

HN1K03FU

High Speed Switching Applications

Analog Switch Applications

- High input impedance
- Low gate threshold voltage : $V_{th} = 0.5V \sim 1.5V$
- Excellent switching times : $t_{on} = 0.16\mu s$ (typ.)
 $t_{off} = 0.15\mu s$ (typ.)
- Small package
- Enhancement-mode

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

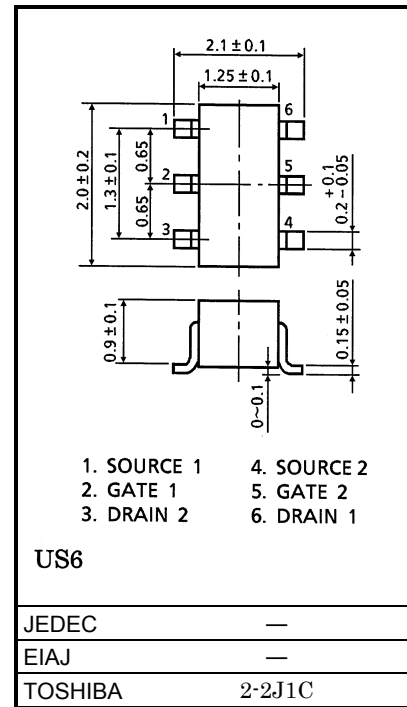
| Characteristic | Symbol | Rating | Unit |
|---------------------------|-----------|---------|------|
| Drain-Source voltage | V_{DS} | 20 | V |
| Gate-Source voltage | V_{GSS} | 10 | V |
| DC Drain current | I_D | 100 | mA |
| Drain power dissipation | P_D^* | 200 | mW |
| Channel temperature | T_{ch} | 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).

*: Total rating

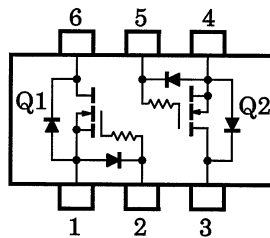
Unit in mm



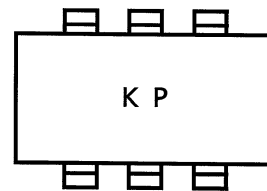
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------|---------------|--|------|------|------|----------|
| Gate leakage current | I_{GSS} | $V_{GS} = 10V, V_{DS} = 0$ | — | — | 1 | μA |
| Drain-Source breakdown voltage | $V_{(BR)DSS}$ | $I_D = 100\mu A, V_{GS} = 0$ | 20 | — | — | V |
| Drain cut-off current | I_{DSS} | $V_{DS} = 20V, V_{GS} = 0$ | — | — | 1 | μA |
| Gate threshold voltage | V_{th} | $V_{DS} = 3V, I_D = 0.1mA$ | 0.5 | — | 1.5 | V |
| Forward transfer admittance | $ Y_{fs} $ | $V_{DS} = 3V, I_D = 10mA$ | 25 | 50 | — | mS |
| Drain-Source ON resistance | $R_{DS(ON)}$ | $I_D = 10mA, V_{GS} = 2.5V$ | — | 8 | 12 | Ω |
| Input capacitance | C_{iss} | $V_{DS} = 3V, V_{GS} = 0, f = 1MHz$ | — | 8.5 | — | pF |
| Reverse transfer capacitance | C_{rss} | $V_{DS} = 3V, V_{GS} = 0, f = 1MHz$ | — | 3.3 | — | pF |
| Output capacitance | C_{oss} | $V_{DS} = 3V, V_{GS} = 0, f = 1MHz$ | — | 9.3 | — | pF |
| Switching time | Turn-on time | $V_{DD} = 3V, I_D = 10mA,$ $V_{GS} = 0 \sim 2.5V$ | — | 0.16 | — | μs |
| | Turn-off time | $V_{DD} = 3V, I_D = 10mA,$ $V_{GS} = 0 \sim 2.5V$ | — | 0.15 | — | μs |

Equivalent Circuit (Top View)

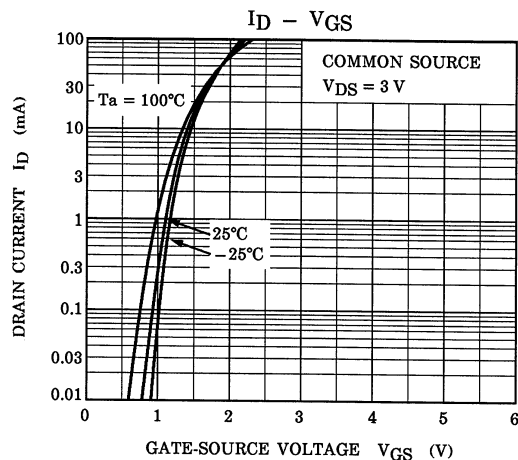
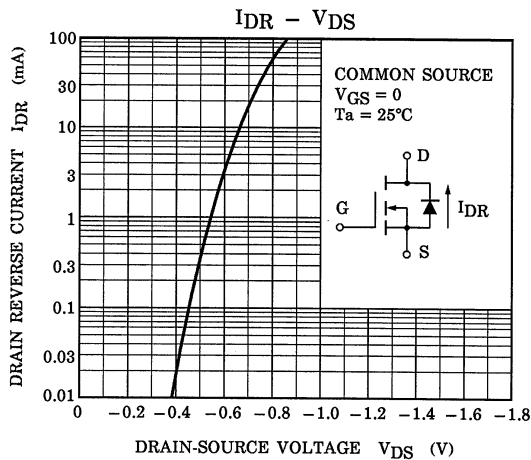
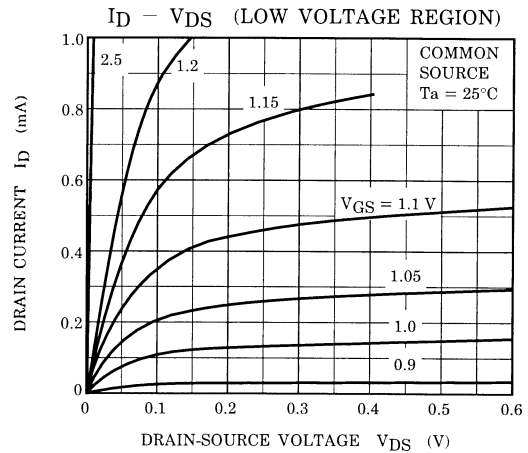
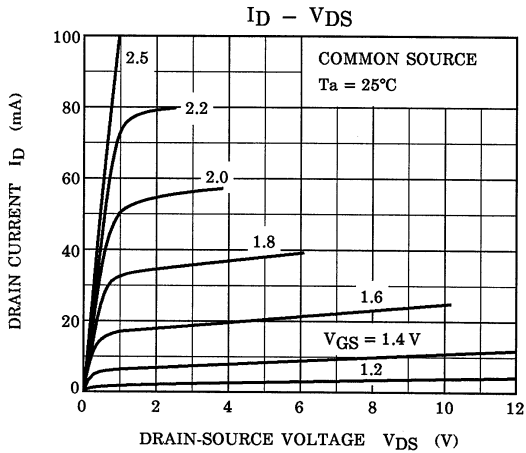
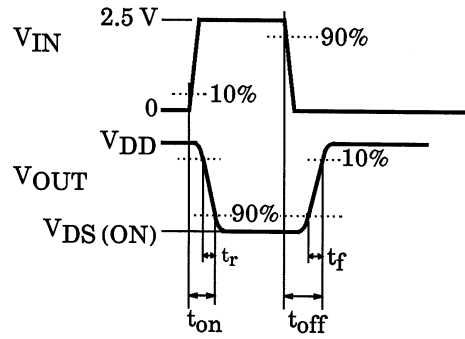
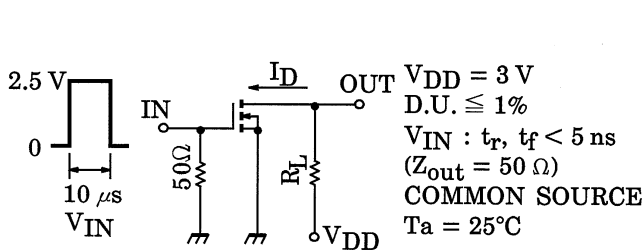


Marking

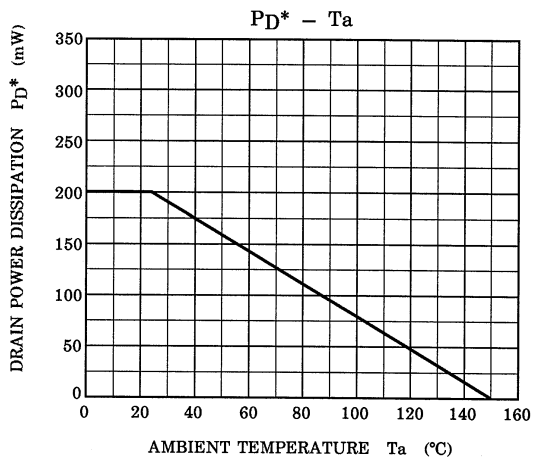
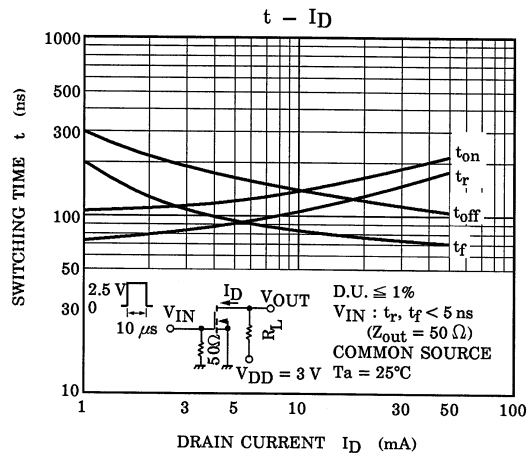
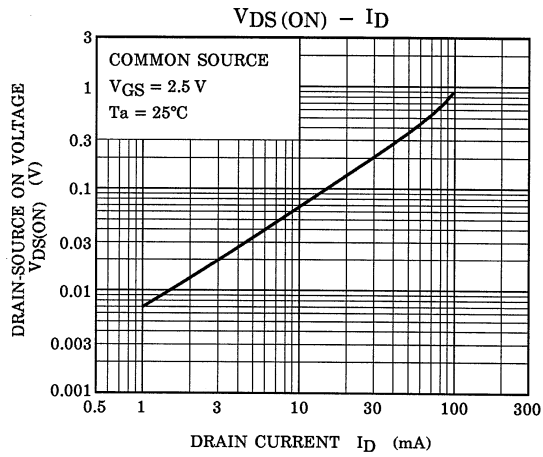
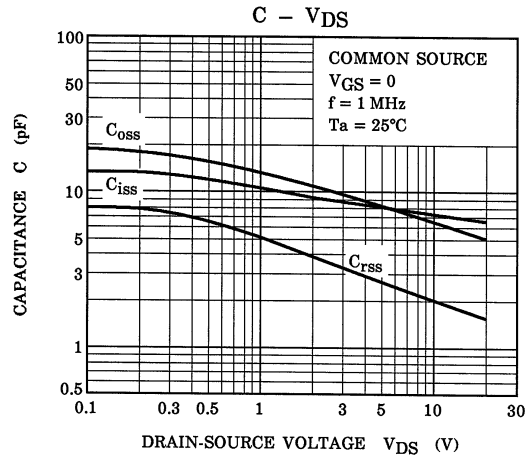
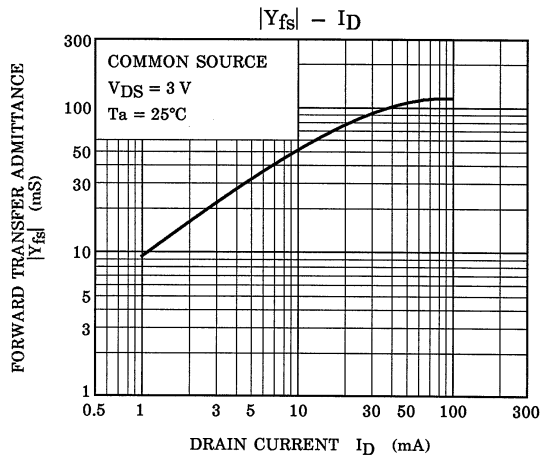


(Q1,Q2 Common)

Switching Time Test Circuit



(Q1,Q2 Common)



* : Total Rating

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20070701-EN GENERAL

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