

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

# 2SK241

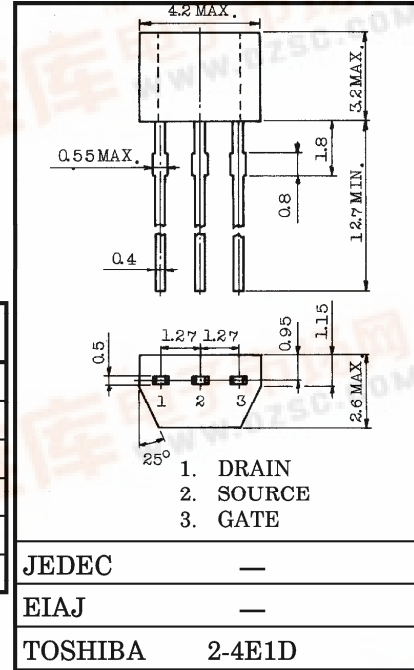
FM TUNER, VHF AND RF AMPLIFIER APPLICATIONS.

Unit in mm

- Low Reverse Transfer Capacitance :  $C_{rss}=0.035\text{pF}$  (Typ.)
- Low Noise Figure :  $NF=1.7\text{dB}$  (Typ.)
- High Power Gain :  $G_{ps}=28\text{dB}$  (Typ.)
- Recommend Operation Voltage : 5~15V

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

| CHARACTERISTIC            | SYMBOL    | RATING  | UNIT             |
|---------------------------|-----------|---------|------------------|
| Drain-Source Voltage      | $V_{DS}$  | 20      | V                |
| Gate-Source Voltage       | $V_{GS}$  | $\pm 5$ | V                |
| Drain Current             | $I_D$     | 30      | mA               |
| Drain Power Dissipation   | $P_D$     | 200     | mW               |
| Chanel Temperature        | $T_{ch}$  | 125     | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | -55~125 | $^\circ\text{C}$ |

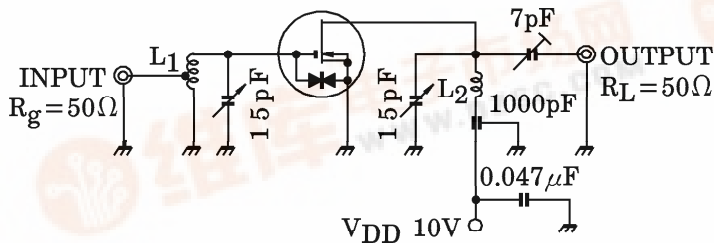


ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

Weight : 0.13g

| CHARACTERISTIC               | SYMBOL        | TEST CONDITION                                  | MIN. | TYP.  | MAX.     | UNIT |
|------------------------------|---------------|---|------|-------|----------|------|
| Gate Leakage Current         | $I_{GSS}$     | $V_{DS}=0, V_{GS}=\pm 5V$                       | —    | —     | $\pm 50$ | nA   |
| Drain-Source Voltage         | $V_{DSX}$     | $V_{GS}=-4V, I_D=100\mu A$                      | 20   | —     | —        | V    |
| Drain Current                | $I_{DSS}$     | $V_{DS}=10V, V_{GS}=0$ (Note)                   | 1.5  | —     | 14       | mA   |
| Gate-Source Cut-off Voltage  | $V_{GS(OFF)}$ | $V_{DS}=10V, I_D=100\mu A$                      | —    | —     | -2.5     | V    |
| Forward Transfer Admittance  | $ y_{fs} $    | $V_{DS}=10V, V_{GS}=0, f=1\text{kHz}$           | —    | 10    | —        | mS   |
| Input Capacitance            | $C_{iss}$     | $V_{DS}=10V, V_{GS}=0, f=1\text{MHz}$           | —    | 3.0   | —        | pF   |
| Reverse Transfer Capacitance | $C_{rss}$     |   | —    | 0.035 | 0.050    | pF   |
| Power Gain                   | $G_{ps}$      | $V_{DS}=10V, V_{GS}=0, f=100\text{MHz}$ (Fig.1) | —    | 28    | —        | dB   |
| Noise Figure                 | NF            |   | —    | 1.7   | 3.0      | dB   |

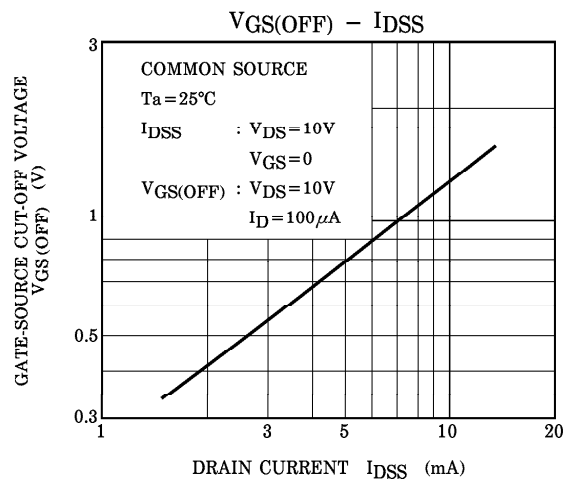
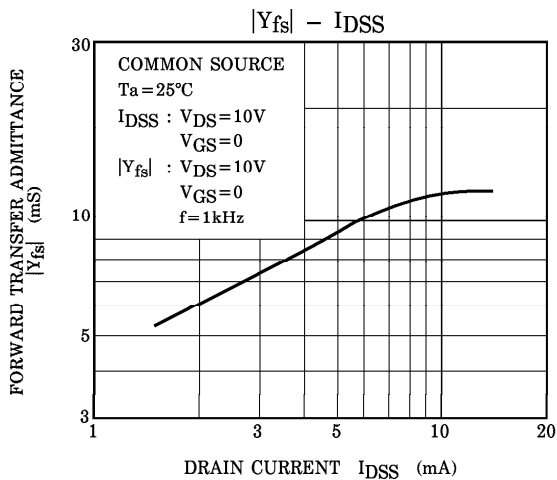
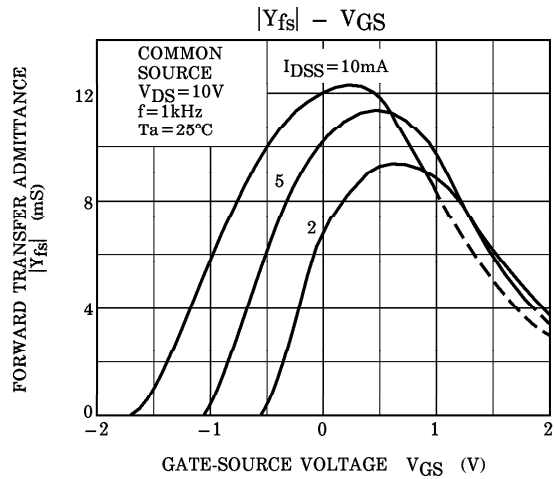
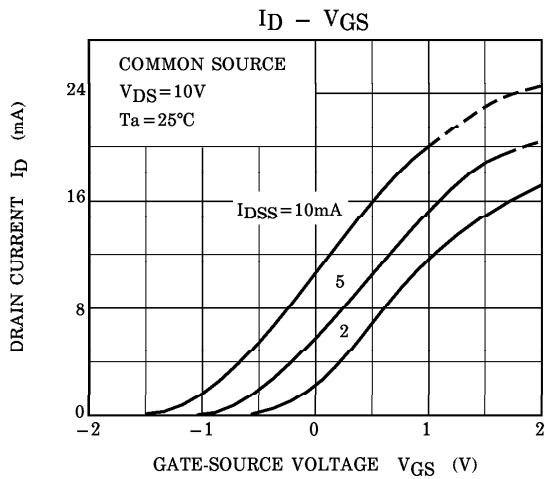
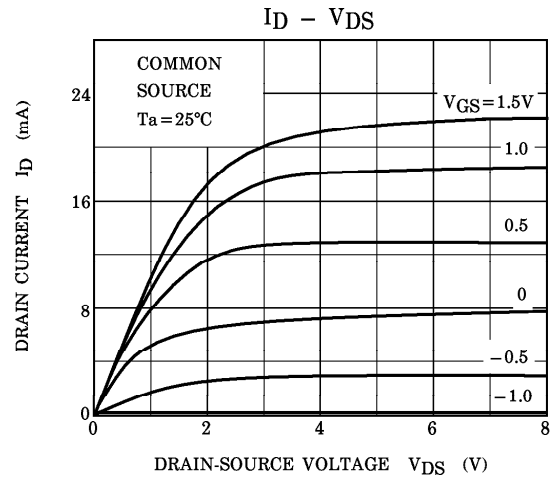
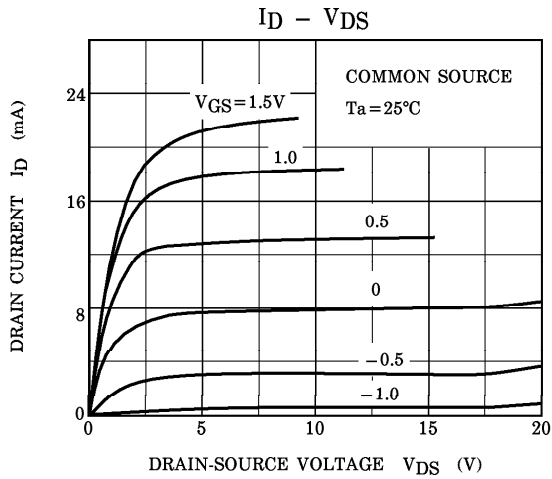
Note :  $I_{DSS}$  Classification O : 1.5~3.5, Y : 3.0~7.0, GR : 6.0~14.0

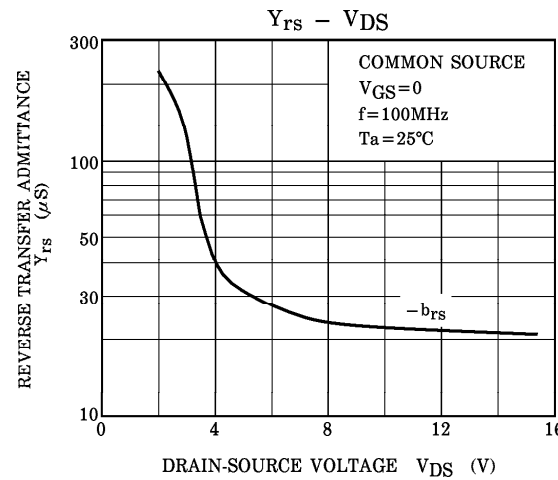
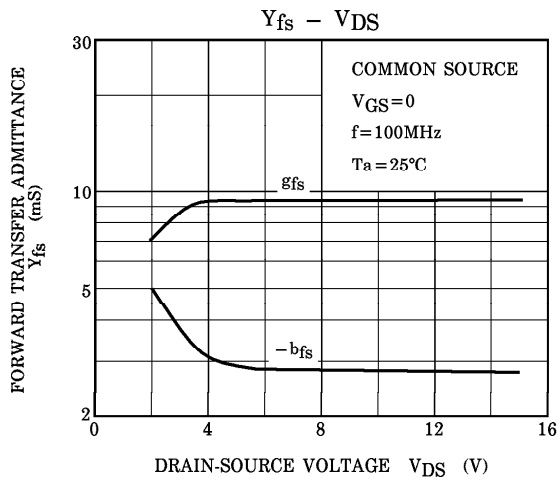
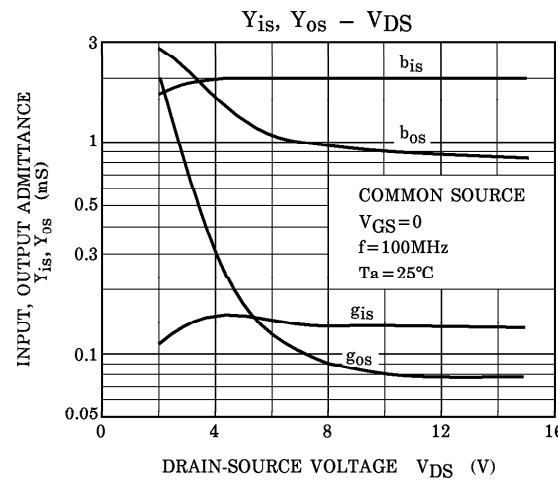
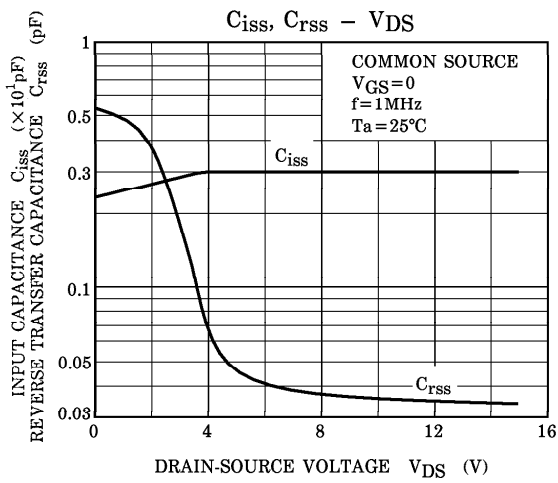
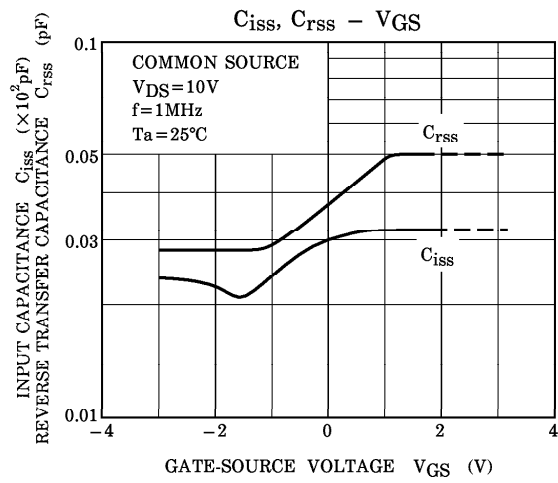
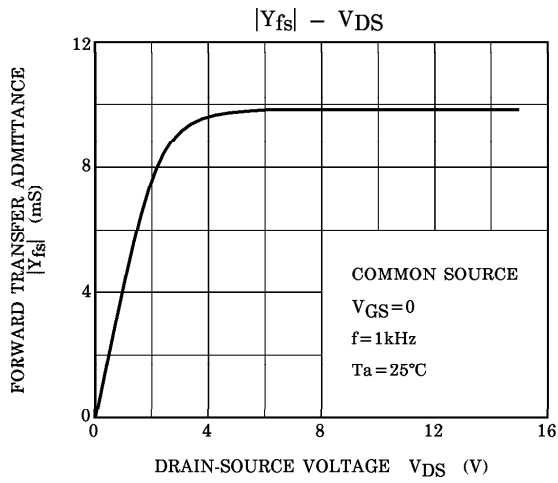


- $L_1$  : 1.0mm  $\phi$  SILVER PLATED COPPER WIRE 4.0T, 8mm  $\phi$  ID TAPAT 1.0T FROM COLD END
- $L_2$  : 1.0mm  $\phi$  SILVER PLATED COPPER WIRE 3.0T, 8mm  $\phi$  ID, 10mm LENGTH

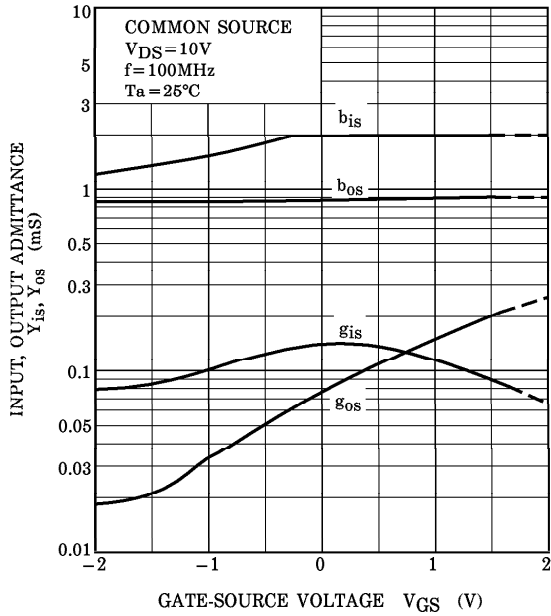
Fig.1  $G_{ps}$ , NF TEST CIRCUIT

961001FAA2

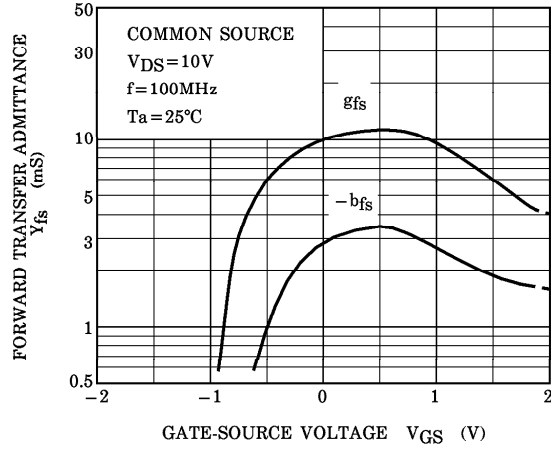




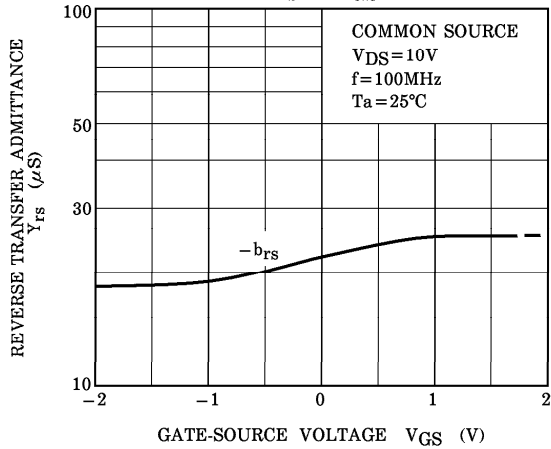
$Y_{is}, Y_{os} - V_{GS}$



$Y_{fs} - V_{GS}$



$Y_{rs} - V_{GS}$



$Y_{is}, Y_{os} - f$

