

## Description

- High speed switching application.
- Analog switch application.

## Features

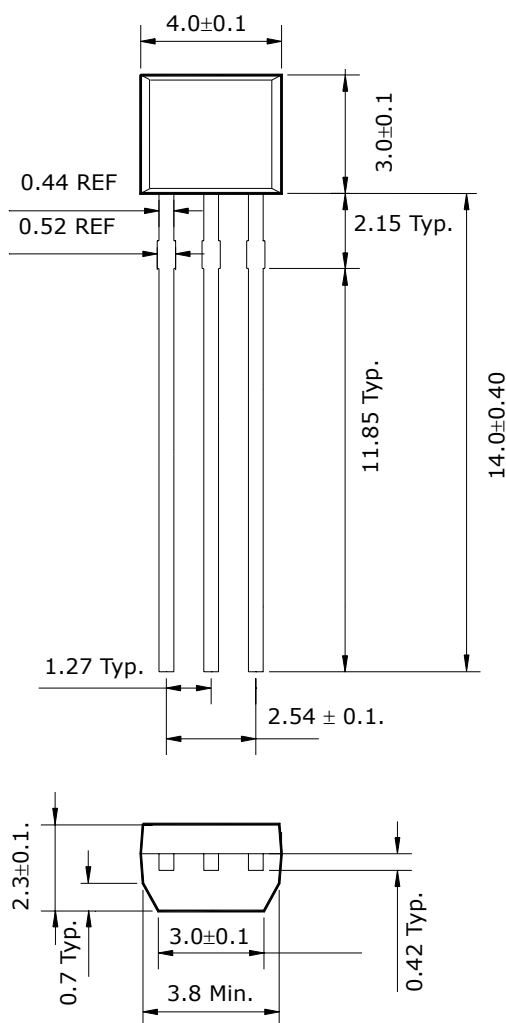
- -2.5V Gate drive.
- Low threshold voltage :  $V_{th} = -0.5 \sim -1.5V$ .
- High speed.

## Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| STJ828M  | J828    | TO-92M       |

## Outline Dimensions

unit : mm



### PIN Connections

1. Source
2. Drain
3. Gate

## Absolute maximum ratings

(Ta=25°C)

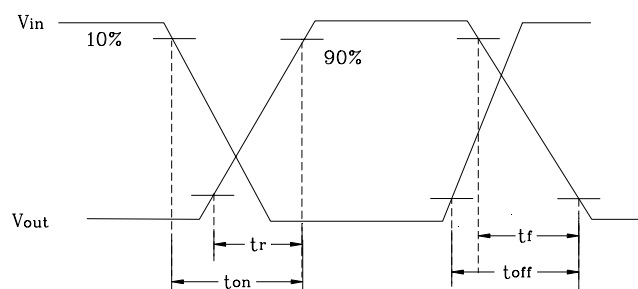
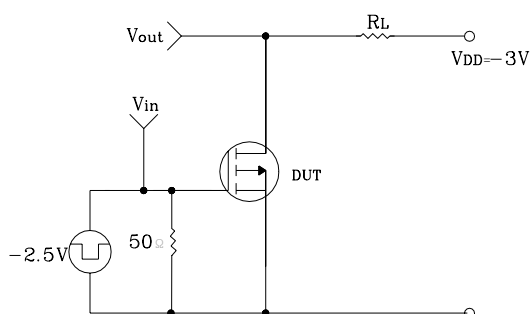
| Characteristic            | Symbol    | Ratings | Unit |
|---------------------------|-----------|---------|------|
| Drain-Source voltage      | $V_{DS}$  | -20     | V    |
| Gate-Source voltage       | $V_{GSS}$ | $\pm 7$ | V    |
| DC Drain current          | $I_D$     | -50     | mA   |
| Drain Power dissipation   | $P_D$     | 400     | mW   |
| Channel temperature       | $T_{ch}$  | 150     | °C   |
| Storage temperature range | $T_{stg}$ | -55~150 | °C   |

## Electrical Characteristics

(Ta=25°C)

| Characteristic                 | Symbol       | Test Condition                                          | Min. | Typ. | Max.    | Unit     |
|--------------------------------|--------------|---------------------------------------------------------|------|------|---------|----------|
| Drain-Source breakdown voltage | $BV_{DSS}$   | $I_D = -100\mu A, V_{GS} = 0$                           | -20  |      |         | V        |
| Gate-Threshold voltage         | $V_{th}$     | $I_D = -0.1mA, V_{DS} = -3V$                            | -0.5 |      | -1.5    | V        |
| Drain cut-off current          | $I_{DSS}$    | $V_{DS} = -20V, V_{GS} = 0$                             |      |      | -1      | $\mu A$  |
| Gate leakage current           | $I_{GSS}$    | $V_{GS} = \pm 7V, V_{DS} = 0$                           |      |      | $\pm 1$ | $\mu A$  |
| Drain-Source on-resistance     | $R_{DS(ON)}$ | $V_{GS} = -2.5V, I_D = -10mA$                           |      |      | 40      | $\Omega$ |
| Forward transfer admittance    | $ Y_{fs} $   | $V_{DS} = -3V, I_D = -10mA$                             | 15   |      |         | mS       |
| Input capacitance              | $C_{iss}$    | $V_{DS} = -3V, V_{GS} = 0, f = 1MHz$                    |      | 10.4 |         | pF       |
| Output capacitance             | $C_{oss}$    | $V_{DS} = -3V, V_{GS} = 0, f = 1MHz$                    |      | 8.4  |         | pF       |
| Reverse Transfer capacitance   | $C_{rss}$    | $V_{DS} = -3V, V_{GS} = 0, f = 1MHz$                    |      | 2.8  |         | pF       |
| Turn-on time                   | $t_{ON}$     | $V_{DD} = -3V, I_D = -10mA$<br>$V_{GEN} = 0 \sim -2.5V$ |      | 0.15 |         | $\mu s$  |
| Turn-off time                  | $t_{OFF}$    | $V_{DD} = -3V, I_D = -10mA$<br>$V_{GEN} = 0 \sim -2.5V$ |      | 0.13 |         | $\mu s$  |

\*. Switching Time Test Circuit



## Electrical Characteristic Curves

Fig1  $I_D - V_{DS}$

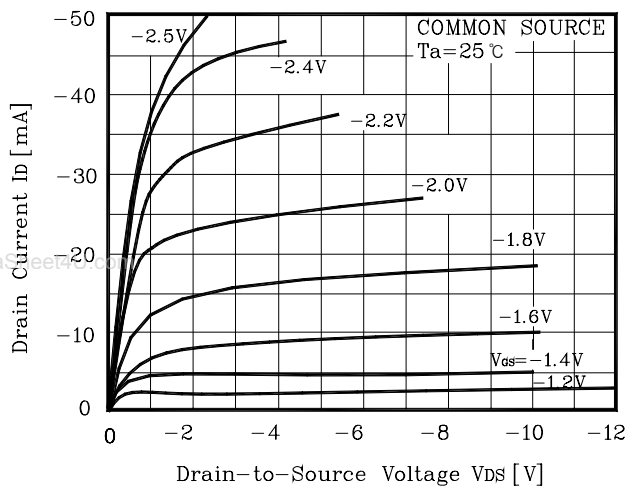


Fig2  $I_D - V_{DS}$

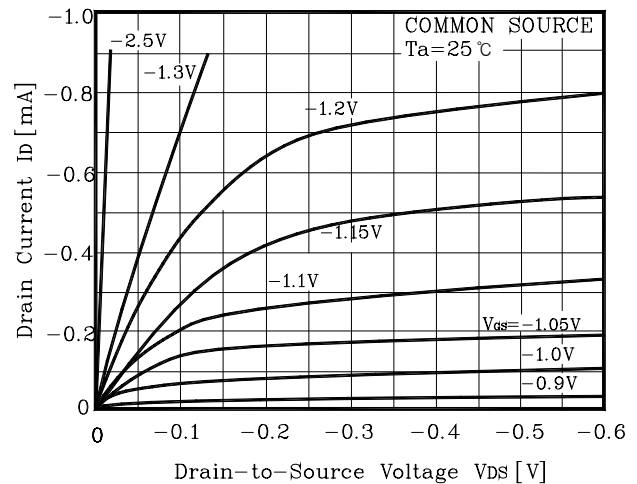


Fig3  $I_{DR} - V_{DS}$

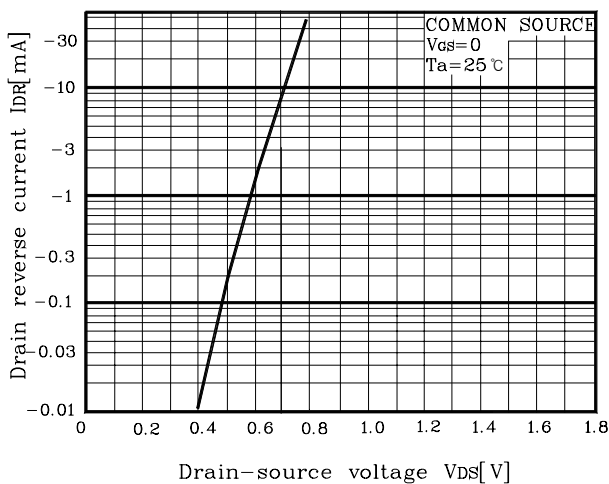


Fig4  $I_D - V_{GS}$

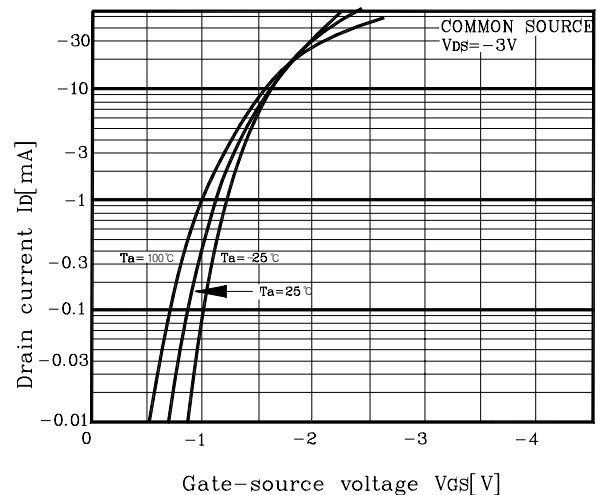


Fig5  $Y_{fs} - I_D$

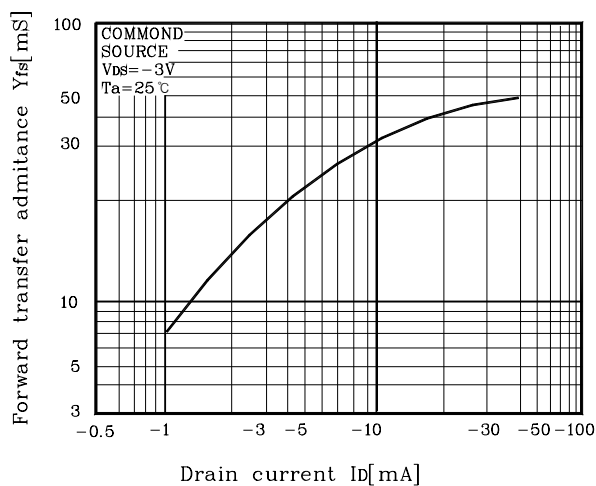
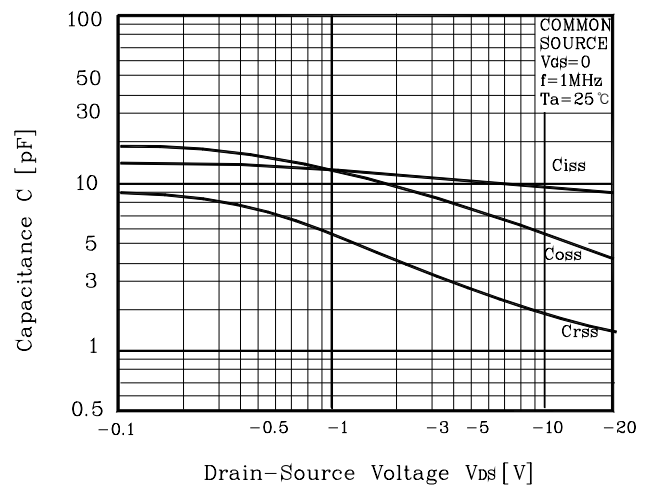
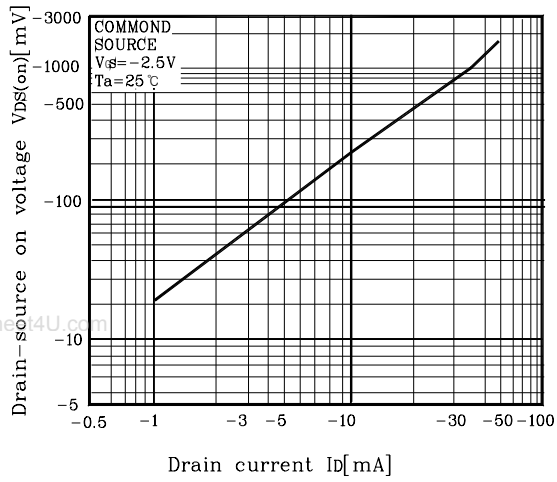


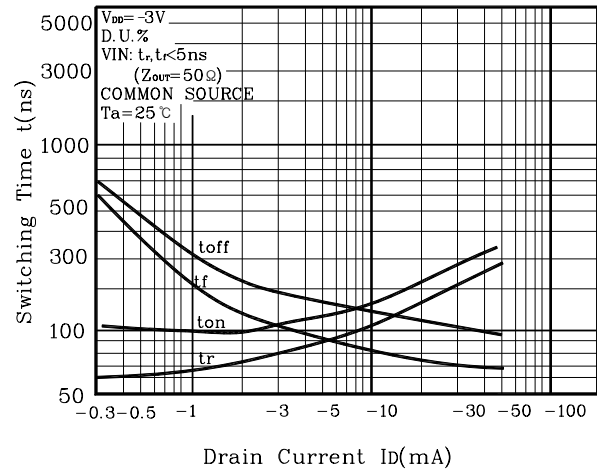
Fig6  $C - V_{DS}$



**Fig7  $V_{DS(on)} - I_D$**



**Fig8  $t - I_D$**



**Fig. 9  $P_D - T_a$**

