

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N-CHANNEL DUAL GATE MOS TYPE

3SK292

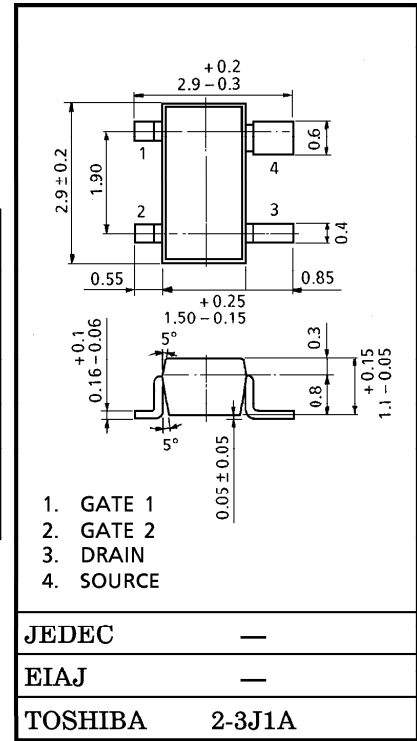
TV TUNER, VHF RF AMPLIFIER APPLICATION

Unit in mm

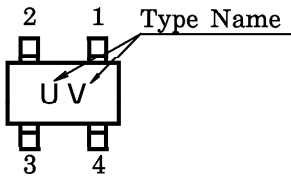
- Superior Cross Modulation Performance.
- Low Reverse Transfer Capacitance : $C_{rss} = 20\text{fF}$ (Typ.)
- Low Noise Figure : $NF = 1.4\text{dB}$ (Typ.)

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | 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 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | $-55 \sim 125$ | $^\circ\text{C}$ |



MARKING



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | 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 | $V_{G2S(OFF)}$ | $V_{DS} = 6\text{V}, V_{G2S} = 4.0\text{V}, I_D = 100\mu\text{A}$ | 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} | $I_D = 10\text{mA}, f = 1\text{MHz}$ | — | 20 | 40 | fF |
| Power Gain | G_{ps} | $V_{DS} = 6\text{V}, V_{G2S} = 4.5\text{V}, I_D = 10\text{mA}, f = 500\text{MHz}$ (Fig.1) | 23.5 | 26.0 | — | dB |
| Noise Figure | NF | | — | 1.4 | 2.5 | |

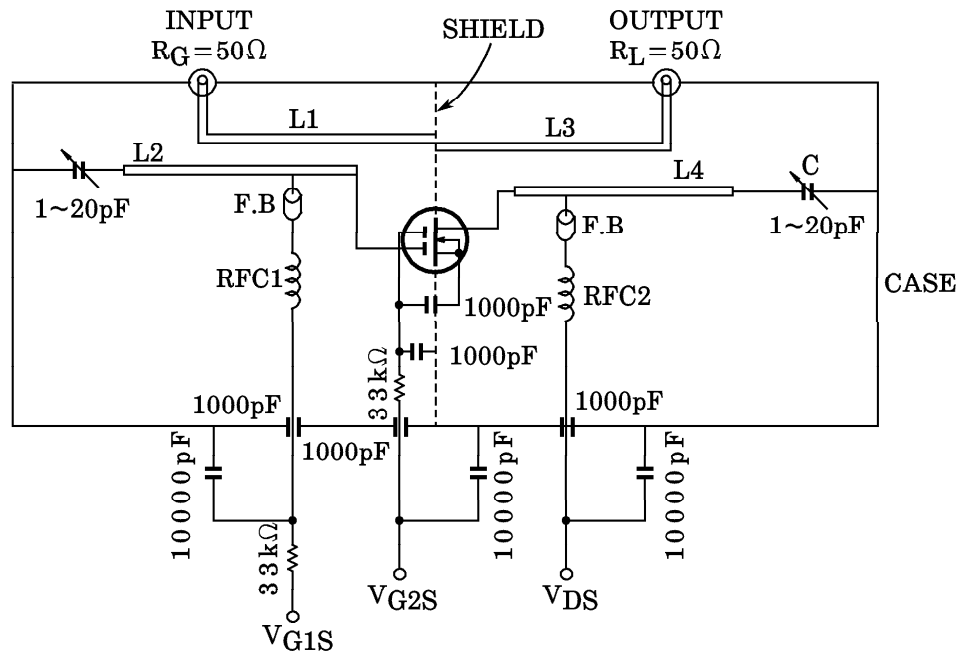
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Fig.1 G_{ps}/NF TEST CIRCUIT



- L1~L4 : ϕ 0.8mm SILVER PLATED COPPER WIRE
- C : AIR TRIMMER TTA25A200A (MURATA MFG, Co., Ltd.)
- RFC 1 : ϕ 0.35mm VEW 3I.D.7T
- RFC 2 : ϕ 0.35mm VEW 3I.D.10T

