

3SK294

TV Tuner, VHF RF Amplifier Application

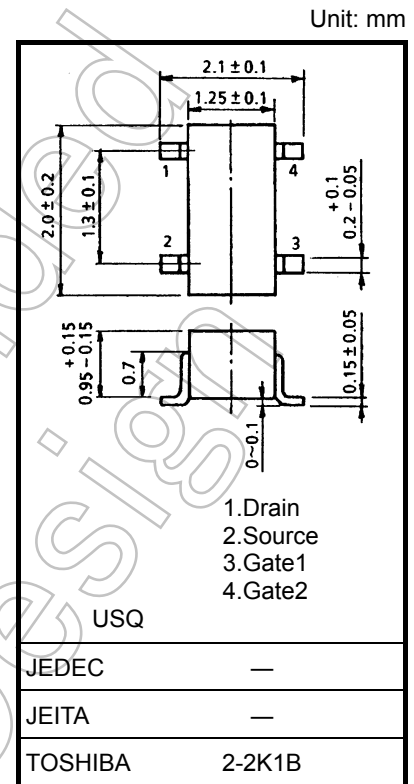
- Superior cross modulation performance
- Low reverse transfer capacitance: $C_{rss} = 20 \text{ fF}$ (typ.)
- Low noise figure: $NF = 1.4\text{dB}$ (typ.)

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

| 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 | 100 | mW |
| Channel temperature | T_{ch} | 125 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -55 to 125 | $^\circ\text{C}$ |

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).

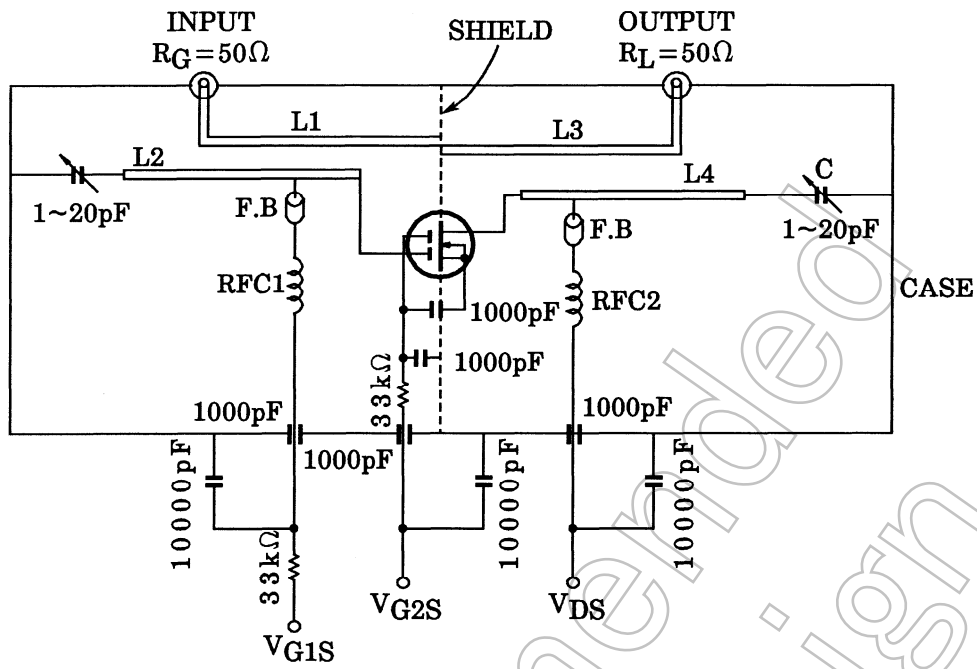


Weight: 6 mg (typ.)

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

| 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} | $V_{DS} = 6 \text{ V}, V_{G1S} = 0, V_{G2S} = 4.5 \text{ V}$ | — | — | 0.1 | mA |
| Gate 1-source cut-off voltage | $V_{G1S(OFF)}$ | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 100 \mu\text{A}$ | 0.3 | 0.9 | 1.3 | 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} $ | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA}, f = 1 \text{ kHz}$ | 19.5 | 23.5 | — | mS |
| Input capacitance | C_{iss} | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA}, f = 1 \text{ MHz}$ | — | 2.5 | 3.1 | pF |
| Reverse transfer capacitance | C_{rss} | | — | 20 | 40 | fF |
| Power gain | G_{ps} | $V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA}, f = 500 \text{ MHz}$ (Figure 1) | 23.5 | 26.0 | — | dB |
| Noise figure | NF | | — | 1.4 | 2.5 | dB |

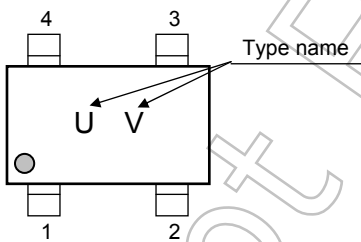
Start of commercial production
1996-10

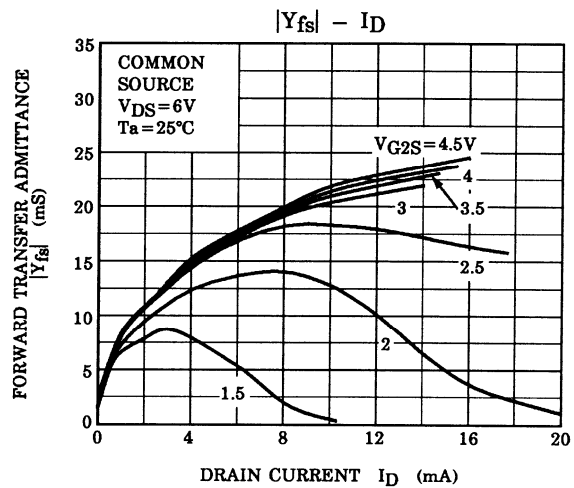
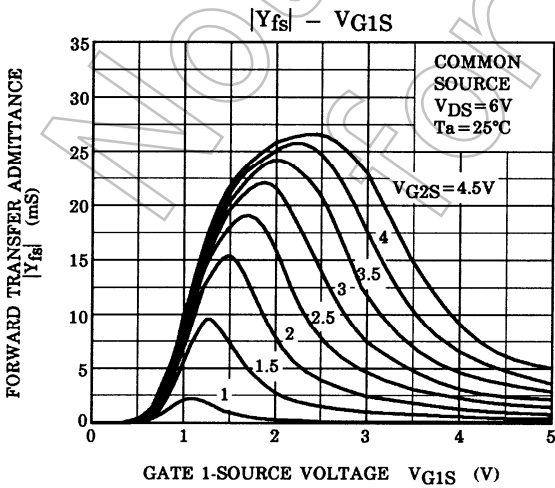
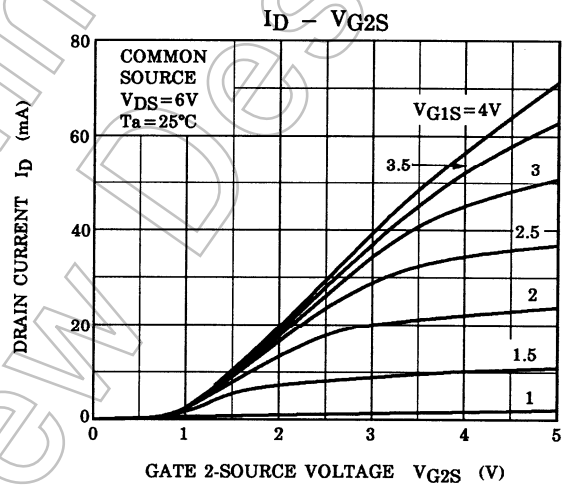
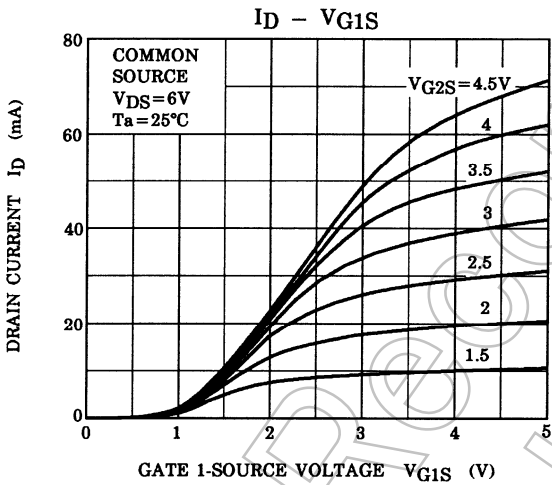
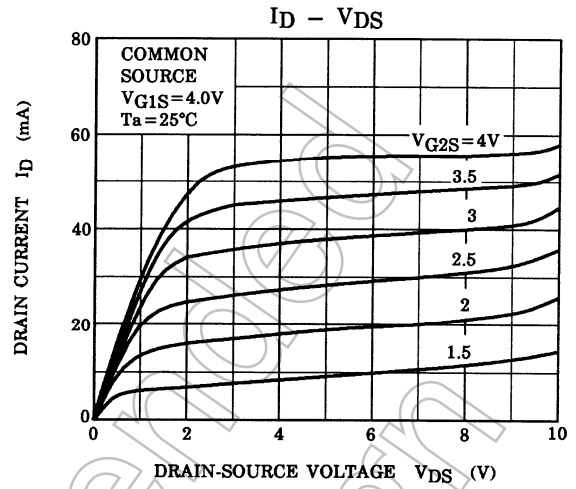
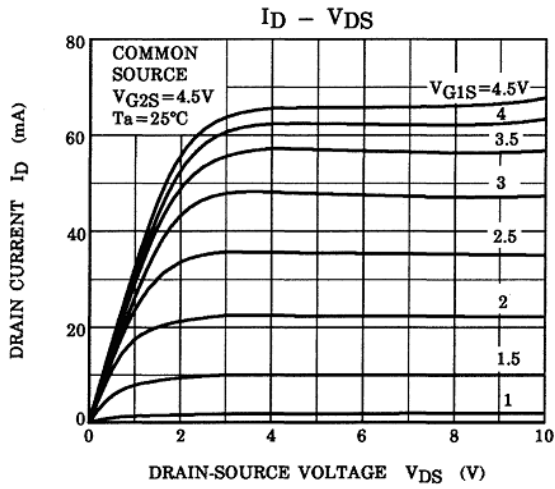


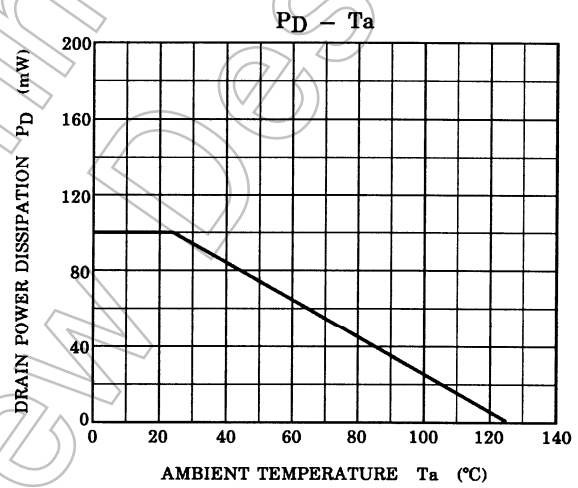
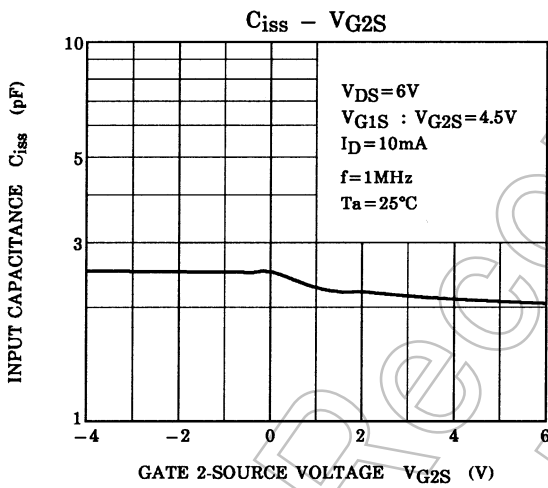
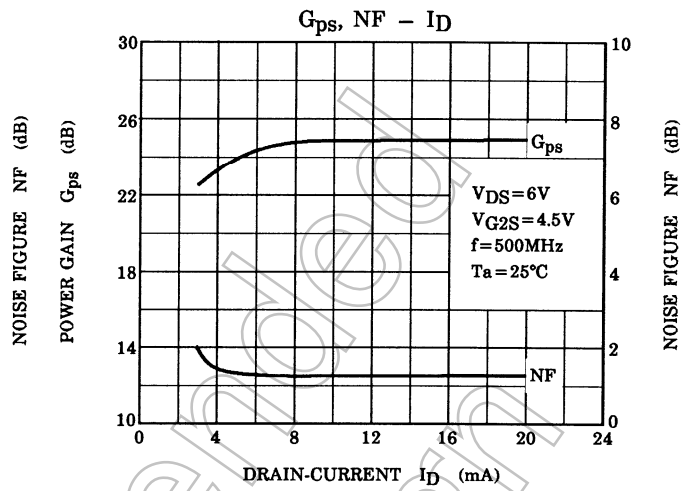
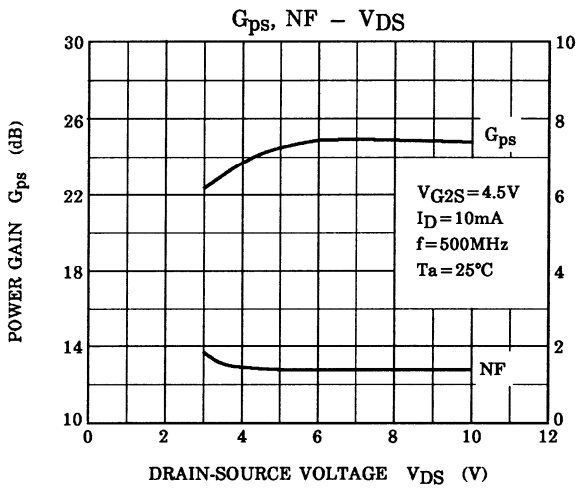
- L1 to L4: ϕ 0.8 mm silver plated copper wire
- C: Air trimmer TTA25A200A (MURATA Manufacturing, Co., Ltd.)
- RFC 1: ϕ 0.35 mm UEW 3I.D. 7 T
- RFC 2: ϕ 0.35 mm UEW 3I.D. 10 T

Figure 1 Gps, NF Test Circuit

Marking







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