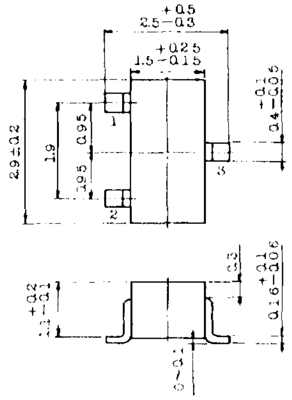
2SK302

SILICON N CHANNEL MOS TYPE
FIELD EFFECT TRANSISTOR

FM TUNER, VHF RF AMPLIFIER APPLICATIONS.

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

Unit in mm



1. DRAIN
2. GATE
3. SOURCE

JEDEC	TO—236
EIAJ	—
TOSHIBA	2-3F1C

Weight : 0.012g

MAXIMUM RATINGS (Ta = 25°C)

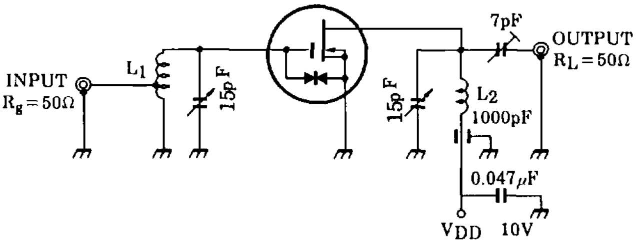
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±5	V
Drain Current	I_D	30	mA
Drain Power Dissipation	P_D	150	mW
Channel Temperature	T_{ch}	125	°C
Storage Temperature	T_{stg}	−55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	$V_{DS}=0$V, $V_{GS}=\pm5$V	—	—	±50	nA
Drain-Sorce Voltage	V_{DSX}	$V_{GS}=-4$V, $I_D=100\mu$A	20	—	—	V
Drain Current	I_{DSS} (Note)	$V_{DS}=10$V, $V_{GS}=0$V	1.5	—	14	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	$V_{DS}=10$V, $I_D=100\mu$A	—	—	−2.5	V
Forward Transfer Admittance	$\lvert Y_{fs}\rvert$	$V_{DS}=10$V, $V_{GS}=0$V, f = 1kHz	—	10	—	mS
Input Capacitance	C_{iss}	$V_{DS}=10$V, $V_{GS}=0$V, f = 1MHz	—	3.0	—	pF
Reverse Transfer Capacitance	C_{rss}		—	0.035	0.050	pF
Power Gain	G_{PS}	$V_{DS}=10$V, $V_{GS}=0$V, f = 100MHz (Fig. 1)	—	28	—	dB
Noise Figure	NF		—	1.7	3.0	dB

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

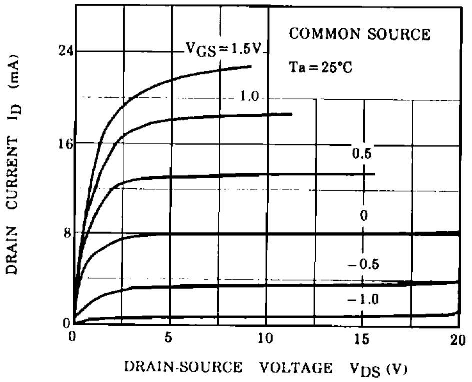
Fig. 1 G_{ps}, NF TEST CIRCUIT



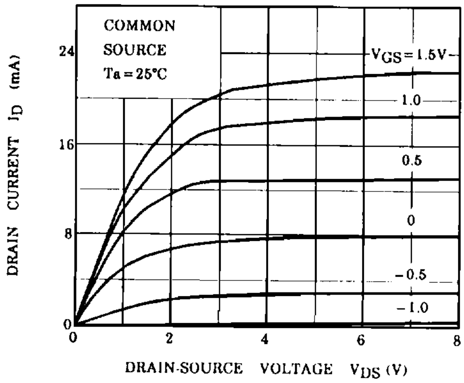
L_1 : 1.0mmφ SILVER PLATED COPPER WIRE 4.0T, 8mmφ ID
TAP AT 1.0T EROM COLD END

L_2 : 1.0mmφ SILVER PLATED COPPER WIRE 3.0T, 8mmφ ID,
10mm LENGTH

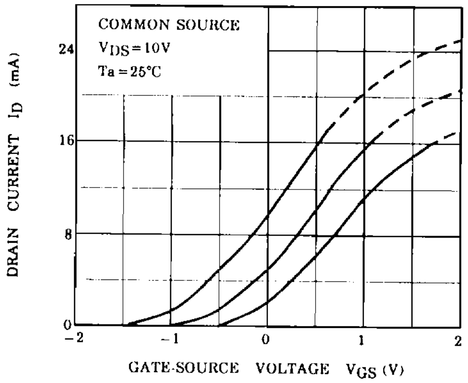
$I_D - V_{DS}$



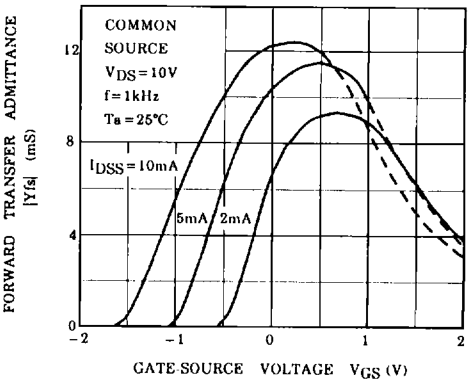
$I_D - V_{DS}$ (LOW VOLTAGE REGION)



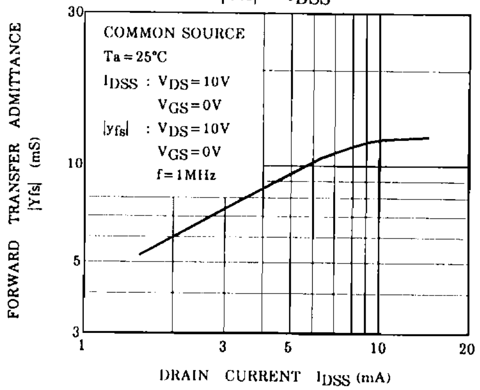
$I_D - V_{GS}$



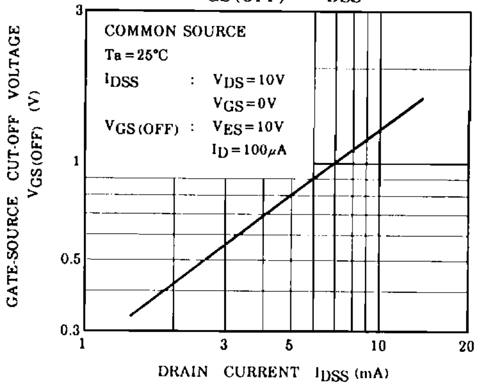
$|Y_{fs}| - V_{GS}$



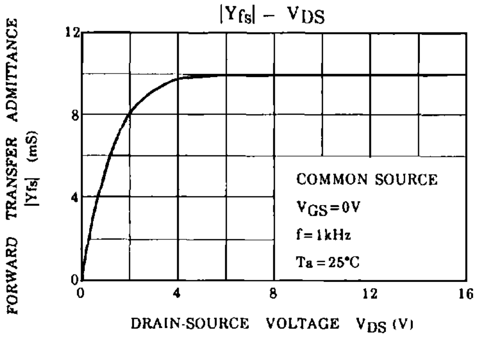
$|Y_{fs}| - I_{DSS}$



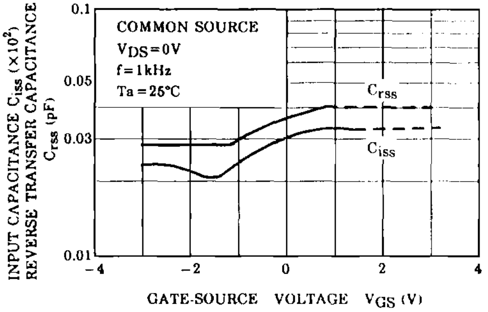
$V_{GS(OFF)} - I_{DSS}$



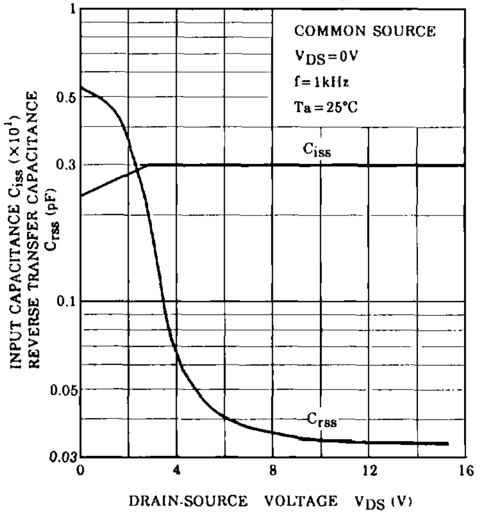
|Yfs| – VDS



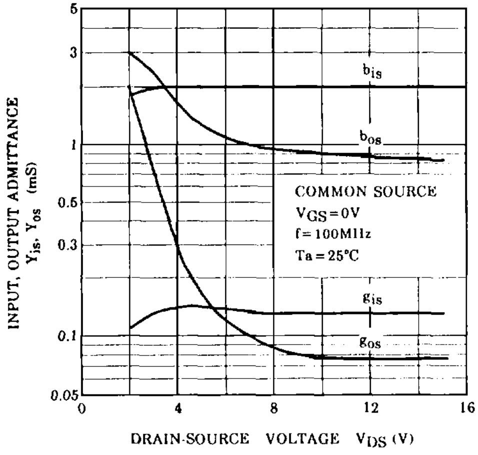
Ciss, Crss – VGS



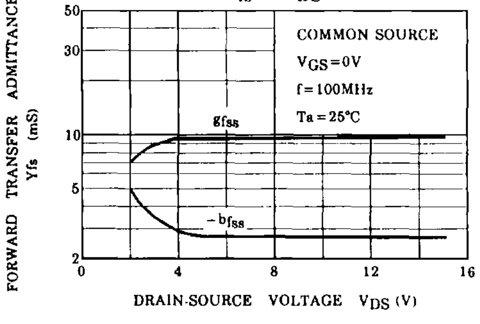
Ciss, Crss – VDS



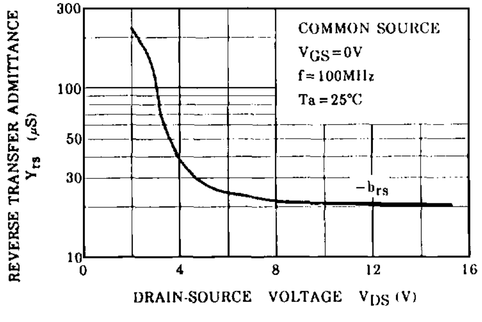
Yis, Yos – VDS



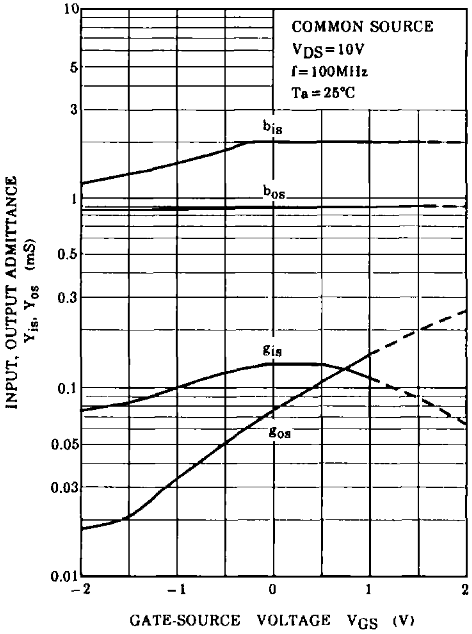
Yfs – VDS



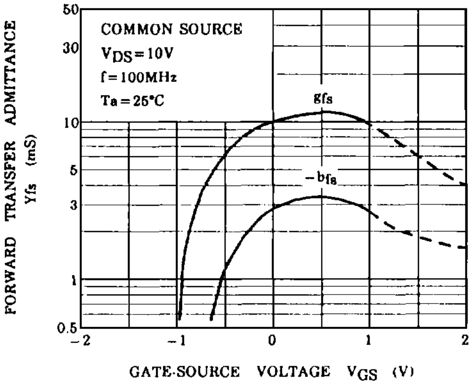
Yrs – VDS



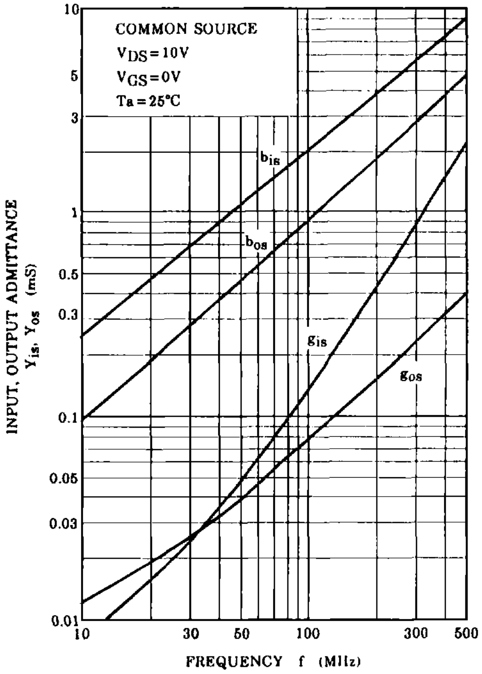
Y_{is}, Y_{os} – V_{GS}



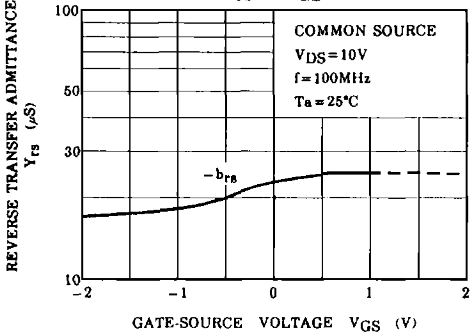
Y_{fs} – V_{GS}

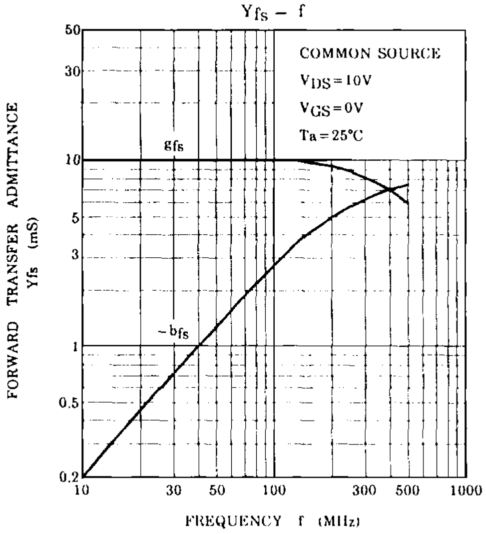


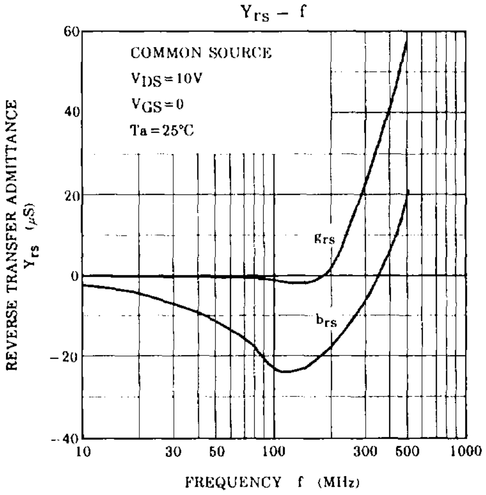
Y_{is}, Y_{os} – f

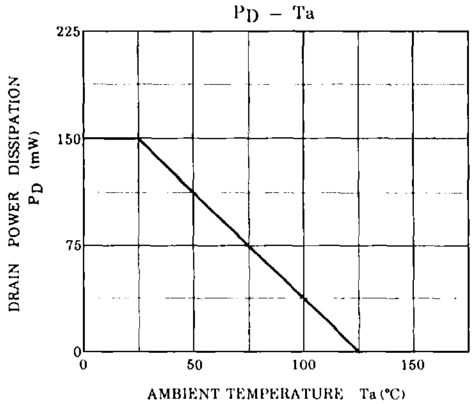


Y_{rs} – V_{GS}




$Y_{fs} - f$


$Y_{rs} - f$


$P_D - Ta$

Marking