

SSM6N17FU

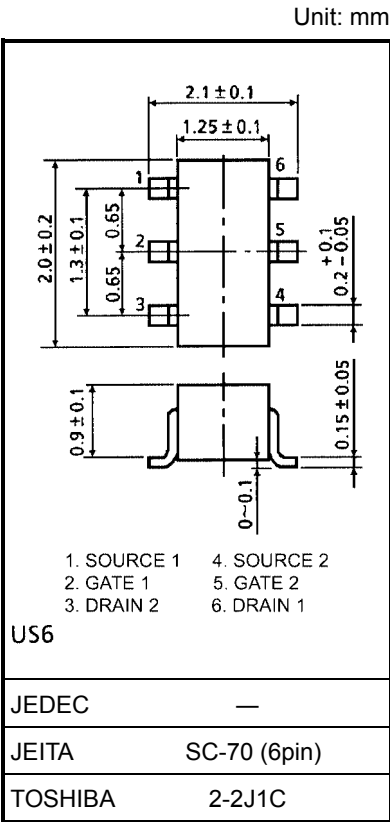
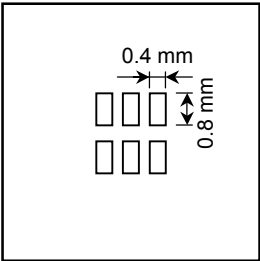
High Speed Switching Applications  
Analog Switch Applications

- Suitable for high-density mounting due to compact package
- High drain-source voltage
- High speed switching

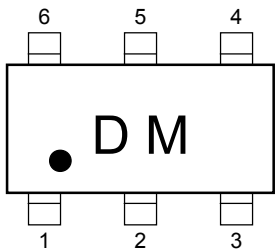
Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

| Characteristics                     |       | Symbol                | Rating  | Unit |
|-------------------------------------|-------|-----------------------|---------|------|
| Drain-Source voltage                |       | V <sub>DS</sub>       | 50      | V    |
| Gate-Source voltage                 |       | V <sub>GSS</sub>      | ±7      | V    |
| Drain current                       | DC    | I <sub>D</sub>        | 100     | mA   |
|                                     | Pulse | I <sub>DP</sub>       | 200     |      |
| Drain power dissipation (Ta = 25°C) |       | P <sub>D</sub> (Note) | 200     | mW   |
| Channel temperature                 |       | T <sub>ch</sub>       | 150     | °C   |
| Storage temperature range           |       | T <sub>stg</sub>      | -55~150 | °C   |

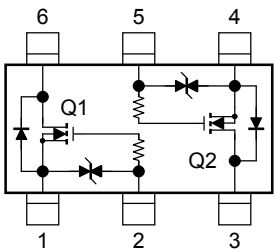
Note: Total rating, Mounted on FR4 board  
(25.4 mm × 25.4 mm × 1.6 t, Cu Pad: 0.32 mm<sup>2</sup> × 6)



Marking



Equivalent Circuit



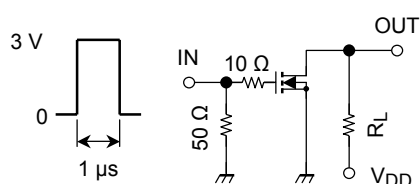
This transistor is a electrostatic sensitive device. Please handle with caution.

## Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

| Characteristics                | Symbol        | Test Condition                                                                                                        | Min | Typ. | Max     | Unit          |
|--------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------|-----|------|---------|---------------|
| Gate leakage current           | $I_{GSS}$     | $V_{GS} = \pm 7 \text{ V}, V_{DS} = 0$                                                                                | —   | —    | $\pm 5$ | $\mu\text{A}$ |
| Drain-Source breakdown voltage | $V_{(BR)DSS}$ | $I_D = 0.1 \text{ mA}, V_{GS} = 0$                                                                                    | 50  | —    | —       | V             |
| Drain cut-off current          | $I_{DSS}$     | $V_{DS} = 50 \text{ V}, V_{GS} = 0$                                                                                   | —   | —    | 1       | $\mu\text{A}$ |
| Gate threshold voltage         | $V_{th}$      | $V_{DS} = 3 \text{ V}, I_D = 1 \mu\text{A}$                                                                           | 0.9 | —    | 1.5     | V             |
| Forward transfer admittance    | $ Y_{fs} $    | $V_{DS} = 3 \text{ V}, I_D = 10 \text{ mA}$                                                                           | 20  | 40   | —       | mS            |
| Drain-Source ON resistance     | $R_{DS(ON)}$  | $I_D = 10 \text{ mA}, V_{GS} = 4 \text{ V}$                                                                           | —   | 12   | 20      | $\Omega$      |
|                                |               | $I_D = 10 \text{ mA}, V_{GS} = 2.5 \text{ V}$                                                                         | —   | 22   | 40      |               |
| Input capacitance              | $C_{iss}$     | $V_{DS} = 3 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$                                                                 | —   | 7    | —       | pF            |
| Reverse transfer capacitance   | $C_{rss}$     |                                                                                                                       | —   | 3    | —       | pF            |
| Output capacitance             | $C_{oss}$     |                                                                                                                       | —   | 7    | —       | pF            |
| Switching time                 | Turn-on time  | $V_{DD} = 3 \text{ V}, I_D = 20 \text{ mA},$<br>$V_{GS} = 0 \sim 3 \text{ V}, R_G = 10 \Omega,$<br>$R_L = 150 \Omega$ | —   | 100  | —       | ns            |
|                                | Turn-off time |                                                                                                                       | —   | 40   | —       |               |

## Switching Time Test Circuit

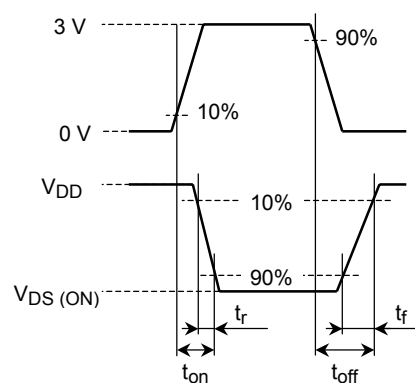
(a) Test circuit



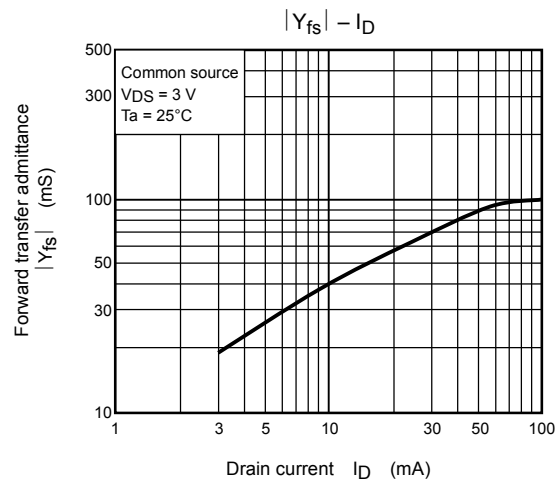
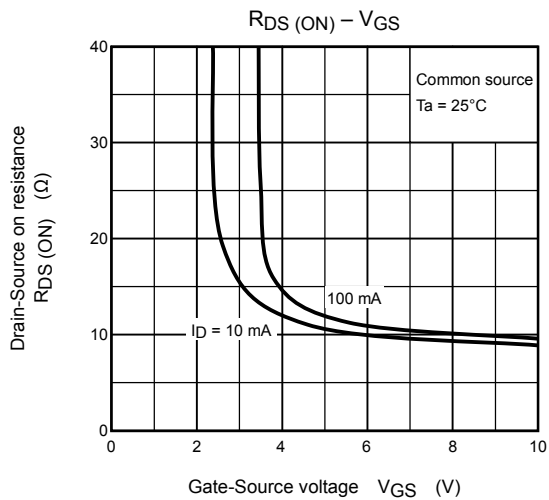
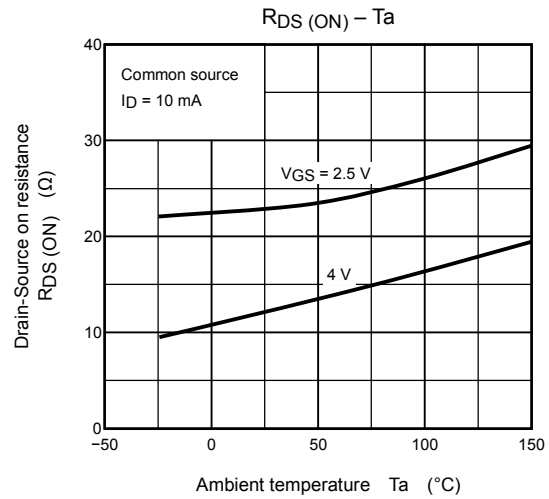
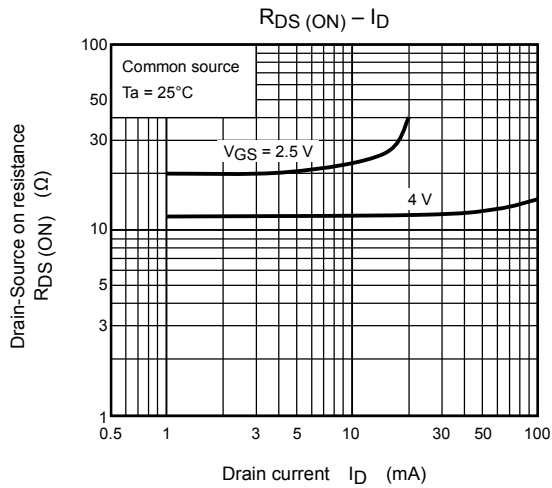
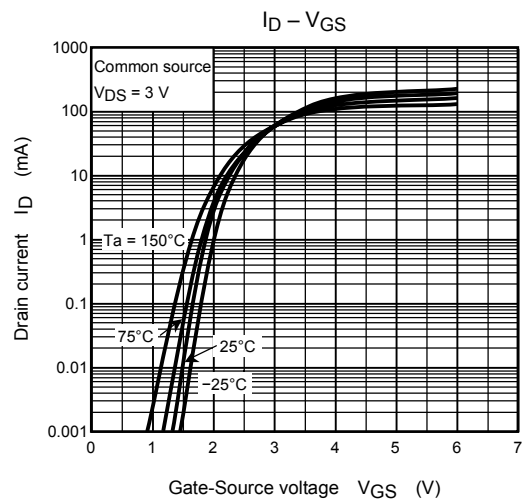
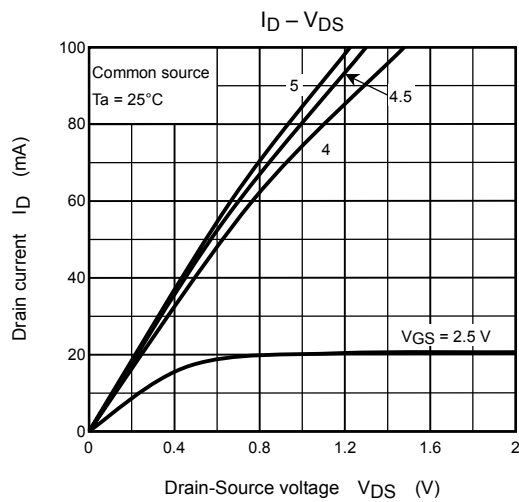
$V_{DD} = 3 \text{ V}$   
 Duty  $\leq 1\%$   
 $V_{IN}$ :  $t_r, t_f < 5 \text{ ns}$   
 $(Z_{out} = 50 \Omega)$   
 Common source  
 $T_a = 25^\circ\text{C}$

(b)  $V_{IN}$

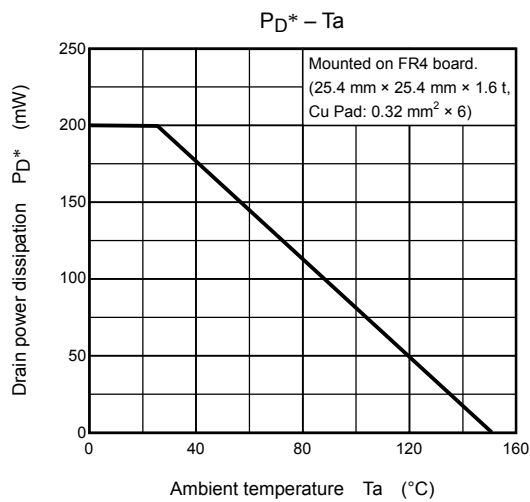
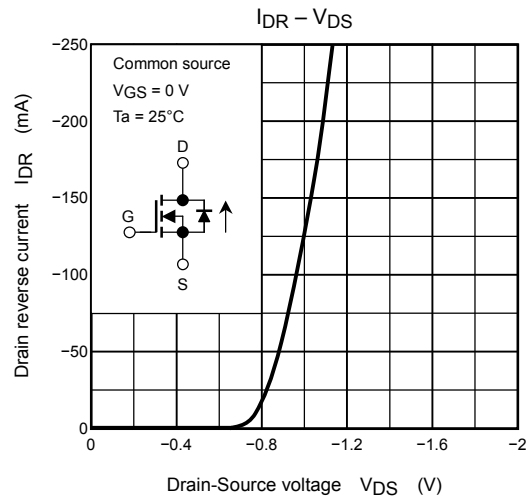
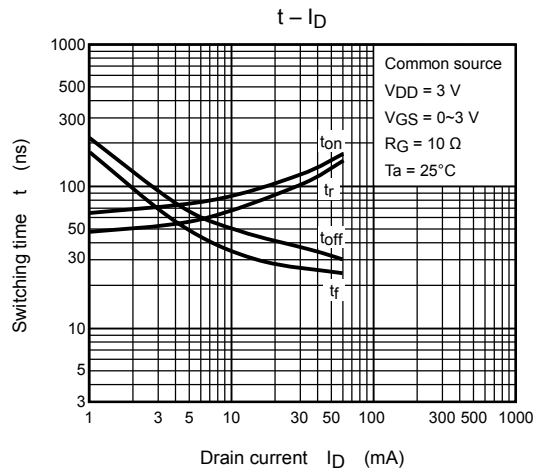
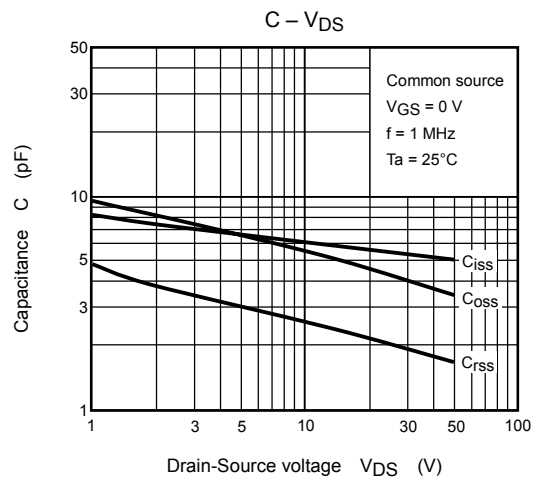
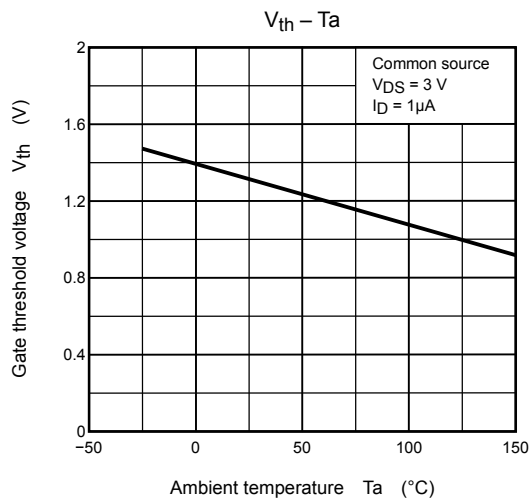
(c)  $V_{OUT}$



(Q1, Q2 Common)



(Q1, Q2 Common)



\*: Total rating

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