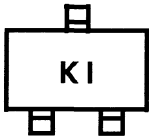


2SK1828

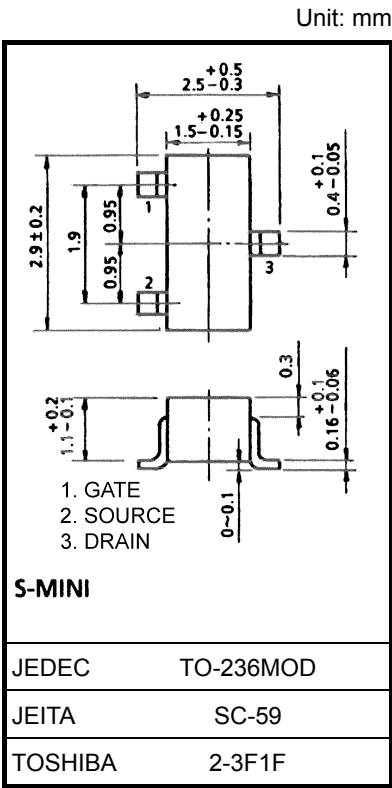
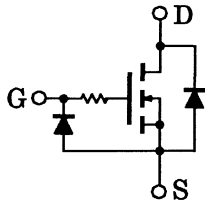
High Speed Switching Applications
Analog Switch Applications

- 2.5 V gate drive
- Low threshold voltage: $V_{th} = 0.5\sim1.5\text{ V}$
- High speed
- Enhancement-mode
- Small package

Marking



Equivalent Circuit



Weight: 0.012 g (typ.)

Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

| Characteristics | Symbol | Rating | Unit |
|---------------------------|-----------|--------------|--------------------|
| Drain-source voltage | V_{DS} | 20 | V |
| Gate-source voltage | V_{GSS} | 10 | V |
| DC drain current | I_D | 50 | mA |
| Drain power dissipation | P_D | 200 | mW |
| Channel temperature | T_{ch} | 150 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{stg} | $-55\sim150$ | $^{\circ}\text{C}$ |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

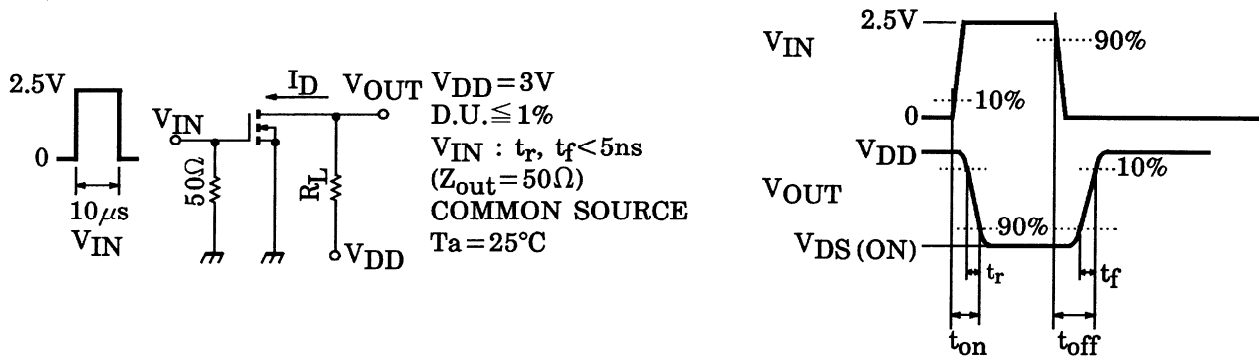
Note: This transistor is electrostatic sensitive device.

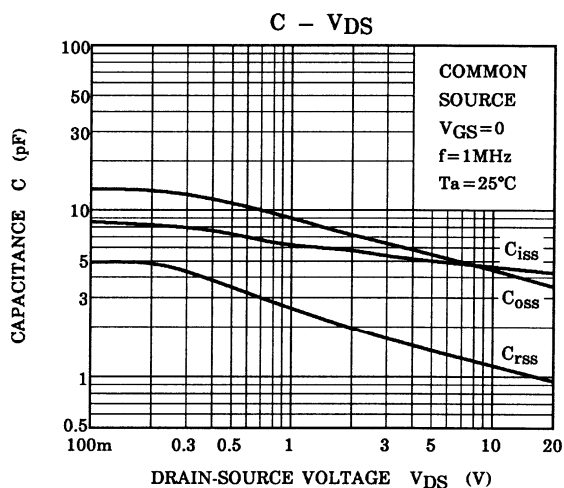
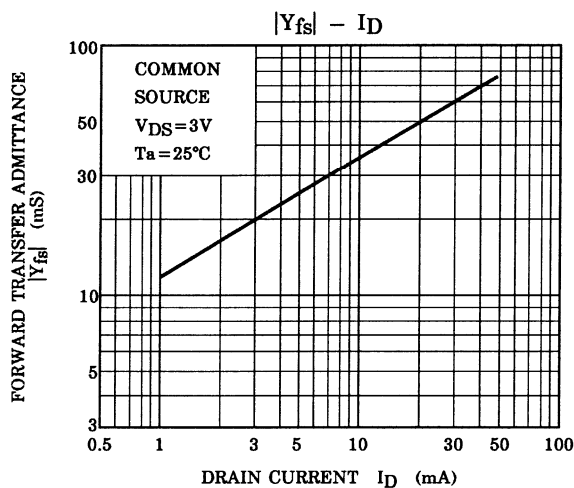
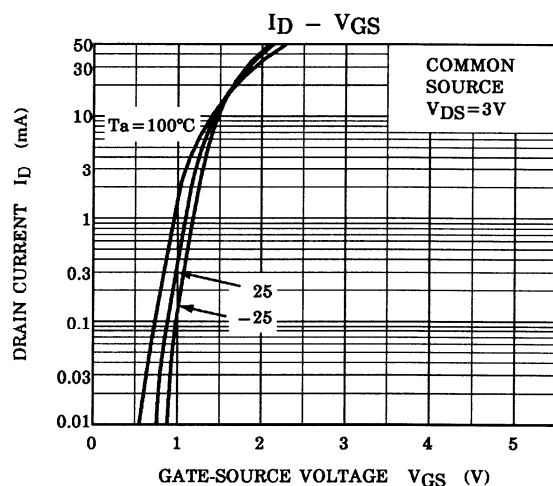
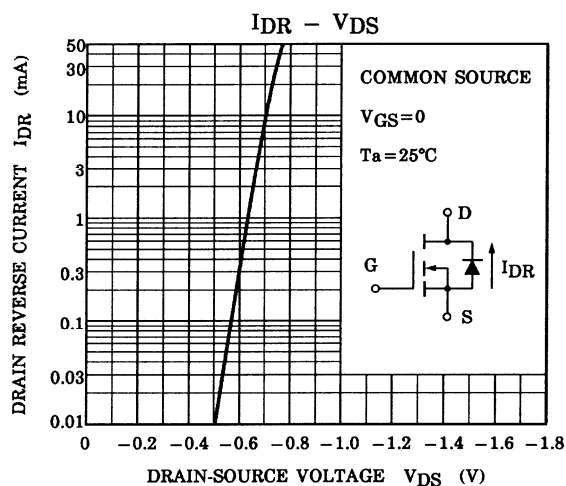
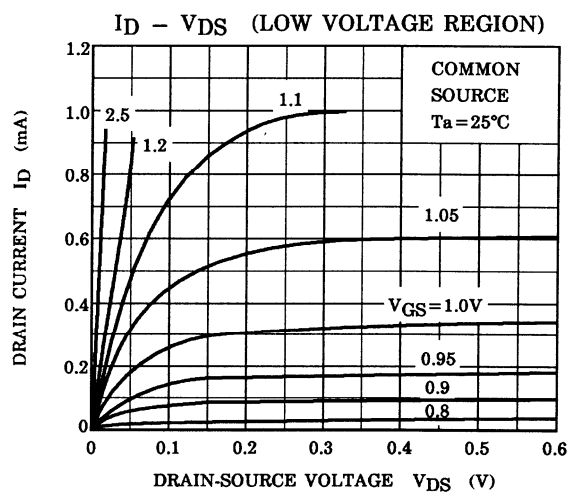
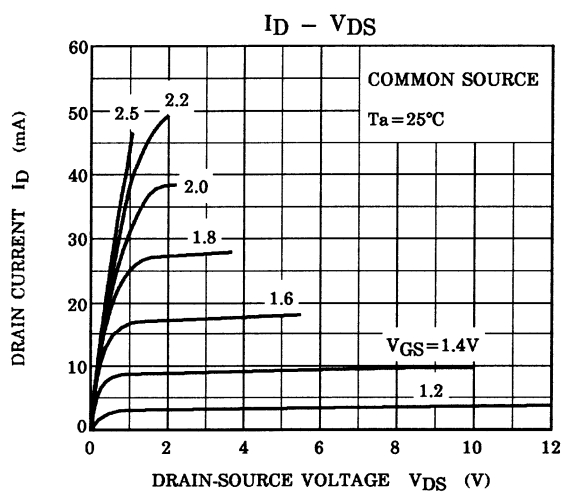
Please handle with caution.

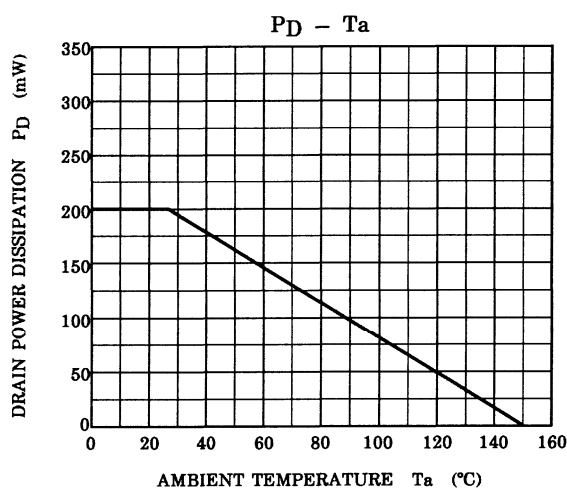
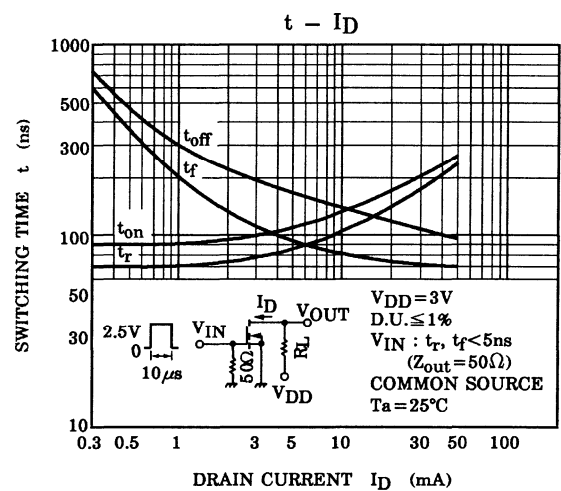
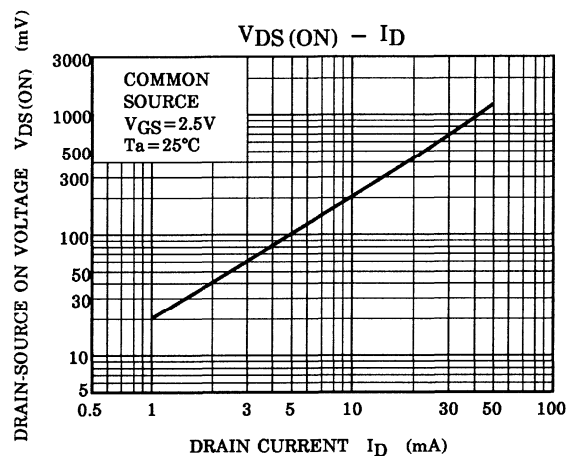
Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------|---------------|-------------------------------------------------------------------------|-----|------|-----|---------------|
| Gate leakage current | I_{GSS} | $V_{GS} = 10\text{ V}, V_{DS} = 0$ | — | — | 1 | μA |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $I_D = 100\text{ }\mu\text{A}, V_{GS} = 0$ | 20 | — | — | V |
| Drain cut-off current | I_{DSS} | $V_{DS} = 20\text{ V}, V_{GS} = 0$ | — | — | 1 | μA |
| Gate threshold voltage | V_{th} | $V_{DS} = 3\text{ V}, I_D = 0.1\text{ mA}$ | 0.5 | — | 1.5 | V |
| Forward transfer admittance | $ Y_{fs} $ | $V_{DS} = 3\text{ V}, I_D = 10\text{ mA}$ | 20 | — | — | mS |
| Drain-source ON resistance | $R_{DS(ON)}$ | $I_D = 10\text{ mA}, V_{GS} = 2.5\text{ V}$ | — | 20 | 40 | Ω |
| Input capacitance | C_{iss} | $V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$ | — | 5.5 | — | pF |
| Reverse transfer capacitance | C_{rss} | $V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$ | — | 1.6 | — | pF |
| Output capacitance | C_{oss} | $V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$ | — | 6.5 | — | pF |
| Switching time | Turn-on time | $V_{DD} = 3\text{ V}, I_D = 10\text{ mA}, V_{GS} = 0 \sim 2.5\text{ V}$ | — | 0.14 | — | μs |
| | Turn-off time | $V_{DD} = 3\text{ V}, I_D = 10\text{ mA}, V_{GS} = 0 \sim 2.5\text{ V}$ | — | 0.14 | — | |

Switching Time Test Circuit







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