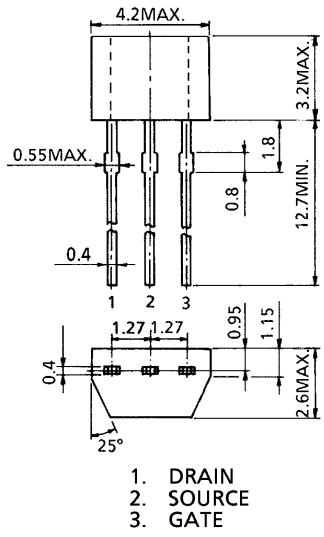
TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK241

FM TUNER, VHF AND 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} = 28dB (Typ.)
- Recommend Operation Voltage : 5~15 V

Unit in mm



1. DRAIN
2. SOURCE
3. GATE

JEDEC	—
EIAJ	—
TOSHIBA	2-4E1D

Weight : 0.13 g

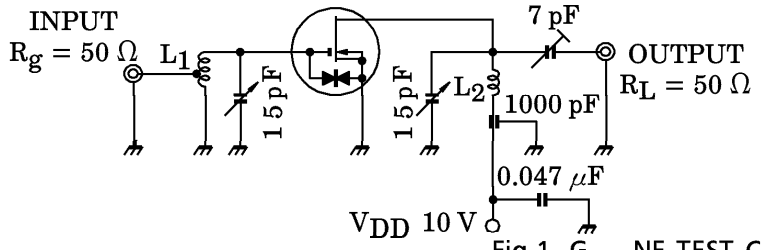
MAXIMUM RATINGS (Ta = 25°C)

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	200	mW
Chanel Temperature	T_{ch}	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_{DS} = 0, V_{GS} = ±5 V	—	—	±50	nA
Drain-Source Voltage	V_{DSX}	V_{GS} = −4 V, I_D = 100 μA	20	—	—	V
Drain Current	I_{DSS}	V_{DS} = 10 V, V_{GS} = 0 (Note)	1.5	—	14	mA
Gate-Source Cut-off Voltage	$V_{GS\,(OFF)}$	V_{DS} = 10 V, I_D = 100 μA	—	—	−2.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 10 V, V_{GS} = 0, f = 1 kHz	—	10	—	mS
Input Capacitance	C_{iss}	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz	—	3.0	—	pF
Reverse Transfer Capacitance	C_{rss}		—	0.035	0.050	pF
Power Gain	G_{ps}	V_{DS} = 10 V, V_{GS} = 0, f = 100 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 : 1.0 mmϕ SILVER PLATED COPPER WIRE 4.0T, 8 mmϕ ID TAPAT 1.0T FROM COLD END

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

Fig.1 G_{ps}, NF TEST CIRCUIT

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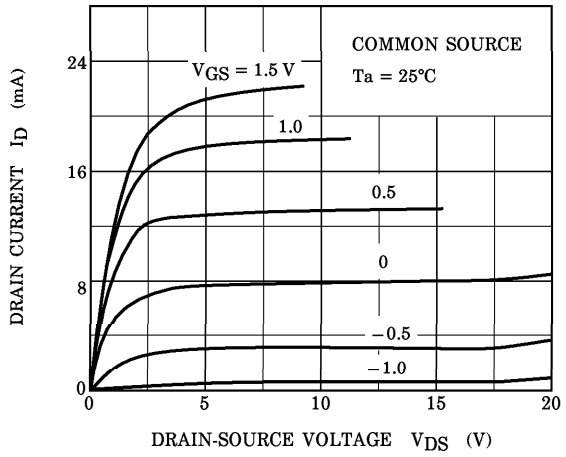
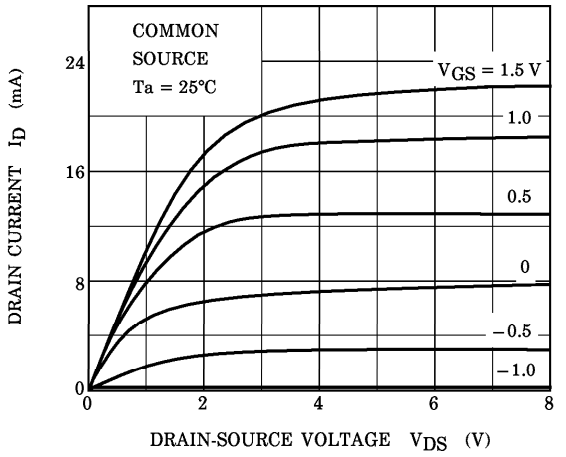
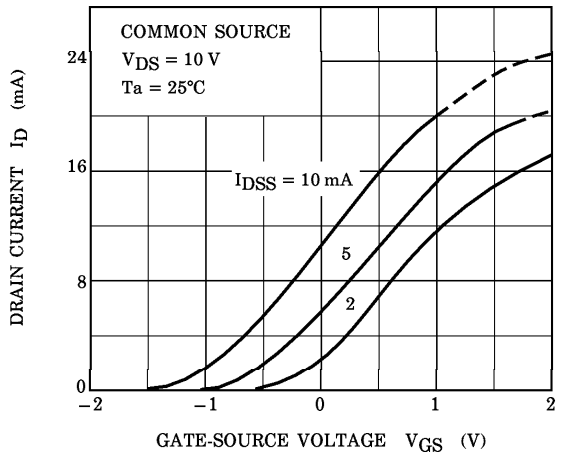
$I_D - V_{DS}$



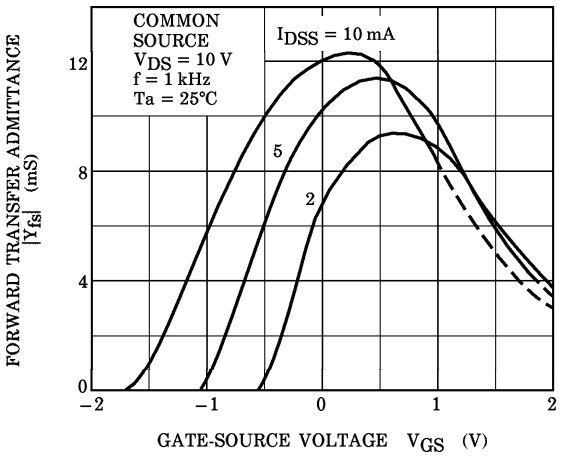
$I_D - V_{DS}$



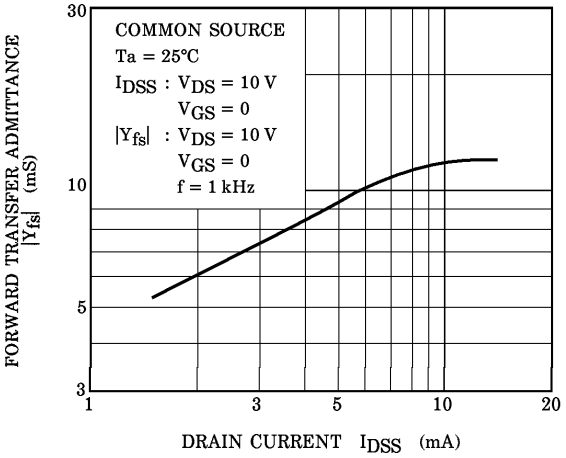
$I_D - V_{GS}$



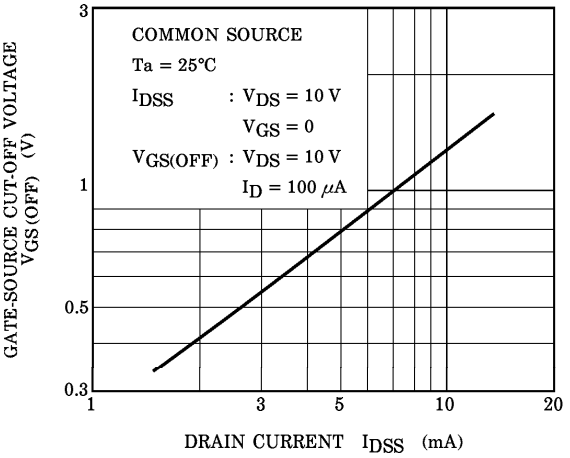
$|Y_{fs}| - V_{GS}$



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



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



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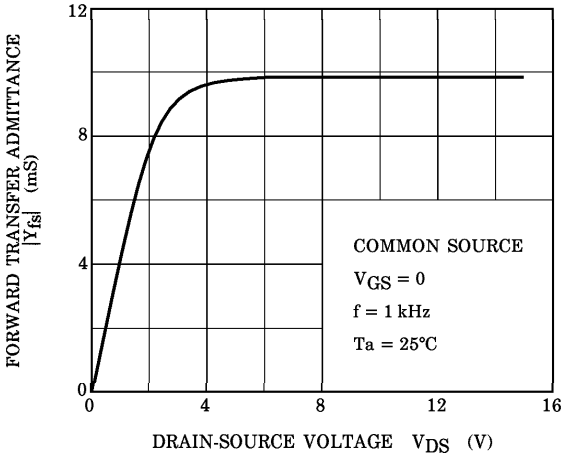
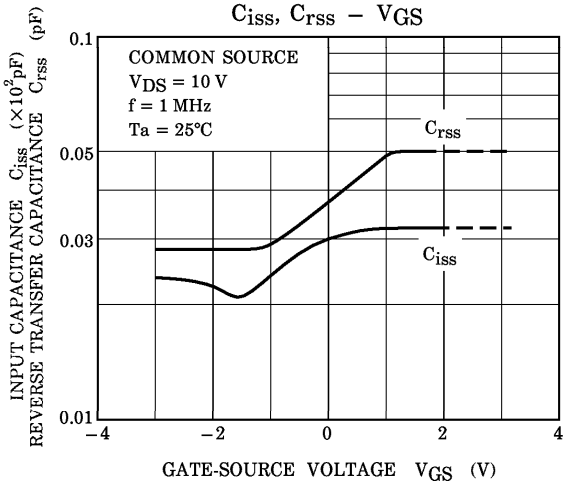
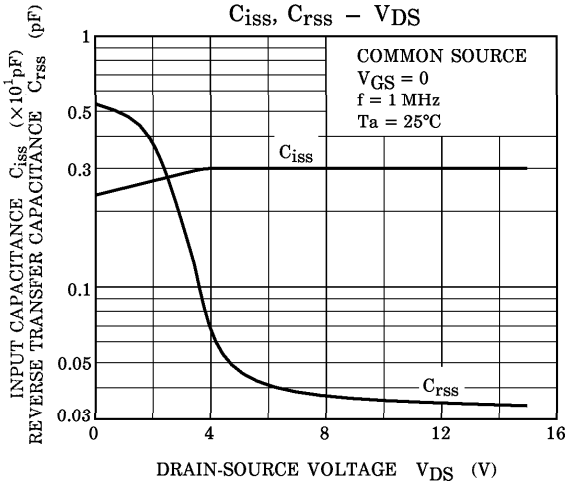
$|Y_{fs}|$ – V_{DS}



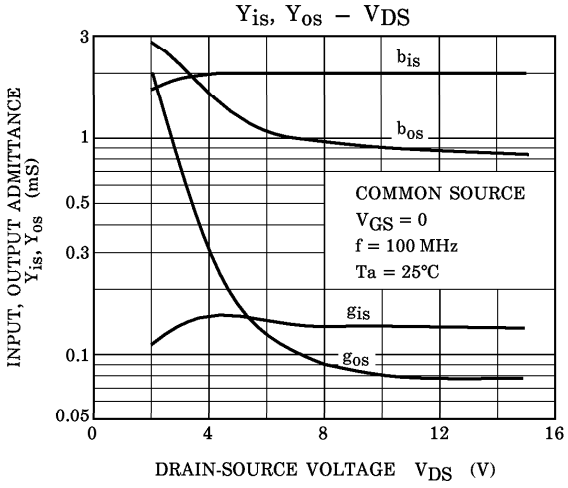
C_{iss}, C_{rss} – V_{GS}



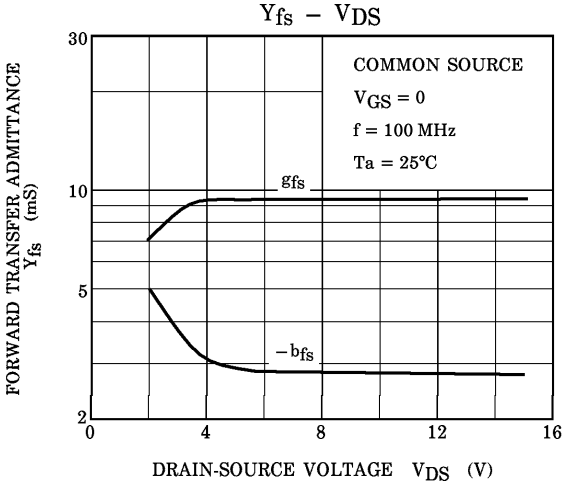
C_{iss}, C_{rss} – V_{DS}



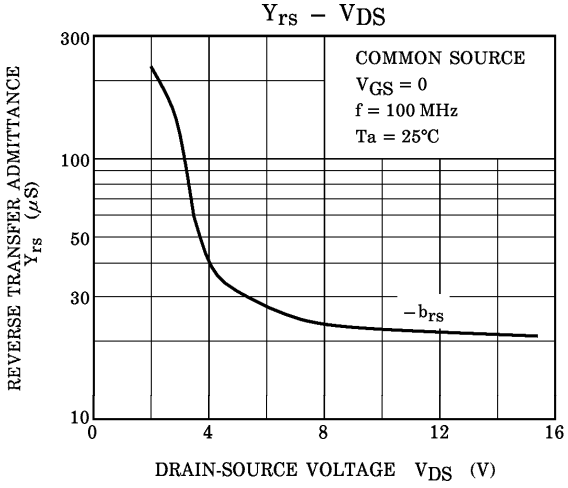
Y_{is}, Y_{os} – V_{DS}



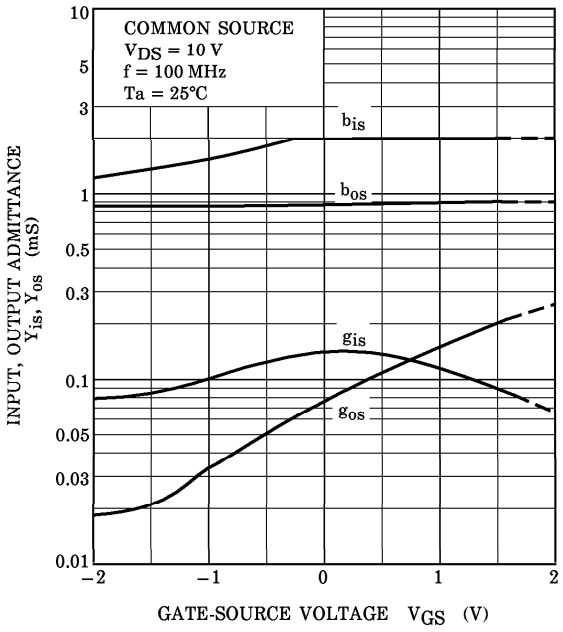
Y_{fs} – V_{DS}



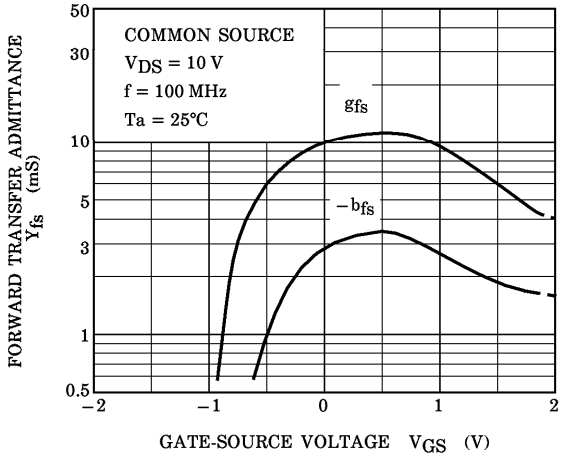
Y_{rs} – V_{DS}



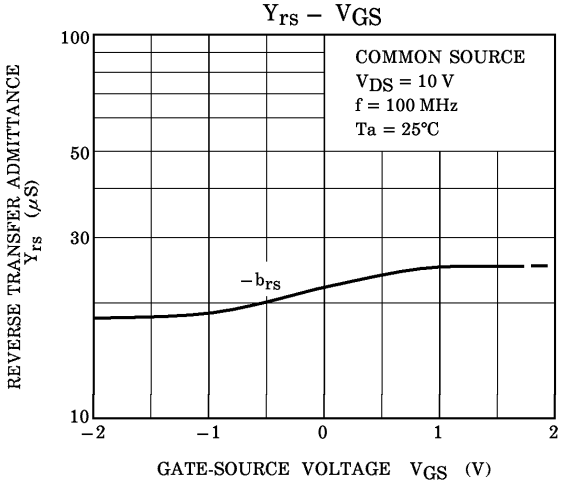
$Y_{is}, Y_{os} - V_{GS}$



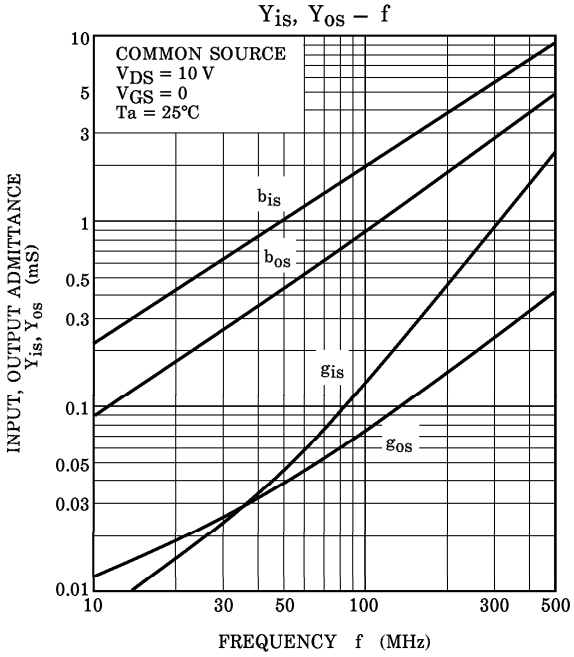
$Y_{fs} - V_{GS}$



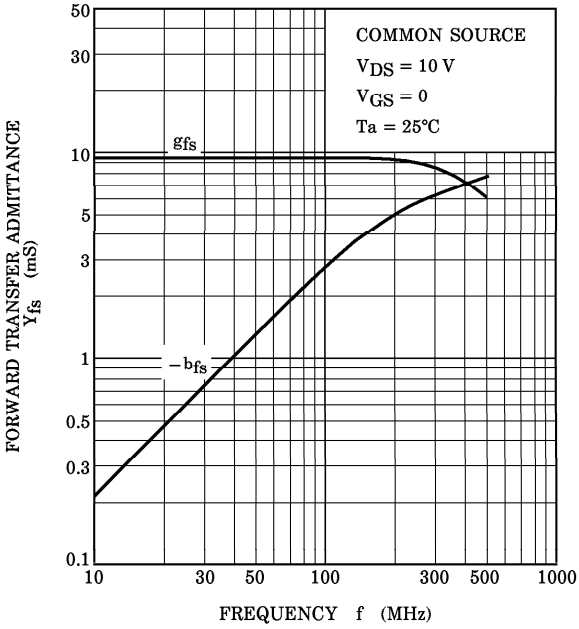
$Y_{rs} - V_{GS}$



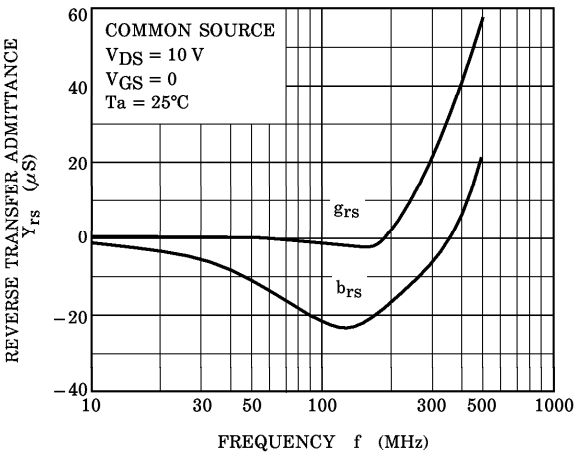
$Y_{is}, Y_{os} - f$



Y_{fs} – f



Y_{rs} – f



P_D – Ta