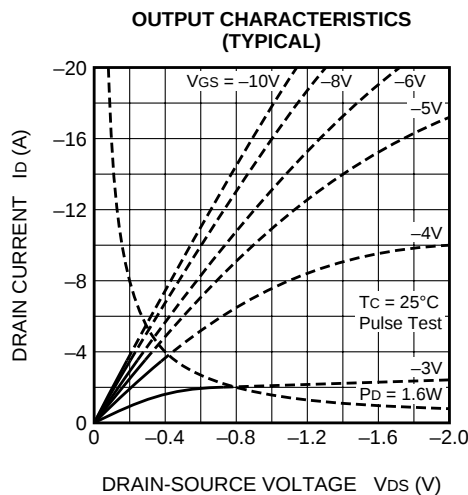
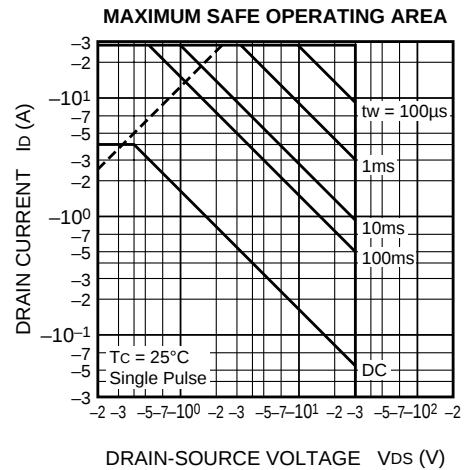
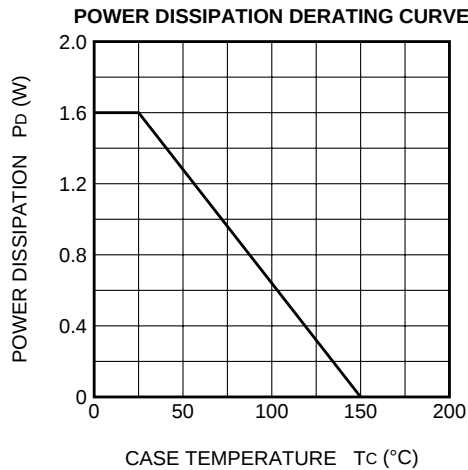
## MAXIMUM RATINGS (T<sub>c</sub> = 25°C)

| Symbol    | Parameter                        | Conditions    | Ratings    | Unit |
|-----------|----------------------------------|---------------|------------|------|
| $V_{DS}$  | Drain-source voltage             | $V_{GS} = 0V$ | -30        | V    |
| $V_{GSS}$ | Gate-source voltage              | $V_{DS} = 0V$ | $\pm 20$   | V    |
| $I_D$     | Drain current                    |               | -4         | A    |
| $I_{DM}$  | Drain current (Pulsed)           |               | -28        | A    |
| $I_{DA}$  | Avalanche drain current (Pulsed) | $L = 10\mu H$ | -4         | A    |
| $I_S$     | Source current                   |               | -1.7       | A    |
| $I_{SM}$  | Source current (Pulsed)          |               | -6.8       | A    |
| $P_D$     | Maximum power dissipation        |               | 1.6        | W    |
| $T_{ch}$  | Channel temperature              |               | -55 ~ +150 | °C   |
| $T_{stg}$ | Storage temperature              |               | -55 ~ +150 | °C   |
| —         | Weight                           | Typical value | 0.07       | g    |

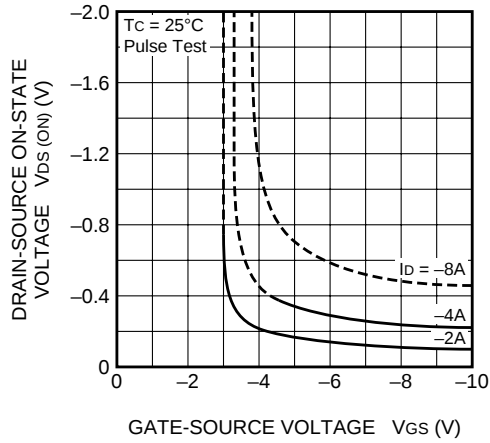
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

| Symbol    | Parameter                        | Test conditions                                    | Limits |       |       | Unit |
|-----------|----------------------------------|----------------------------------------------------|--------|-------|-------|------|
|           |                                  |                                                    | Min.   | Typ.  | Max.  |      |
| V(BR)DSS  | Drain-source breakdown voltage   | Id = -1mA, VGS = 0V                                | -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 = -4A, VGS = -10V                               | —      | 60    | 80    | mΩ   |
| rDS(ON)   | Drain-source on-state resistance | Id = -2A, VGS = -4V                                | —      | 115   | 180   | mΩ   |
| VDS(ON)   | Drain-source on-state voltage    | Id = -4A, VGS = -10V                               | —      | -0.24 | -0.32 | V    |
| yfs       | Forward transfer admittance      | Id = -4A, VDS = -10V                               | —      | 6     | —     | S    |
| Ciss      | Input capacitance                | VDS = -10V, VGS = 0V, f = 1MHz                     | —      | 680   | —     | pF   |
| Coss      | Output capacitance               |                                                    | —      | 180   | —     | pF   |
| Crss      | Reverse transfer capacitance     |                                                    | —      | 90    | —     | pF   |
| td(on)    | Turn-on delay time               | VDD = -15V, Id = -2A, VGS = -10V, RGEN = RGS = 50Ω | —      | 10    | —     | ns   |
| tr        | Rise time                        |                                                    | —      | 15    | —     | ns   |
| td(off)   | Turn-off delay time              |                                                    | —      | 50    | —     | ns   |
| tf        | Fall time                        |                                                    | —      | 30    | —     | ns   |
| VSD       | Source-drain voltage             | IS = -1.7A, VGS = 0V                               | —      | -0.88 | -1.20 | V    |
| Rth(ch-a) | Thermal resistance               | Channel to ambient                                 | —      | —     | 78.1  | °C/W |
| trr       | Reverse recovery time            | IS = -1.7A, dis/dt = 50A/μs                        | —      | 70    | —     | ns   |

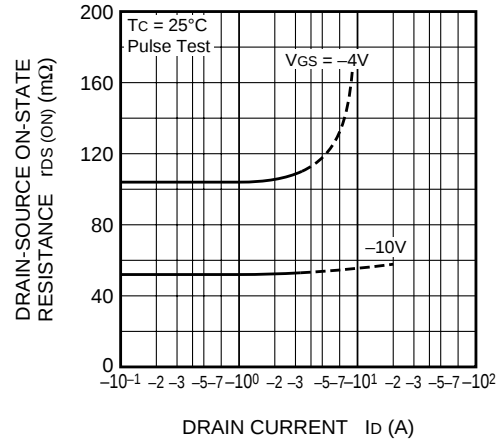
PERFORMANCE CURVES



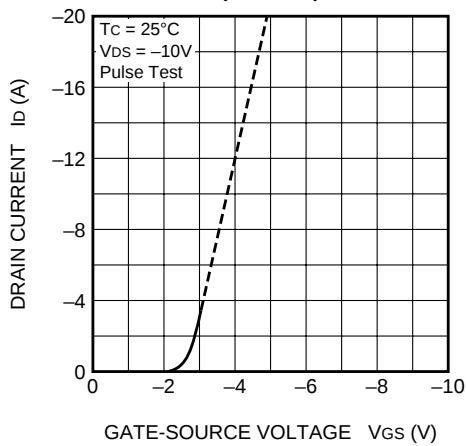
ON-STATE VOLTAGE VS.  
GATE-SOURCE VOLTAGE  
(TYPICAL)



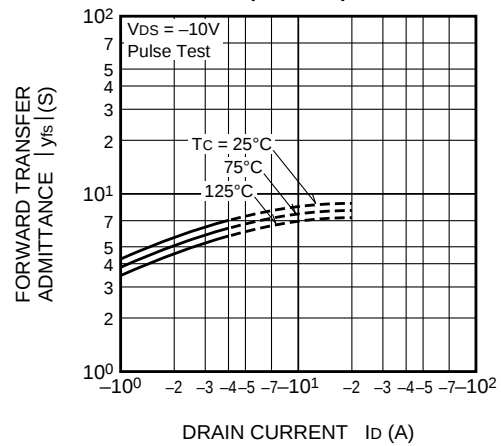
ON-STATE RESISTANCE VS.  
DRAIN CURRENT  
(TYPICAL)



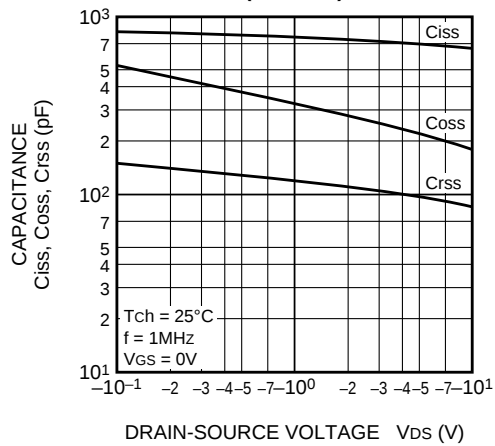
TRANSFER CHARACTERISTICS  
(TYPICAL)



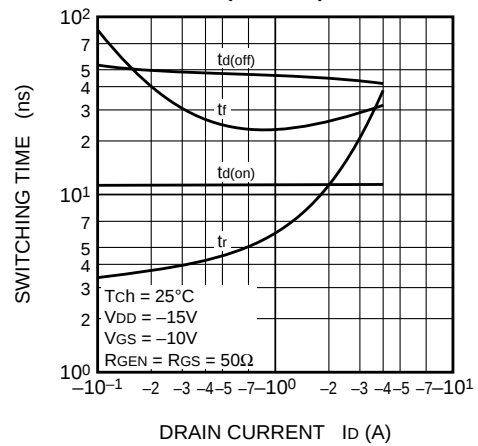
FORWARD TRANSFER ADMITTANCE  
VS. DRAIN CURRENT  
(TYPICAL)



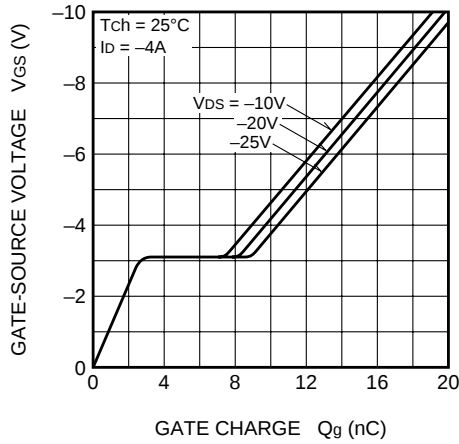
CAPACITANCE VS.  
DRAIN-SOURCE VOLTAGE  
(TYPICAL)



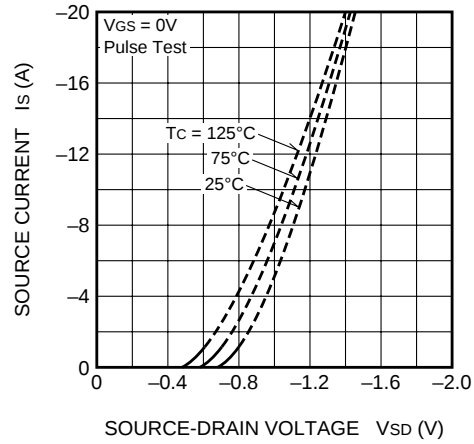
SWITCHING CHARACTERISTICS  
(TYPICAL)



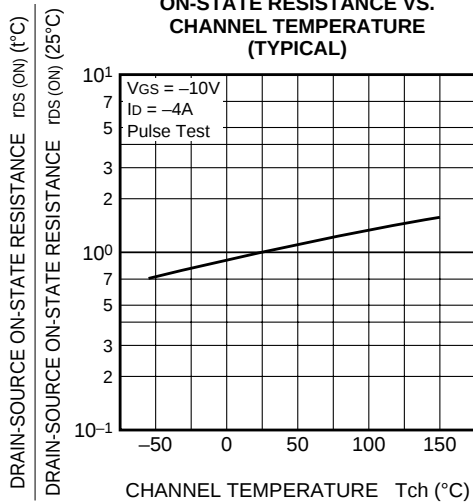
GATE-SOURCE VOLTAGE  
VS. GATE CHARGE  
(TYPICAL)



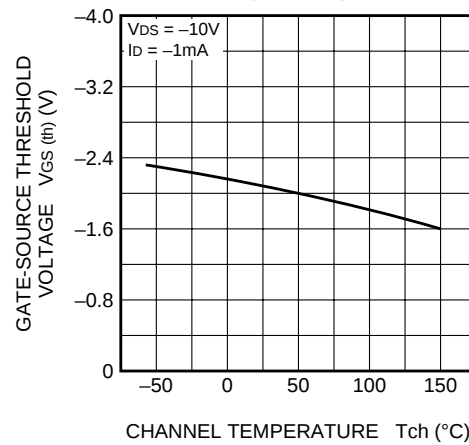
SOURCE-DRAIN DIODE  
FORWARD CHARACTERISTICS  
(TYPICAL)



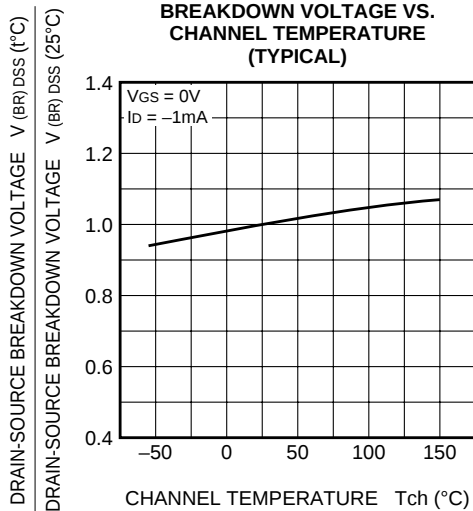
ON-STATE RESISTANCE VS.  
CHANNEL TEMPERATURE  
(TYPICAL)



THRESHOLD VOLTAGE VS.  
CHANNEL TEMPERATURE  
(TYPICAL)



BREAKDOWN VOLTAGE VS.  
CHANNEL TEMPERATURE  
(TYPICAL)



TRANSIENT THERMAL IMPEDANCE  
CHARACTERISTICS

