

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

## 3SK260

TV TUNER VHF MIXER APPLICATIONS

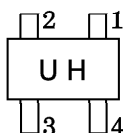
VHF RF AMPLIFIER APPLICATIONS

- High Conversion Gain :  $G_{CS}=24.5\text{dB}$  (Typ.)
- Low Noise Figure :  $NF_{CS}=3.3\text{dB}$  (Typ.)

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

| CHARACTERISTIC            | SYMBOL    | RATING        | UNIT             |
|---------------------------|-----------|---------------|------------------|
| Drain-Source Voltage      | $V_{DS}$  | 13.5          | V                |
| Gate 1-Source Voltage     | $V_{G1S}$ | $\pm 8$       | V                |
| Gate 2-Source Voltage     | $V_{G2S}$ | $\pm 8$       | V                |
| Drain Current             | $I_D$     | 30            | mA               |
| Drain Power Dissipation   | $P_D$     | 100           | mW               |
| Chanel Temperature        | $T_{ch}$  | 125           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | $-55\sim 125$ | $^\circ\text{C}$ |

Marking

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

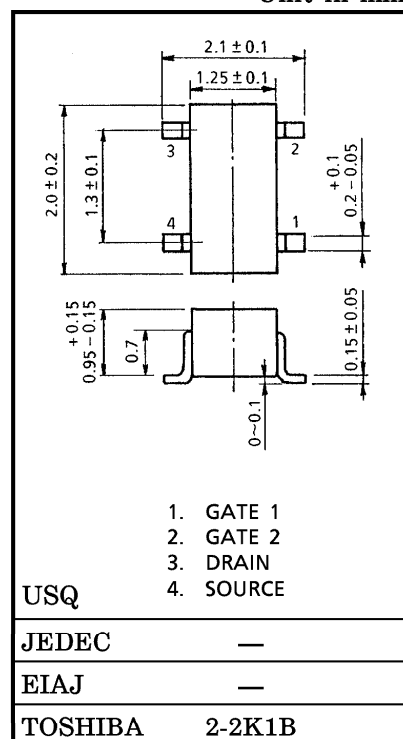
| CHARACTERISTIC                | SYMBOL         | TEST CONDITION                                                            | MIN.  | TYP.  | MAX.     | UNIT |
|-------------------------------|----------------|---------------------------------------------------------------------------|-------|-------|----------|------|
| Gate 1 Leakage Current        | $I_{G1SS}$     | $V_{DS}=0, V_{G1S}=\pm 6\text{V}, V_{G2S}=0$                              | —     | —     | $\pm 50$ | nA   |
| Gate 2 Leakage Current        | $I_{G2SS}$     | $V_{DS}=0, V_{G1S}=0, V_{G2S}=\pm 6\text{V}$                              | —     | —     | $\pm 50$ | nA   |
| Drain-Source Voltage          | $V(BR)_{DSX}$  | $V_{G1S}=-4\text{V}, V_{G2S}=-4\text{V}$<br>$I_D=100\mu\text{A}$          | 15    | —     | —        | V    |
| Drain Current                 | $I_{DSS}$      | $V_{DS}=6\text{V}, V_{G1S}=0, V_{G2S}=3\text{V}$                          | 3     | —     | 14       | mA   |
| Gate 1-Source Cut-off Voltage | $V_{G1S(OFF)}$ | $V_{DS}=6\text{V}, V_{G2S}=3\text{V},$<br>$I_D=100\mu\text{A}$            | -0.15 | —     | -1.5     | V    |
| Gate 2-Source Cut-off Voltage | $V_{G2S(OFF)}$ | $V_{DS}=6\text{V}, V_{G1S}=0\text{V},$<br>$I_D=100\mu\text{A}$            | 0     | —     | -1.0     | V    |
| Forward Transfer Admittance   | $ Y_{fs} $     | $V_{DS}=6\text{V}, V_{G2S}=3\text{V}, I_D=10\text{mA}$<br>$f=1\text{kHz}$ | —     | 27    | —        | mS   |
| Input Capacitance             | $C_{iss}$      | $V_{DS}=6\text{V}, V_{G2S}=3\text{V}, I_D=10\text{mA}$<br>$f=1\text{MHz}$ | —     | 2.7   | 3.8      | pF   |
| Reverse Transfer Capacitance  | $C_{rss}$      |                                                                           | —     | 0.025 | 0.04     |      |
| Conversion Gain               | $G_{CS}$       | $V_{DD}=10\text{V}, f=200\text{MHz}$                                      | 21    | 24.5  | —        | dB   |
| Noise Figure                  | $NF_{CS}$      | $f_L=245\text{MHz}(500\text{mV}_{rms})$ (Fig.1)                           | —     | 3.3   | 5.5      |      |

Note :  $I_{DSS}$  Classification Y : 3~7mA, GR : 6~14mA

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Unit in mm



USQ

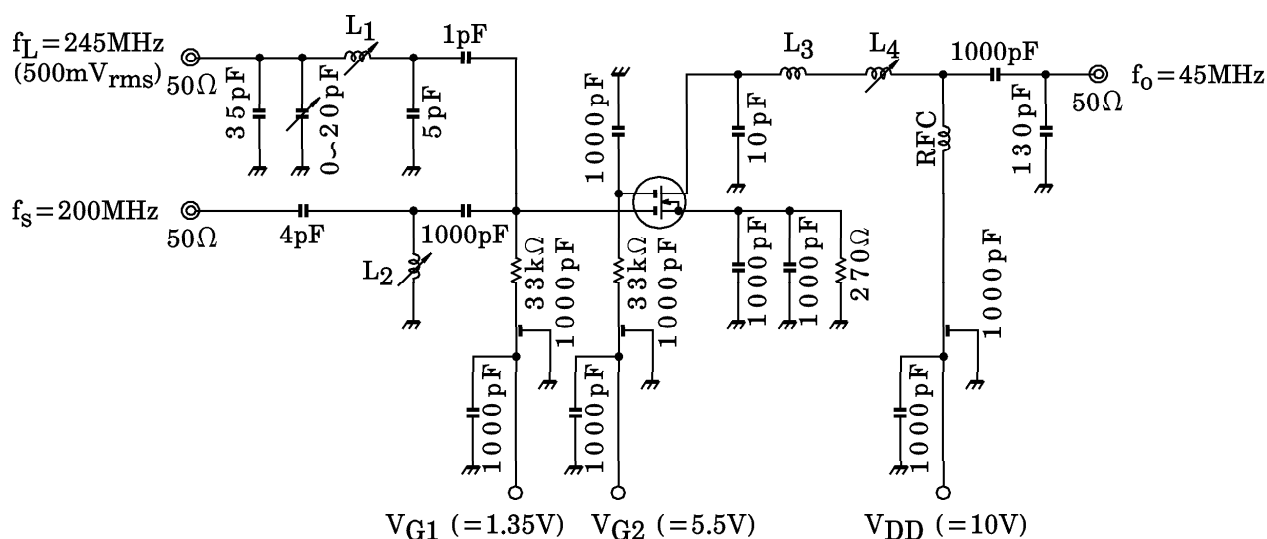
JEDEC

EIAJ

TOSHIBA 2-2K1B

Weight : 0.006g

Fig.1 GCS and NFCS Test Circuit



- $L_1$  :  $\phi 6.5\text{mm}$  BOBBIN WITH FERRITE CORE,  $\phi 0.7\text{mm}$  UEW, 2T  
 $L_2$  :  $\phi 6.5\text{mm}$  BOBBIN WITH FERRITE CORE,  $\phi 0.7\text{mm}$  UEW, 2T  
 $L_3$  : 3mm ID,  $\phi 0.5\text{mm}$  UEW, 4T  
 $L_4$  :  $\phi 8\text{mm}$  BOBBIN WITH FERRITE CORE,  $\phi 0.35\text{mm}$  UEW, 7T  
 RFC :  $100\mu\text{H}$

