

TOSHIBA Field Effect Transistor Silicon N-Channel Dual Gate MOS Type

3SK232

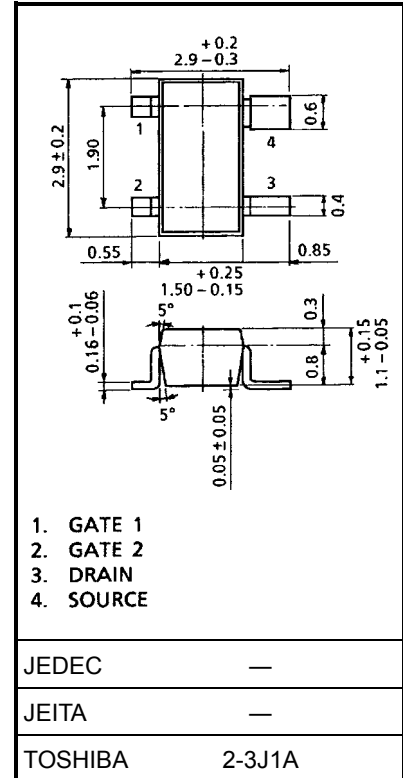
TV Tuner, UHF RF Amplifier Applications

Unit: mm

- Superior cross modulation performance.
- Low reverse transfer capacitance.: $C_{rss} = 20 \text{ fF}$ (typ.)
- Low noise figure.: $NF = 1.5\text{dB}$ (typ.)

Maximum Ratings (Ta = 25°C)

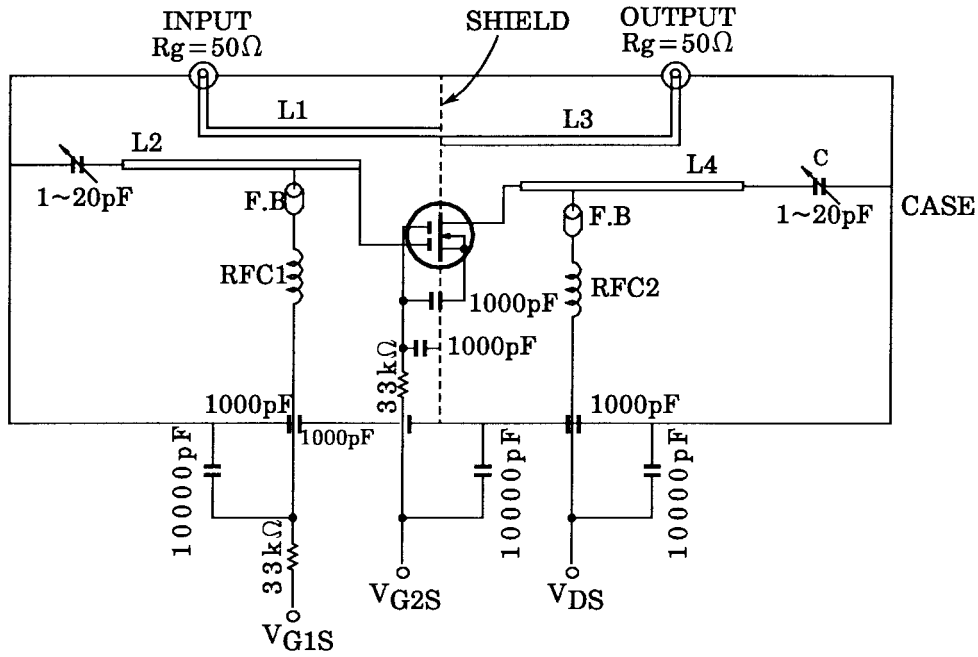
| Characteristics | Symbol | Rating | Unit |
|---------------------------|-----------|---------|------|
| Drain-source voltage | V_{DS} | 12.5 | V |
| Gate 1-source voltage | V_{G1S} | ± 8 | V |
| Gate 2-source voltage | V_{G2S} | ± 8 | V |
| Drain current | I_D | 30 | mA |
| Drain power dissipation | P_D | 150 | mW |
| Channel temperature | T_{ch} | 125 | °C |
| Storage temperature range | T_{stg} | -55~125 | °C |



Weight: 0.013 g (typ.)

Electrical Characteristics (Ta = 25°C)

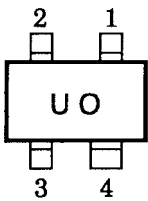
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|-------------------------------|----------------|---|------|------|----------|------|
| Gate 1 leakage current | I_{G1SS} | $V_{DS} = 0, V_{G1S} = \pm 6 \text{ V}, V_{G2S} = 0$ | — | — | ± 50 | nA |
| Gate 2 leakage current | I_{G2SS} | $V_{DS} = 0, V_{G1S} = 0, V_{G2S} = \pm 6 \text{ V}$ | — | — | ± 50 | nA |
| Drain-source voltage | $V_{(BR)DSX}$ | $V_{G1S} = -0.5 \text{ V}, V_{G2S} = -0.5 \text{ V}$ $I_D = 100 \mu\text{A}$ | 12.5 | — | — | V |
| Drain current | I_{DSS} | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, V_{G1S} = 0 \text{ V}$ | — | — | 0.1 | mA |
| Gate 1-source cut-off voltage | $V_{G1S(OFF)}$ | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 100 \mu\text{A}$ | 0.4 | 0.9 | 1.4 | V |
| Gate 2-source cut-off voltage | $V_{G2S(OFF)}$ | $V_{DS} = 6 \text{ V}, V_{G1S} = 4.0 \text{ V}, I_D = 100 \mu\text{A}$ | 0.5 | 1.0 | 1.5 | V |
| Forward transfer admittance | $ Y_{fs} $ | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA}$ $f = 1 \text{ kHz}$ | 17 | 21 | — | mS |
| Input capacitance | C_{iss} | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA}$ | 0.9 | 1.5 | 2.1 | pF |
| Reverse transfer capacitance | C_{rss} | $f = 1 \text{ MHz}$ | — | 20 | 40 | fF |
| Power gain | G_{ps} | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA}$ | 18 | 20 | — | dB |
| Noise figure | NF | $f = 800 \text{ MHz}$ (Figure 1) | — | 1.5 | 2.5 | dB |

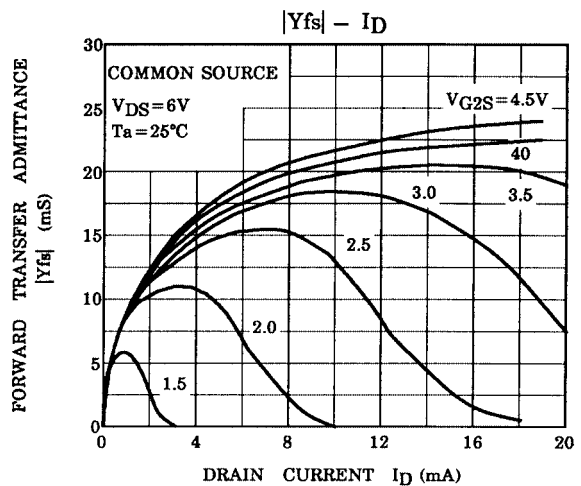
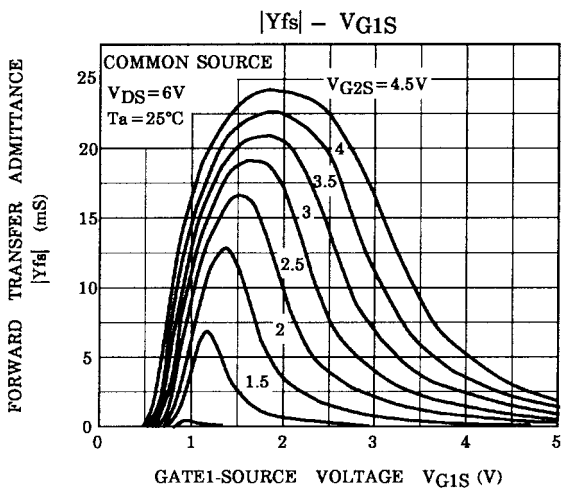
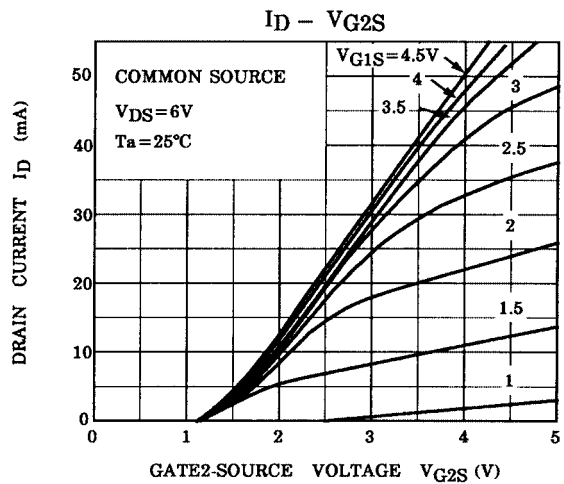
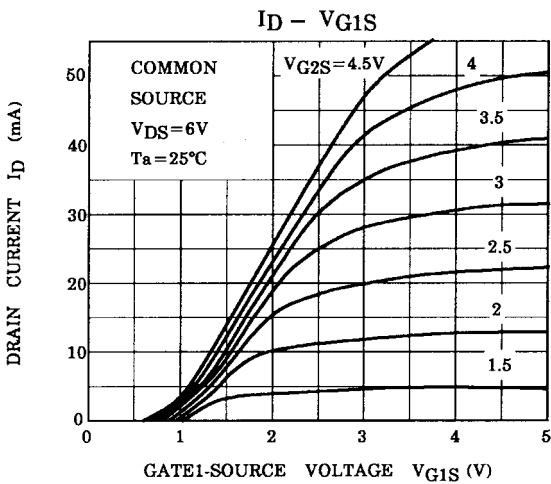
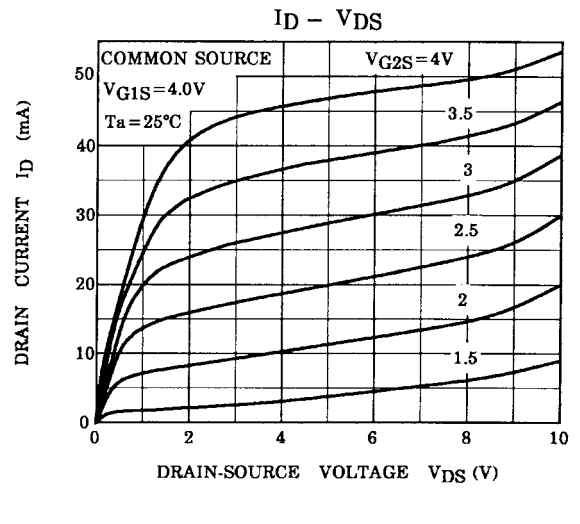
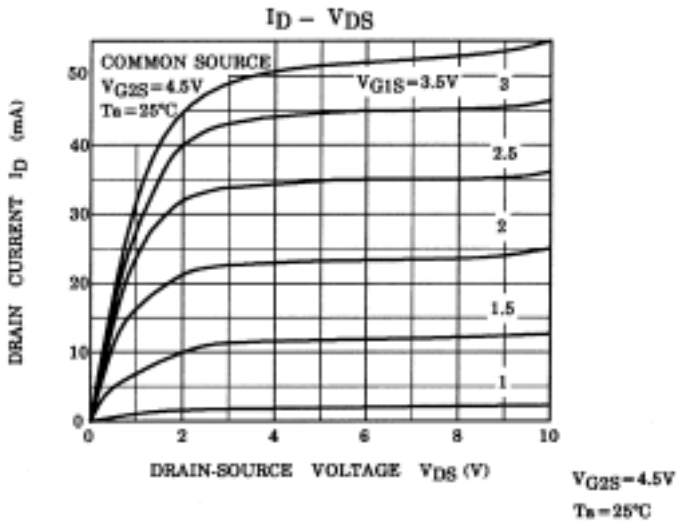


- L1~L4: ϕ 0.8 mm silver plated copper wire
- C: Air trimmer TTA25A200A (MURATA Manufacturing, Co., Ltd.)
- RFC 1: ϕ 0.35 mm copper wire 3 mm ID, 7 T
- RFC 2: ϕ 0.35 mm copper wire 3 mm ID, 10 T

Figure 1 800 MHz G_{ps}, NF Test Circuit

Marking





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