TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

# 2SK192A

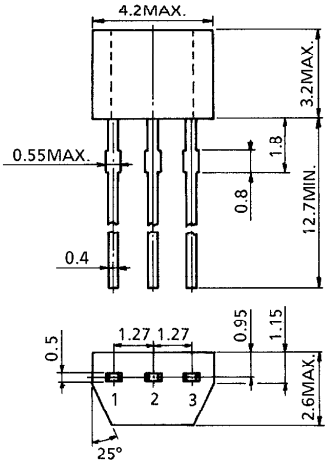
FM TUNER APPLICATIONS

VHF BAND AMPLIFIER APPLICATIONS

- High Power Gain : $G_{PS}$ = 24dB (Typ.) (f = 100MHz)
- Low Noise Figure : NF = 1.8dB (Typ.) (f = 100MHz)
- High Forward Transfer Admittance : $|y_{fs}|$ = 7mS (Typ.) (f = 1kHz)



Unit in mm




1. DRAIN
2. SOURCE
3. GATE

| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 2-4E1D |

Weight : 0.13g

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Gate-Drain Voltage | $V_{GDO}$ | −18 | V |
| Gate Current | $I_G$ | 10 | mA |
| Drain Power Dissipation | $P_D$ | 200 | mW |
| Junction Temperature | $T_j$ | 125 | °C |
| Storage Temperature Range | $T_{stg}$ | −55~125 | °C |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Gate Leakage Current | $I_{GSS}$ | $V_{GS}$ = −1.0V, $V_{DS}$ = 0 | — | — | −10 | nA |
| Gate-Drain Breakdown Voltage | $V_{(BR)GDO}$ | $I_G$ = −100μA | −18 | — | — | V |
| Drain Current | $I_{DSS}$ (Note) | $V_{GS}$ = 0, $V_{DS}$ = 10V | 3 | — | 24 | mA |
| Gate-Source Cut-off Voltage | $V_{GS(OFF)}$ | $V_{DS}$ = 10V, $I_D$ = 1μA | −1.2 | −3 | — | V |
| Forward Transfer Admittance | $\|y_{fs}\|$ | $V_{GS}$ = 0, $V_{DS}$ = 10V, f = 1kHz | — | 7 | — | mS |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ = 10V, $V_{GS}$ = 0, f = 1MHz | — | 3.5 | — | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | $V_{DS}$ = −10V, f = 1MHz | — | – | 0.65 | pF |
| Power Gain | $G_{PS}$ | $V_{DD}$ = 10V, f = 100MHz (Fig.1) | — | 24 | — | dB |
| Noise Figure | NF | $V_{DD}$ = 10V, f = 100MHz (Fig.1) | — | 1.8 | 3.5 | dB |

Note : $I_{DSS}$ Classification Y : 3.0~7.0, GR : 6.0~14.0, BL : 12.0~24.0

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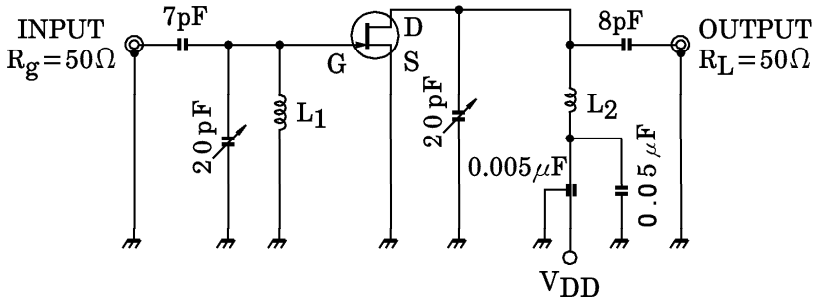
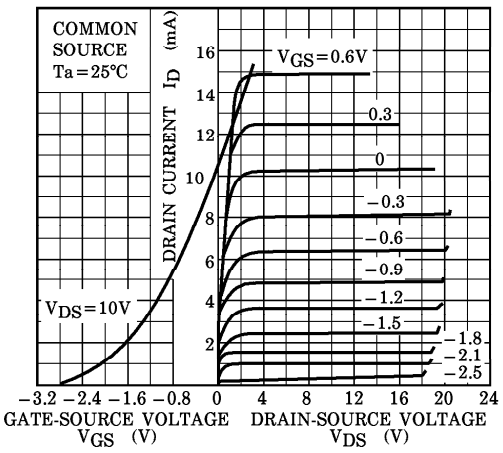



$L_1$ : 0.8mmϕ Ag PLATED Cu WIRE 3 TURNS, 10mm $I_D$, 10mm LENGTH
$L_2$ : 0.8mmϕ Ag PLATED Cu WIRE 3.5 TURNS, 10mm $I_D$, 10mm LENGTH

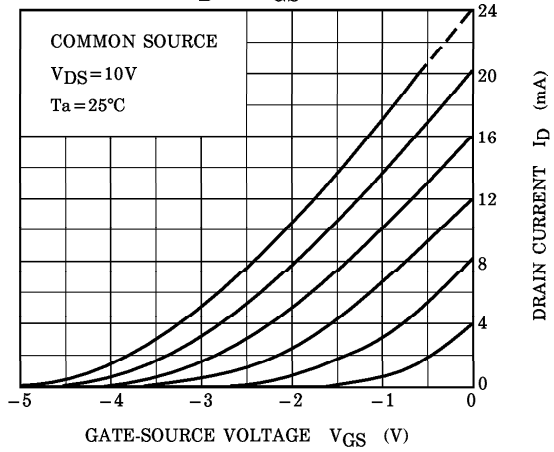
Fig.1 100MHz $G_{ps}$, NF TEST CIRCUIT



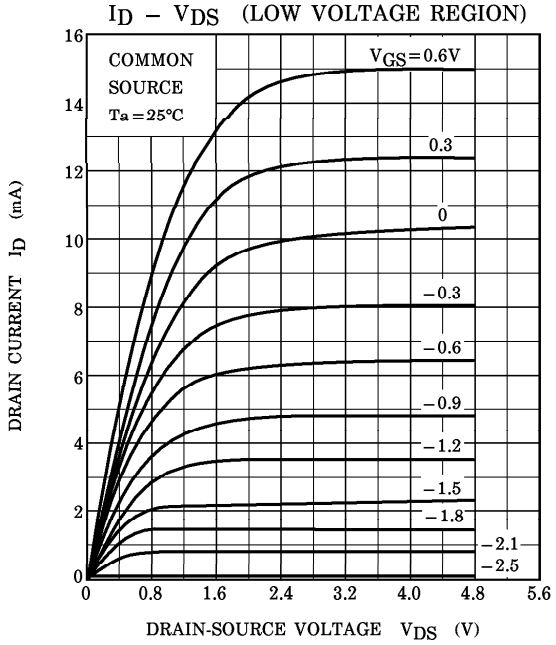
STATIC CHARACTERISTICS



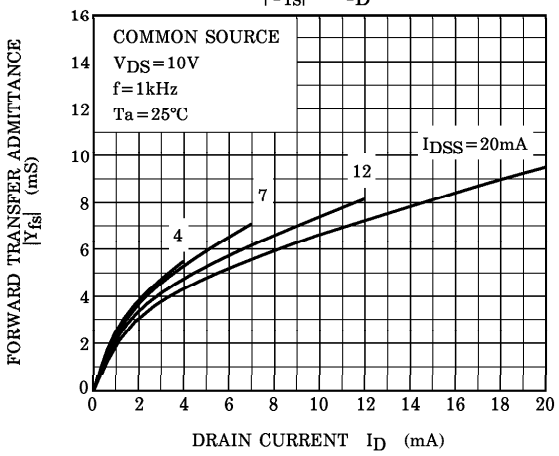

$I_D$ – $V_{GS}$



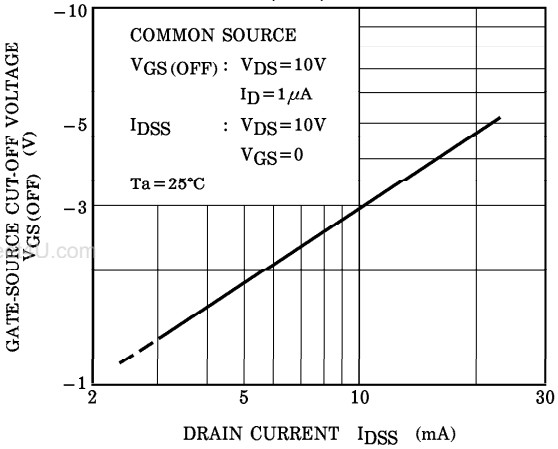

$I_D$ – $V_{DS}$ (LOW VOLTAGE REGION)



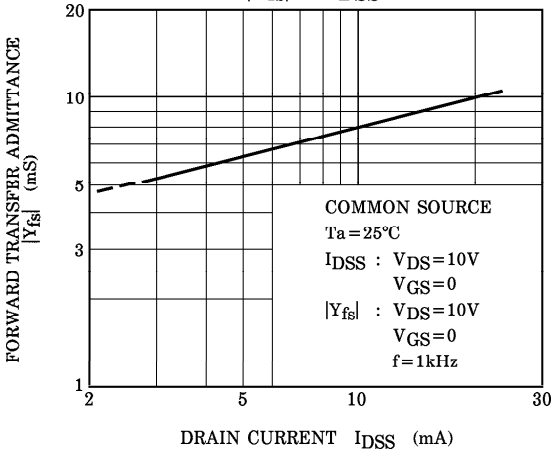

$|Y_{fs}|$ – $I_D$



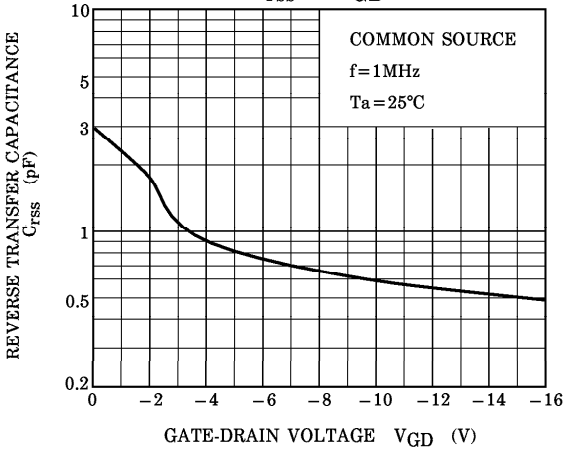
$V_{GS(OFF)}$ – $I_{DSS}$



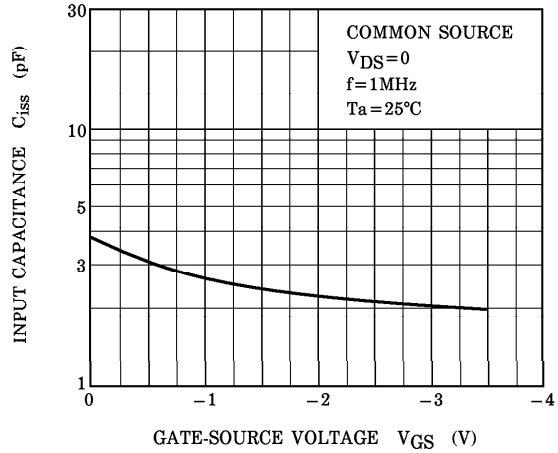

$|Y_{fs}|$ – $I_{DSS}$



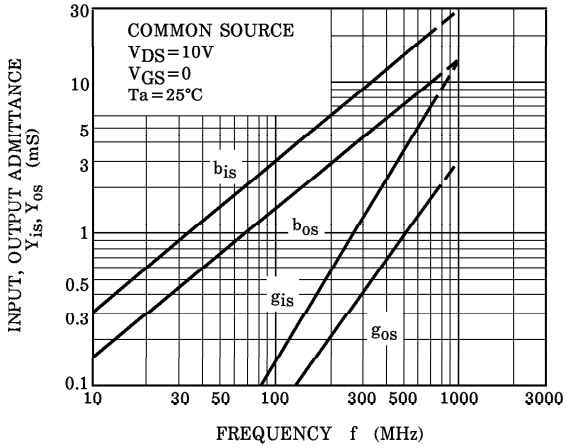

$C_{rss}$ – $V_{GD}$



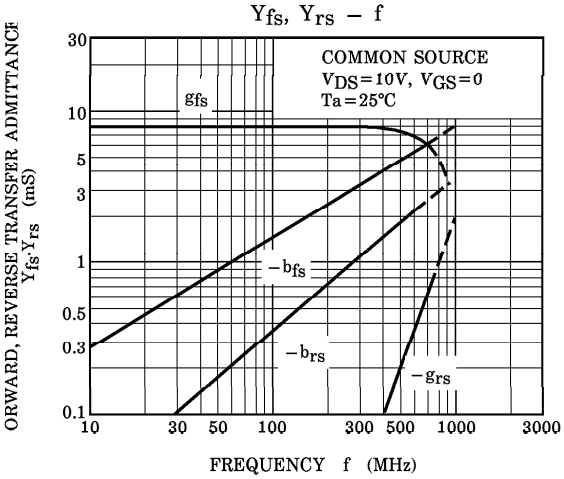

$C_{iss}$ – $V_{GS}$



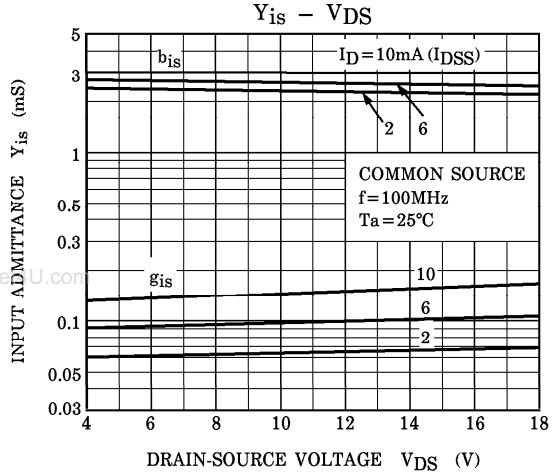

$Y_{is}$, $Y_{os}$ – f



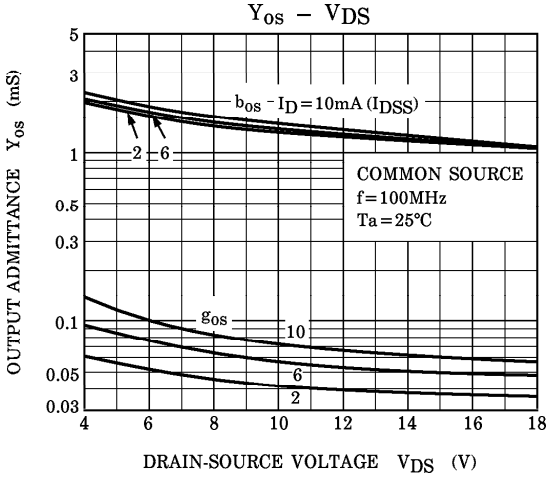

$Y_{fs}$, $Y_{rs}$ – f



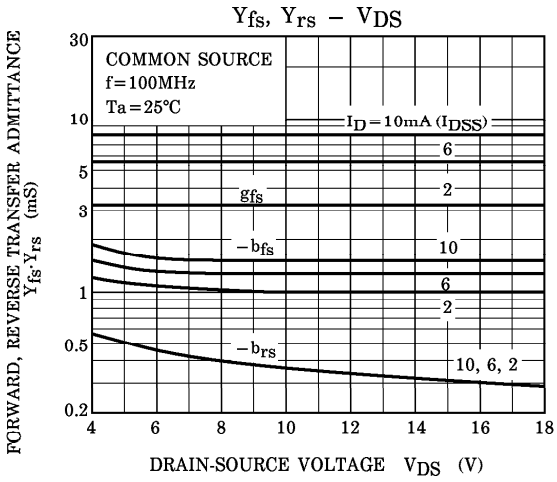
$Y_{is}$ – $V_{DS}$




$Y_{os}$ – $V_{DS}$




$Y_{fs}$, $Y_{rs}$ – $V_{DS}$




$P_D$ – Ta