

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

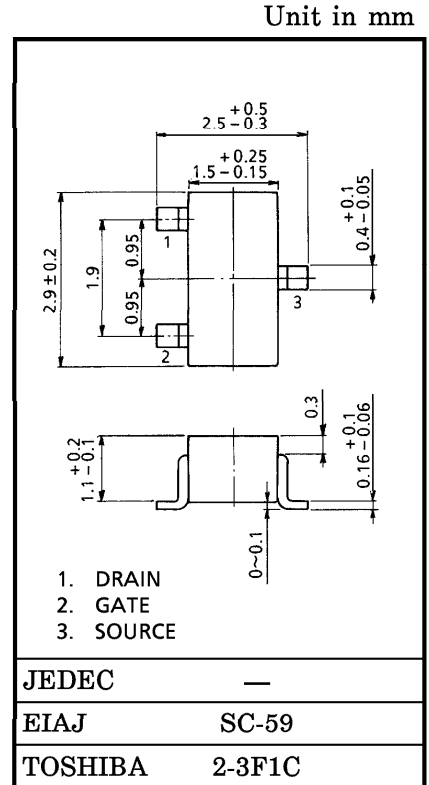
# 2SK210

FM TUNER APPLICATIONS  
VHF BAND AMPLIFIER APPLICATIONS

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

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	$V_{GDO}$	-18	V
Gate Current	$I_G$	10	mA
Drain Power Dissipation	$P_D$	100	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ\text{C}$



Weight : 0.012g

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

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

Note :  $I_{DSS}$  Classification Y : 3.0~7.0mA, GR (R) : 6.0~14.0mA, BL (L) : 12.0~24.0mA

Marking

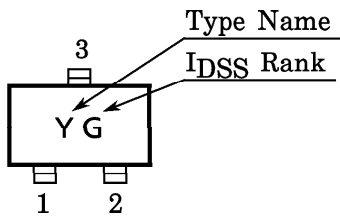
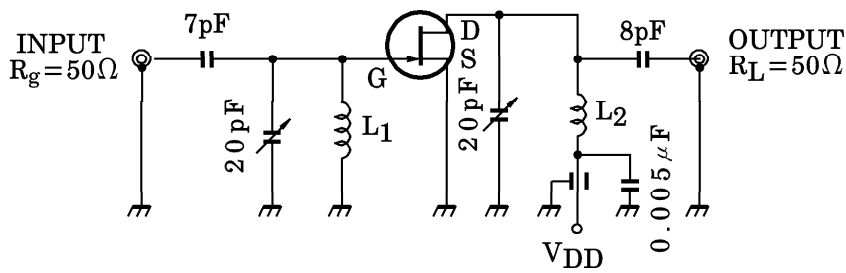


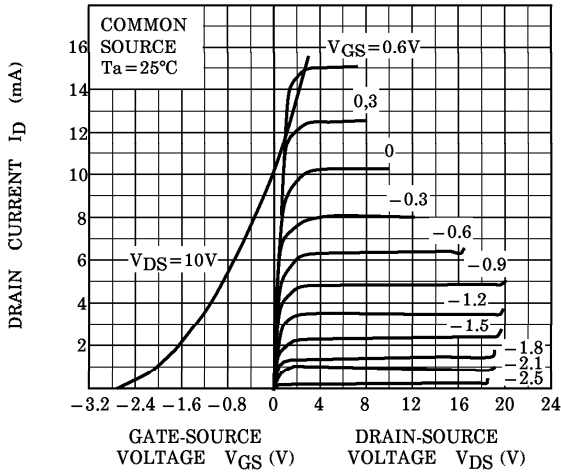
Fig. 100MHz  $G_{ps}$  NF TEST CIRCUIT



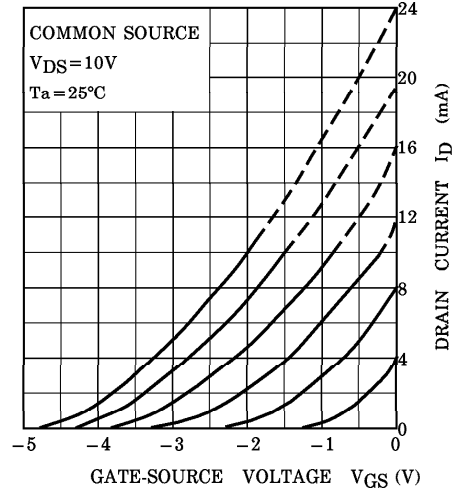
$L_1$  : 0.8mm  $\phi$  Ag PLATED Cu WIRE 3 TURNS, 10mm ID, 10mm LENGTH

$L_2$  : 0.8mm  $\phi$  Ag PLATED Cu WIRE 3.5 TURNS, 10mm ID, 10mm LENGTH

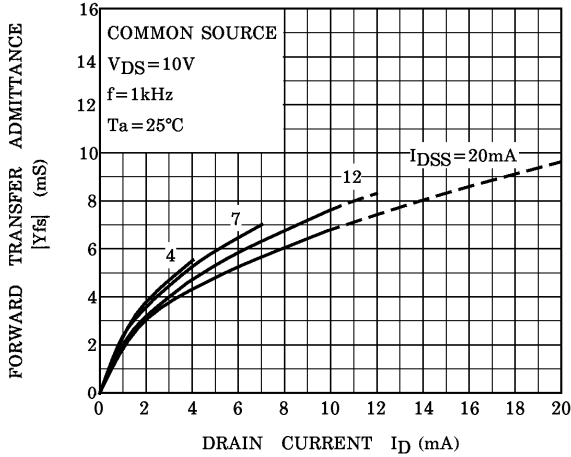
STATIC CHARACTERISTICS



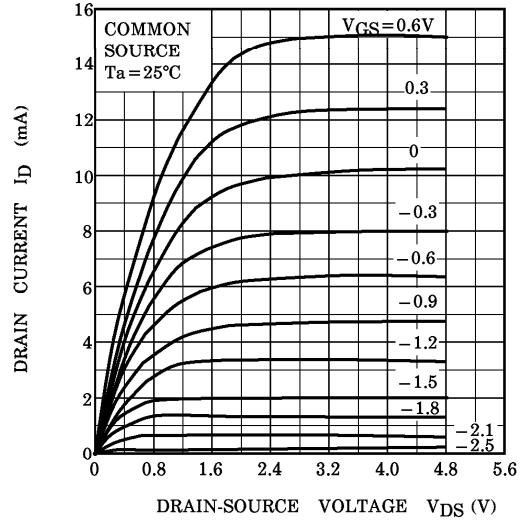
I<sub>D</sub> - V<sub>GS</sub>



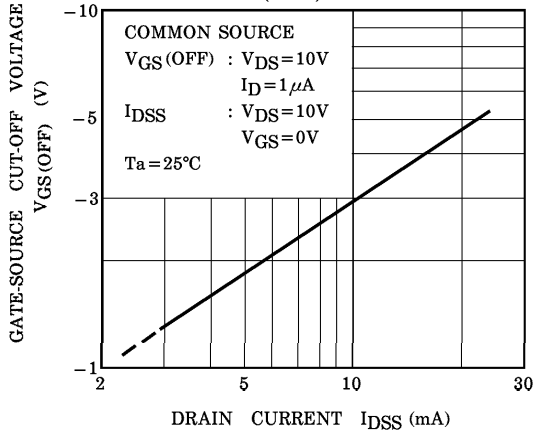
|Y<sub>fs</sub>| - I<sub>D</sub>



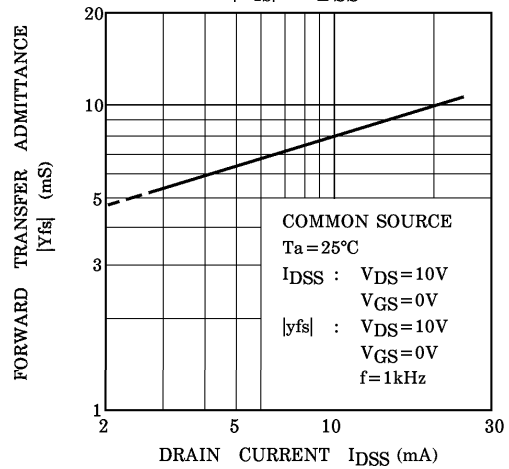
I<sub>D</sub> - V<sub>DS</sub> (LOW VOLTAGE REGION)

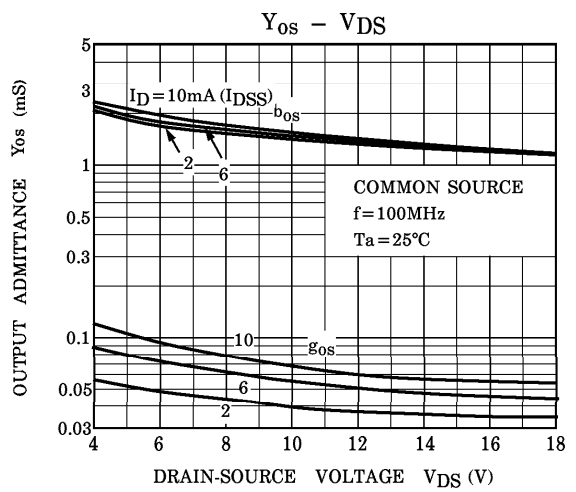
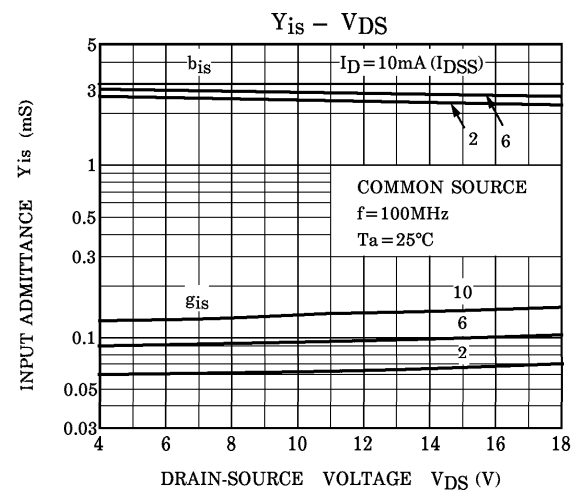
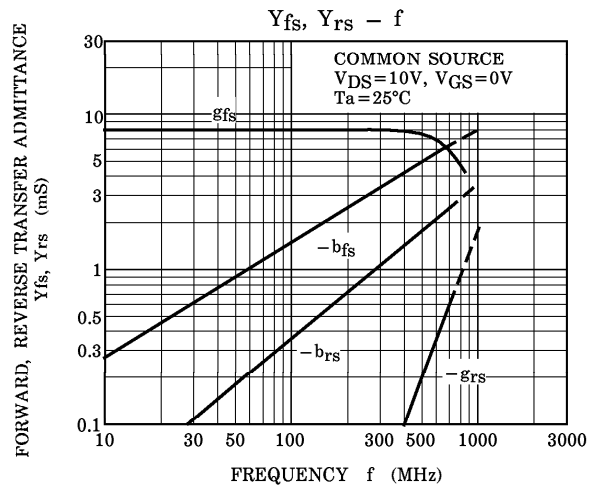
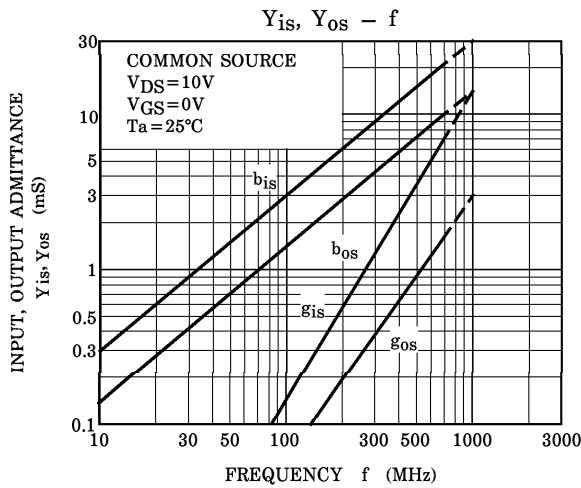
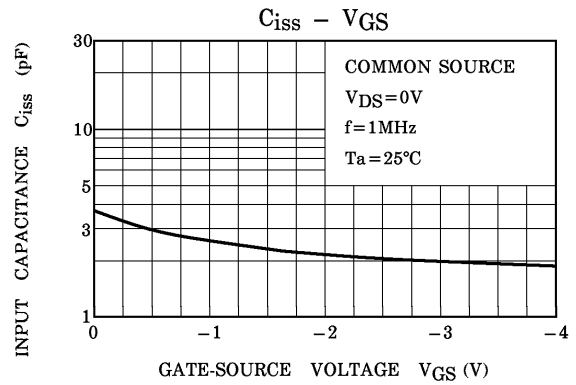
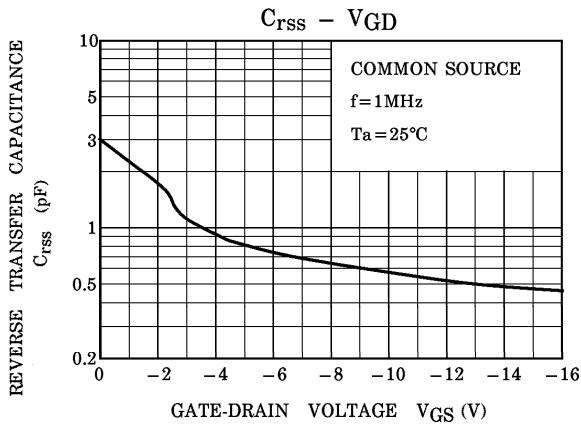


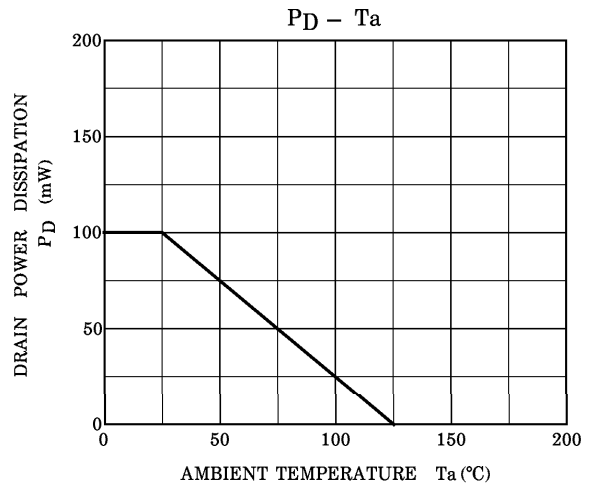
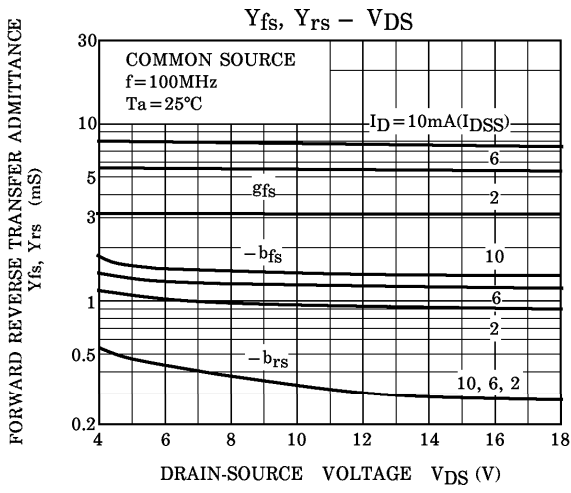
V<sub>GS</sub> (OFF) - I<sub>DSS</sub>



|Y<sub>fs</sub>| - I<sub>DSS</sub>







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