

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

## 3SK257

TV TUNER, VHF RF AMPLIFIER APPLICATIONS

FM TUNER APPLICATIONS

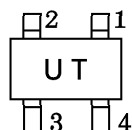
TV TUNER, UHF RF AMPLIFIER APPLICATIONS

- Superior Cross Modulation Performance.
- Low Noise Figure : NF=2.0dB (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC            | SYMBOL           | RATING  | UNIT |
|---------------------------|------------------|---------|------|
| Drain-Source Voltage      | V <sub>DS</sub>  | 13.5    | V    |
| Gate 1-Source Voltage     | V <sub>G1S</sub> | ±8      | V    |
| Gate 2-Source Voltage     | V <sub>G2S</sub> | ±8      | V    |
| Drain Current             | I <sub>D</sub>   | 30      | mA   |
| Drain Power Dissipation   | P <sub>D</sub>   | 100     | mW   |
| Chanel Temperature        | T <sub>ch</sub>  | 125     | °C   |
| Storage Temperature Range | T <sub>stg</sub> | -55~125 | °C   |

Marking



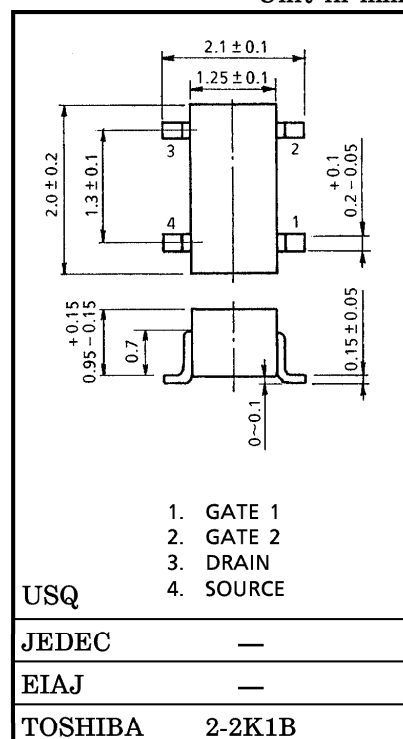
ELECTICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                | SYMBOL                 | TEST CONDITION                                                              | MIN. | TYP.  | MAX. | UNIT |
|-------------------------------|------------------------|-----------------------------------------------------------------------------|------|-------|------|------|
| Gate 1 Leakage Current        | I <sub>G1SS</sub>      | V <sub>DS</sub> =0, V <sub>G1S</sub> =±6V, V <sub>G2S</sub> =0              | —    | —     | ±50  | nA   |
| Gate 2 Leakage Current        | I <sub>G2SS</sub>      | V <sub>DS</sub> =0, V <sub>G1S</sub> =0, V <sub>G2S</sub> =±6V              | —    | —     | ±50  | nA   |
| Drain-Source Voltage          | V (BR) DSX             | V <sub>G1S</sub> =-1V, V <sub>G2S</sub> =-1V<br>I <sub>D</sub> =100μA       | 13.5 | —     | —    | V    |
| Drain Current                 | I <sub>DSS</sub>       | V <sub>DS</sub> =6V, V <sub>G1S</sub> =0,<br>V <sub>G2S</sub> =4.5V         | 0    | —     | 0.1  | mA   |
| Gate 1-Source Cut-off Voltage | V <sub>G1S</sub> (OFF) | V <sub>DS</sub> =6V, V <sub>G2S</sub> =4.5V,<br>I <sub>D</sub> =100μA       | 0    | —     | 1.0  | V    |
| Gate 2-Source Cut-off Voltage | V <sub>G2S</sub> (OFF) | V <sub>DS</sub> =6V, V <sub>G1S</sub> =4V,<br>I <sub>D</sub> =100μA         | 0.5  | 1.0   | 1.5  | V    |
| Forward Transfer Admittance   | Y <sub>fs</sub>        | V <sub>DS</sub> =6V, V <sub>G2S</sub> =4.5V<br>I <sub>D</sub> =10mA, f=1kHz | —    | 21    | —    | mS   |
| Input Capacitance             | C <sub>iss</sub>       | V <sub>DS</sub> =6V, V <sub>G2S</sub> =4.5V<br>I <sub>D</sub> =10mA, f=1MHz | —    | 3.4   | 4.4  | pF   |
| Reverse Transfer Capacitance  | C <sub>rss</sub>       |                                                                             | —    | 0.020 | 0.05 |      |
| Power Gain                    | G <sub>ps</sub>        | V <sub>DS</sub> =6V, V <sub>G2S</sub> =4.5V                                 | 19   | 22    | —    | dB   |
| Noise Figure                  | NF                     | I <sub>D</sub> =10mA, f=800MHz                                              | —    | 2.0   | 3.5  |      |

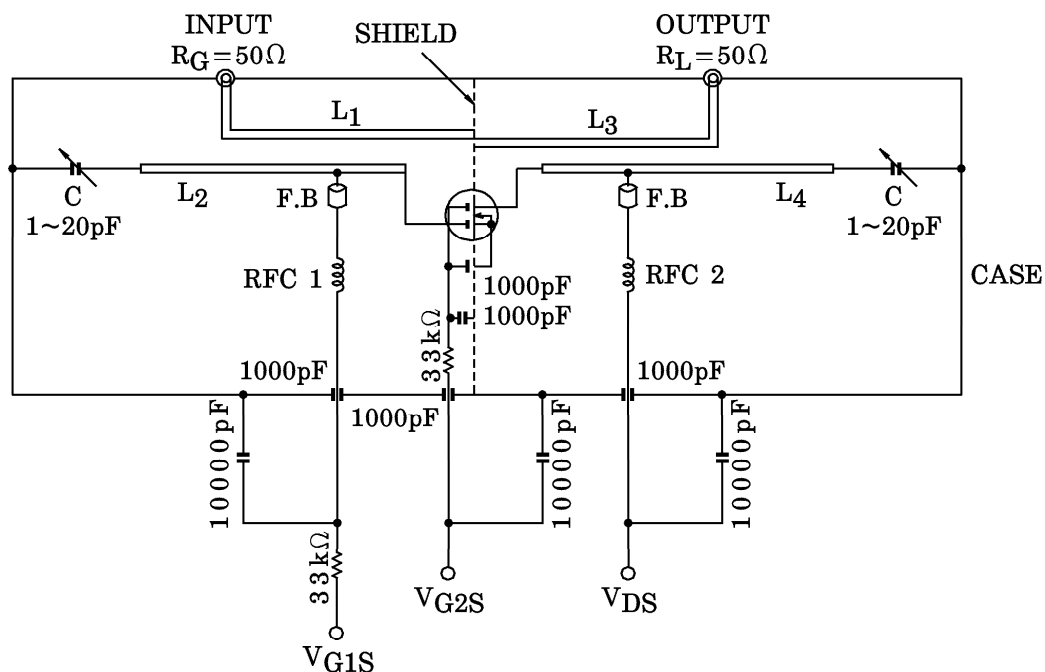
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Unit in mm



Weight : 0.006g

Fig.1  $G_{ps}$ , NF Test Circuit

$L_1 \sim L_4$  :  $\phi 0.8\text{mm}$  SILVER PLATED COPPER WIRE  
 $C$  : AIR TRIMMER TTA25A200A (MURATA MFG. Co., Ltd.)  
 $\text{RFC } 1$  :  $\phi 0.35\text{mm}$  COPPER WIRE 3mm ID, 7T  
 $\text{RFC } 2$  :  $\phi 0.35\text{mm}$  COPPER WIRE 3mm ID, 10T

