

2SK302

FM Tuner, VHF RF Amplifier Applications

- 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: 5~15 V

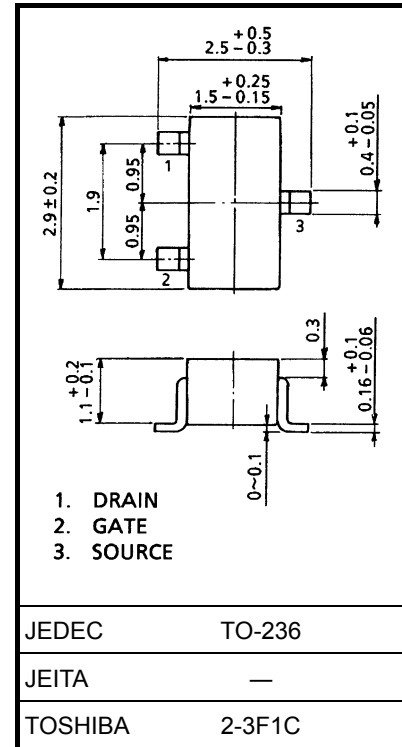
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristics	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	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~125	$^\circ\text{C}$

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm

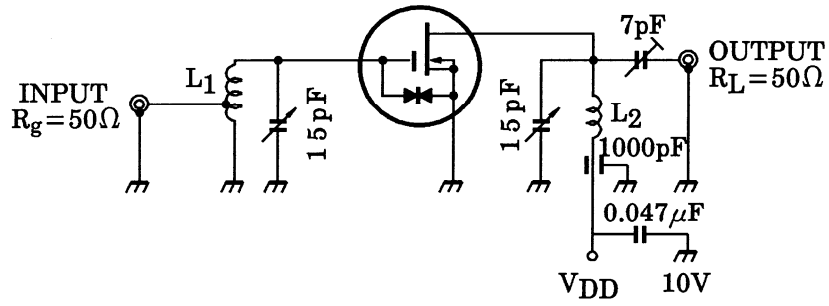


Weight: 0.012 g (typ.)

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 5 \text{ V}$	—	—	± 50	nA
Drain-source voltage	V_{DSX}	$V_{GS} = -4 \text{ V}, I_D = 100 \mu\text{A}$	20	—	—	V
Drain current	I_{DSS} (Note)	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}$	1.5	—	14	mA
Gate-source cut-off voltage	$V_{GS(OFF)}$	$V_{DS} = 10 \text{ V}, I_D = 100 \mu\text{A}$	—	—	-2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ kHz}$	—	10	—	mS
Input capacitance	C_{iss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$	—	3.0	—	pF
Reverse transfer capacitance	C_{rss}		—	0.035	0.050	pF
Power gain	G_{ps}	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V},$ $f = 100 \text{ MHz}$ (Figure 1)	—	28	—	dB
Noise figure	NF		—	1.7	3.0	dB

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

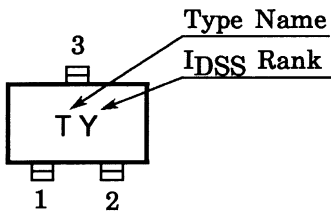


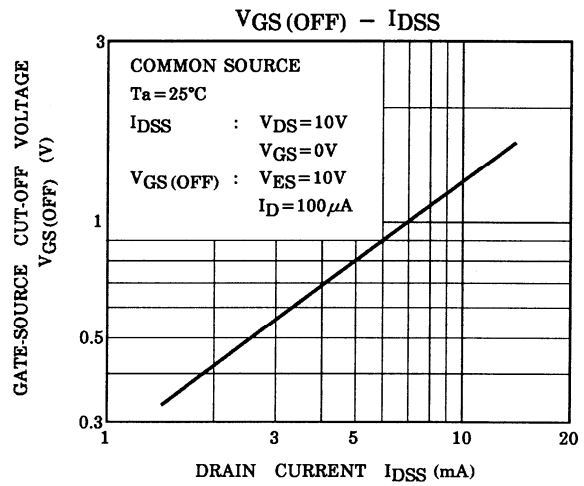
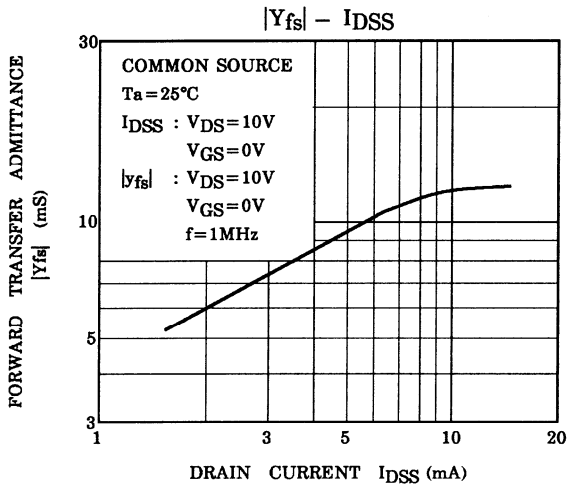
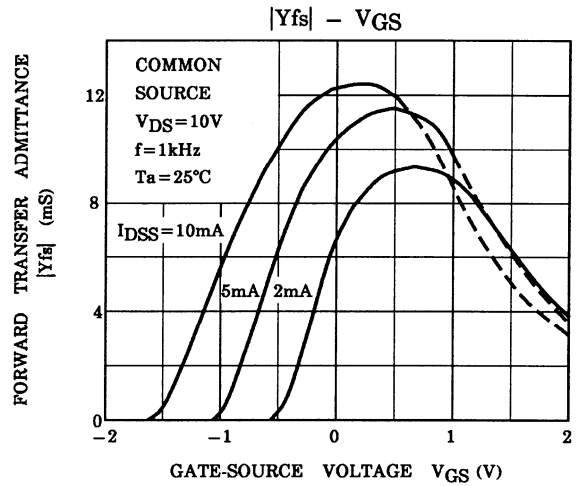
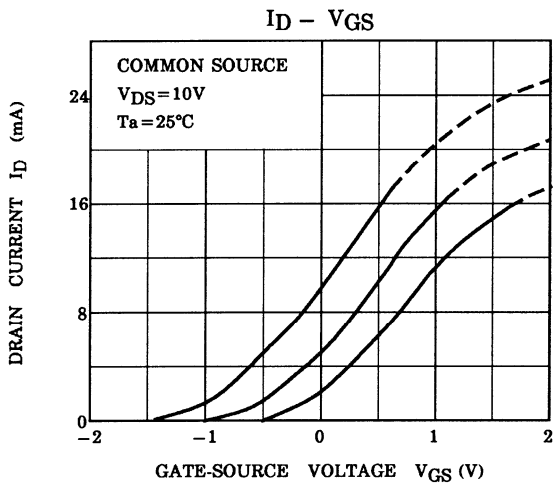
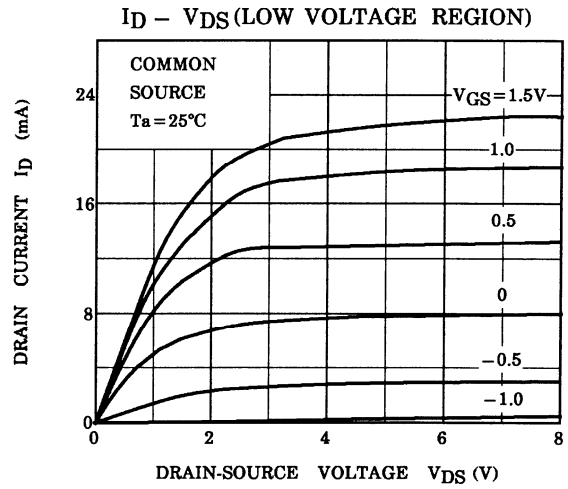
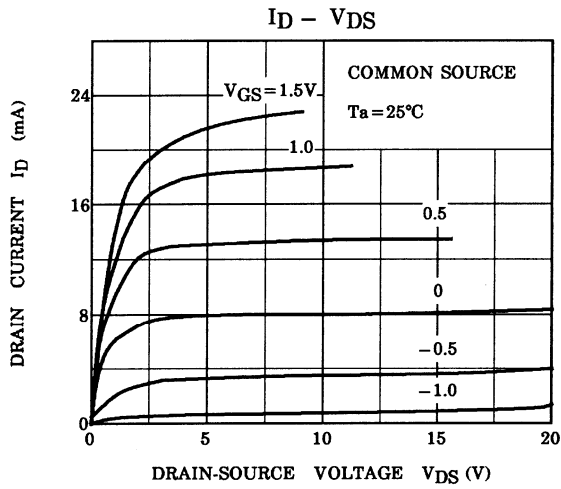
L1: 1.0 mmφ silver plated copper wire 4.0 T, 8 mmφ ID TAP at 1.0 T from coil end

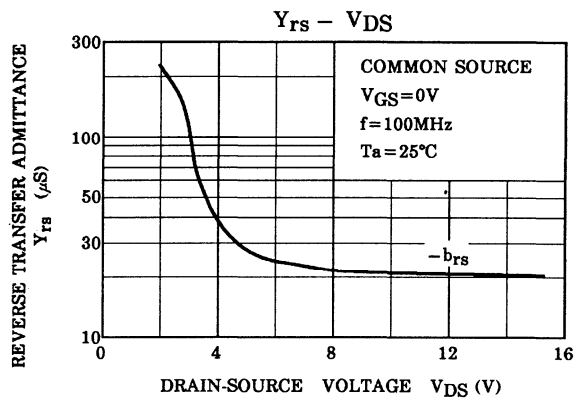
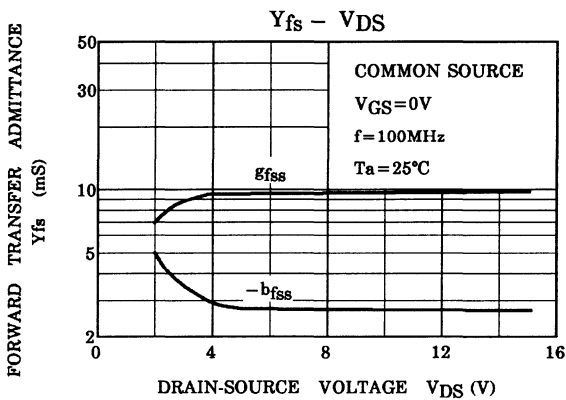
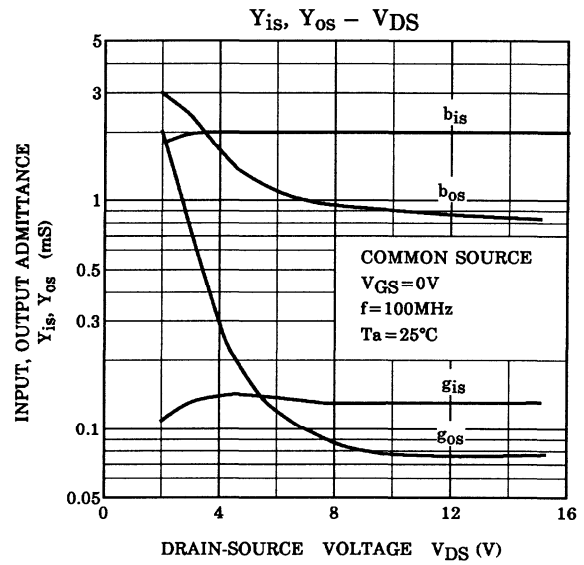
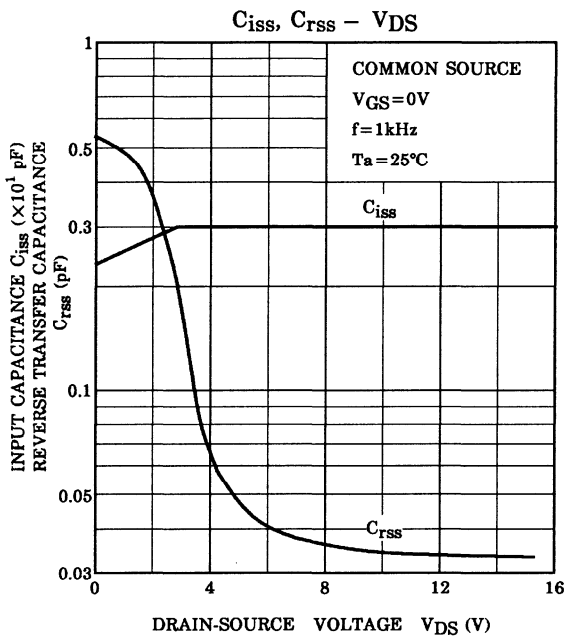
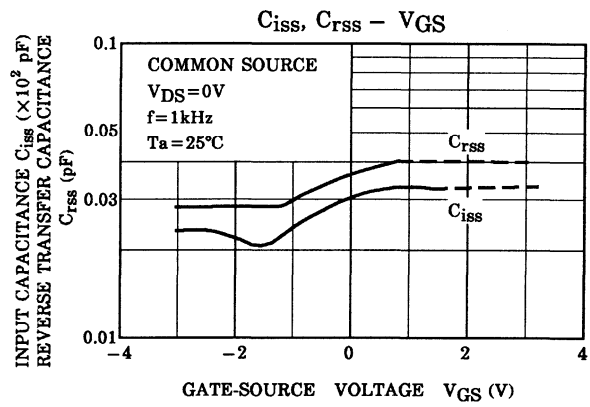
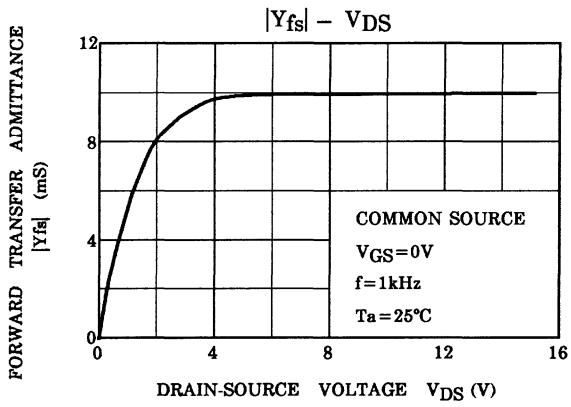
L2: 1.0 mmφ silver plated copper wire 3.0 T, 8 mmφ ID, 10 mm length

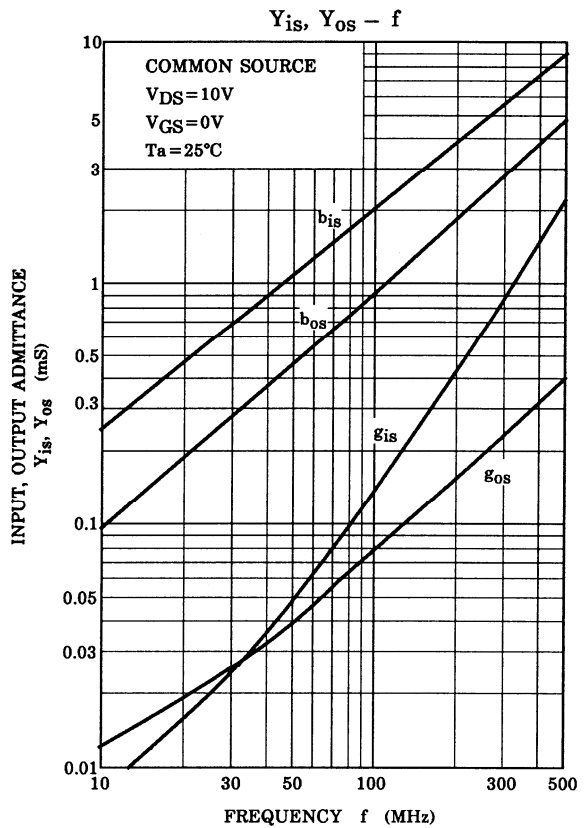
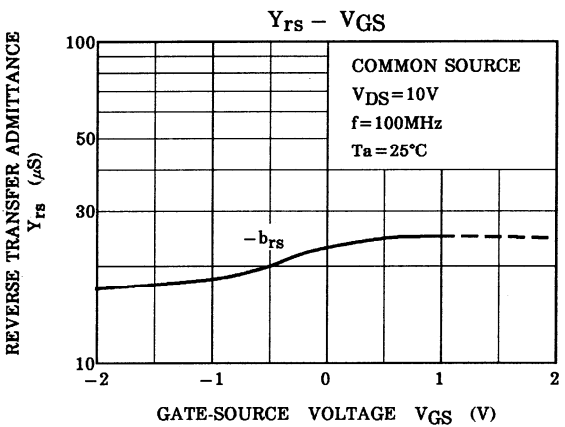
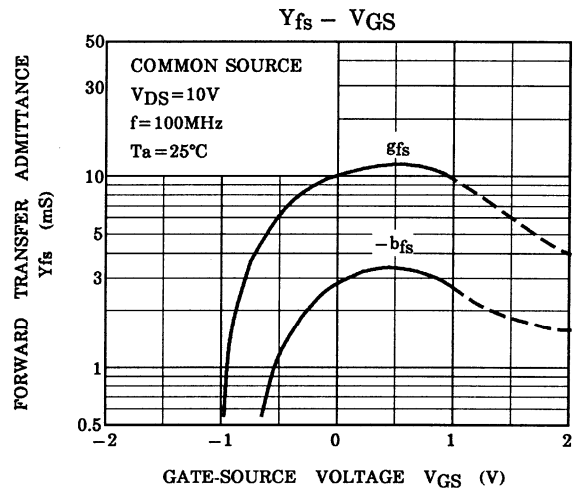
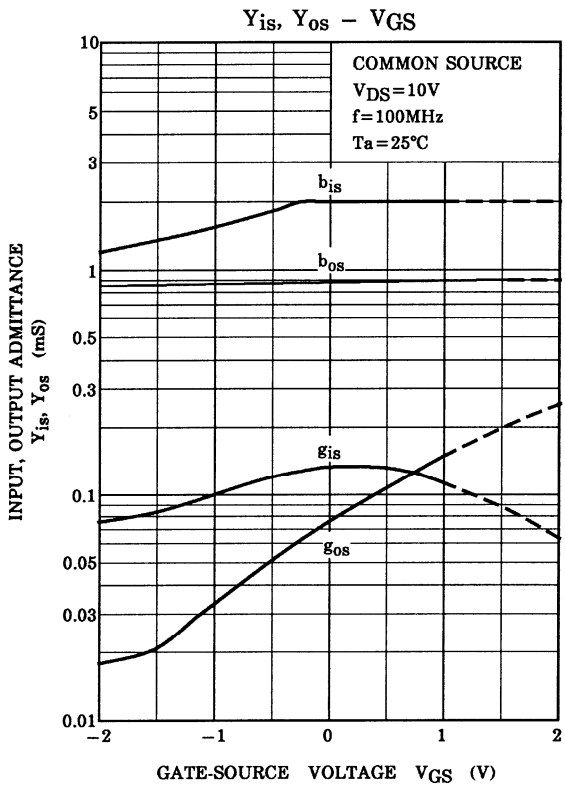
Figure 1 Gps, NF Test Circuit

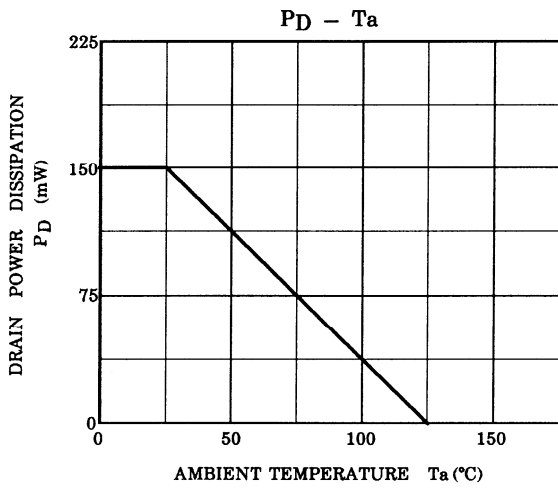
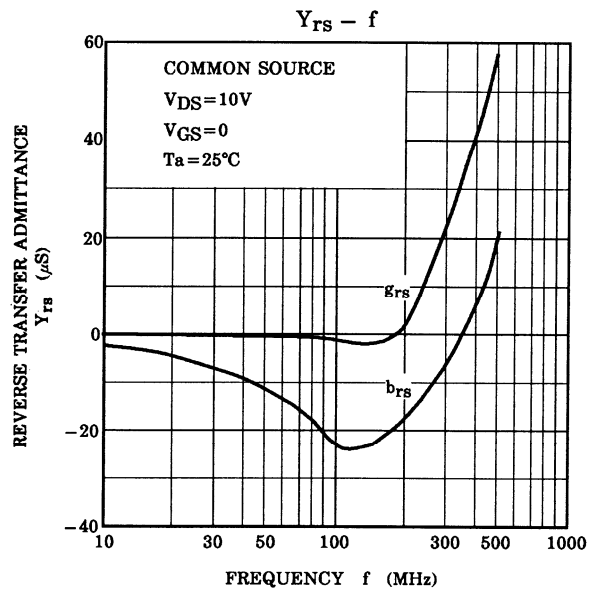
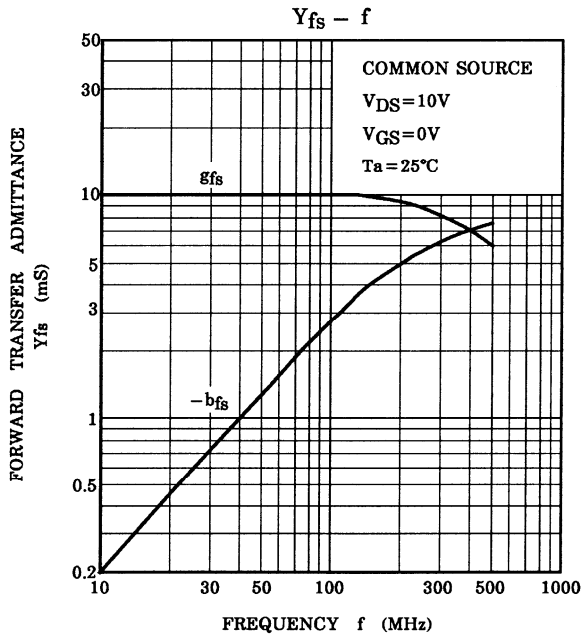
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