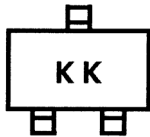


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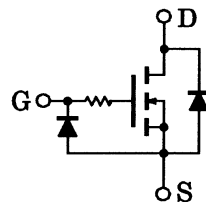
For Portable Equipment
 High Speed Switch Applications
 Analog Switch Applications

- High input impedance
- 1.5 V gate drive
- Low gate threshold voltage: $V_{th} = 0.5 \sim 1.0$ V
- Small package

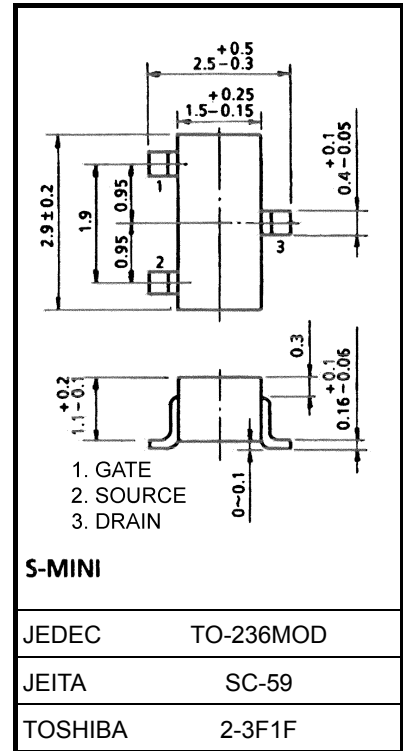
Marking



Equivalent Circuit



Unit: mm



Weight: 0.012 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

| Characteristics | Symbol | Rating | Unit |
|---------------------------|-----------|---------|------|
| Drain-source voltage | V_{DS} | 20 | V |
| Gate-source voltage | V_{GSS} | 10 | V |
| DC drain current | I_D | 100 | mA |
| Drain power dissipation | P_D | 200 | mW |
| Channel temperature | T_{ch} | 150 | °C |
| Storage temperature range | T_{stg} | -55~150 | °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.

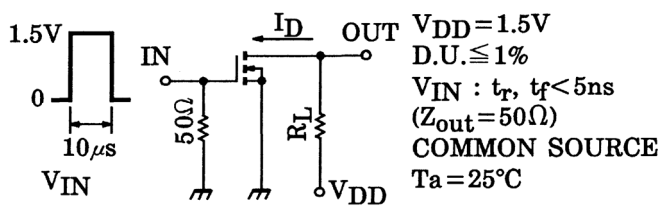
Please handle with caution.

Electrical Characteristics (Ta = 25°C)

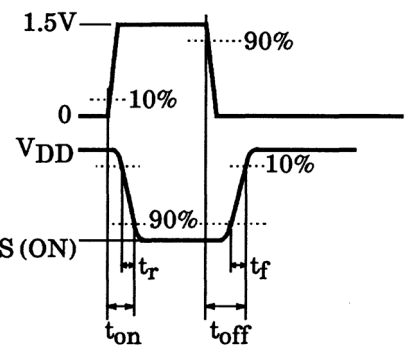
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------|---------------|--|-----|------|-----|---------------|
| Gate leakage current | I_{GSS} | $V_{GS} = 10\text{ V}, V_{DS} = 0$ | — | — | 1 | μA |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $I_D = 100\ \mu\text{A}, V_{GS} = 0$ | 20 | — | — | V |
| Drain cut-off current | I_{DSS} | $V_{DS} = 20\text{ V}, V_{GS} = 0$ | — | — | 1 | μA |
| Gate threshold voltage | V_{th} | $V_{DS} = 1.5\text{ V}, I_D = 0.1\text{ mA}$ | 0.5 | — | 1.0 | V |
| Forward transfer admittance | $ Y_{fs} $ | $V_{DS} = 1.5\text{ V}, I_D = 10\text{ mA}$ | 35 | 70 | — | mS |
| Drain-source ON resistance 1 | $R_{DS(ON)1}$ | $I_D = 1\text{ mA}, V_{GS} = 1.2\text{ V}$ | — | 15 | 50 | Ω |
| Drain-source ON resistance 2 | $R_{DS(ON)2}$ | $I_D = 10\text{ mA}, V_{GS} = 1.5\text{ V}$ | — | 10 | 40 | Ω |
| Drain-source ON resistance 3 | $R_{DS(ON)3}$ | $I_D = 10\text{ mA}, V_{GS} = 2.5\text{ V}$ | — | 7 | 28 | Ω |
| Input capacitance | C_{iss} | $V_{DS} = 1.5\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$ | — | 12 | — | pF |
| Reverse transfer capacitance | C_{rss} | $V_{DS} = 1.5\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$ | — | 3.4 | — | pF |
| Output capacitance | C_{oss} | $V_{DS} = 1.5\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$ | — | 12 | — | pF |
| Switching time | Turn-on time | $V_{DD} = 1.5\text{ V}, I_D = 10\text{ mA},$ $V_{GS} = 0 \sim 1.5\text{ V}$ | — | 0.35 | — | μs |
| | Turn-off time | | — | 0.2 | — | |

Switching Time Test Circuit

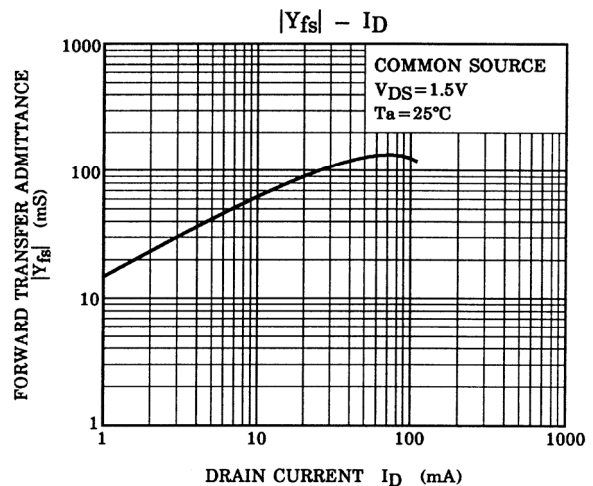
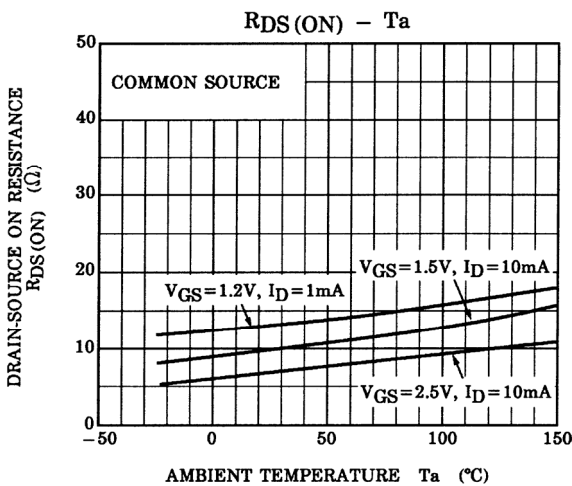
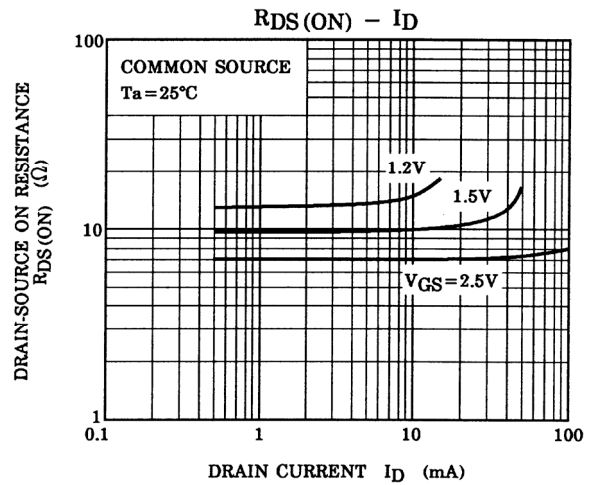
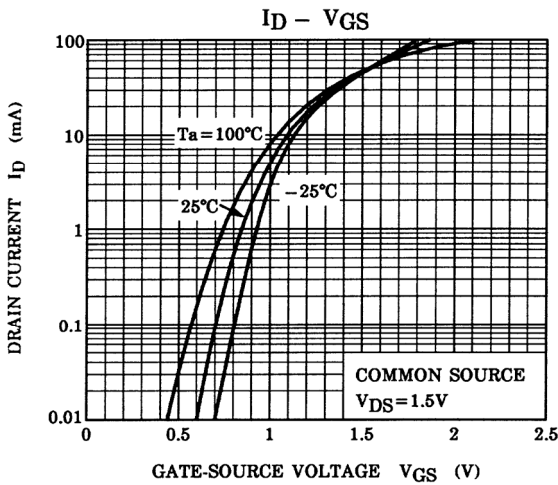
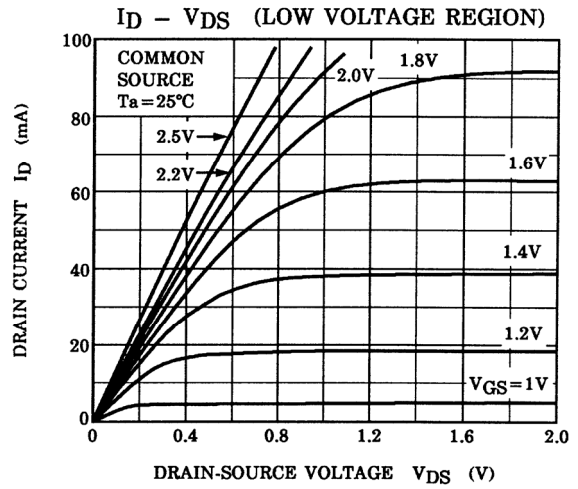
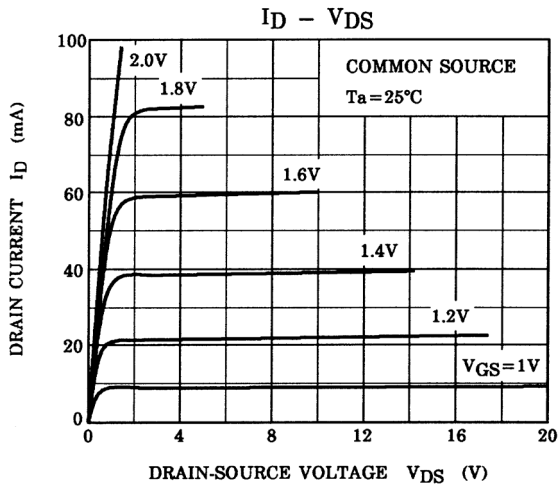
(1) Test circuit

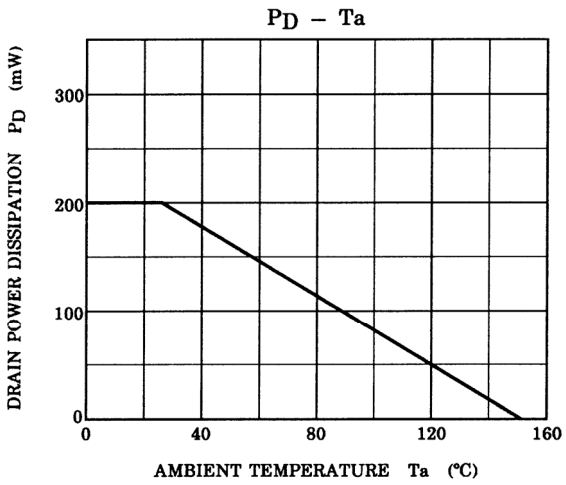
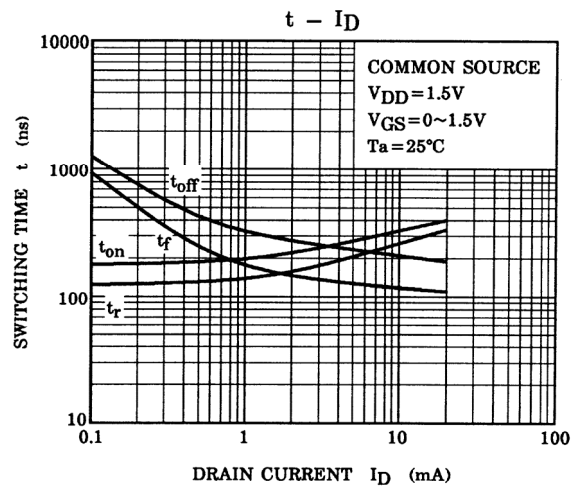
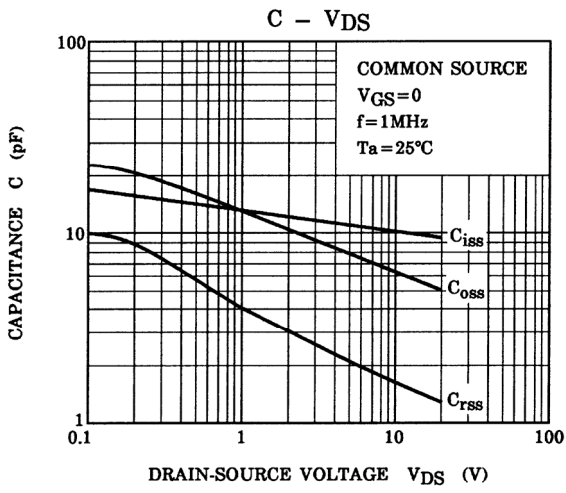


(2) V_{IN}
 V_{GS}



(3) V_{OUT}
 V_{DS}





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20070701-EN GENERAL

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