

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

# 2SK241

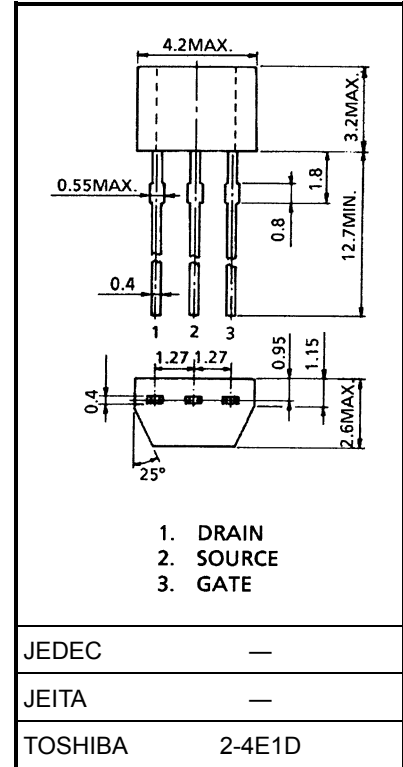
FM Tuner, VHF and RF Amplifier Applications

Unit: mm

- 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: 5~15 V

## Maximum Ratings (Ta = 25°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	$P_D$	200	mW
Channel temperature	$T_{ch}$	125	°C
Storage temperature range	$T_{stg}$	-55~125	°C

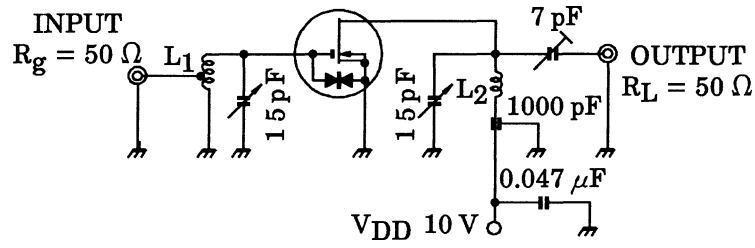


## Electrical Characteristics (Ta = 25°C)

Weight: 0.13 g (typ.)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	$I_{GSS}$	$V_{DS} = 0, V_{GS} = \pm 5$ V	—	—	±50	nA
Drain-source voltage	$V_{DSX}$	$V_{GS} = -4$ V, $I_D = 100$ $\mu$ A	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, $I_D = 100$ $\mu$ A	—	—	-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 (Figure 1)	—	28	—	dB
Noise figure	NF		—	1.7	3.0	dB

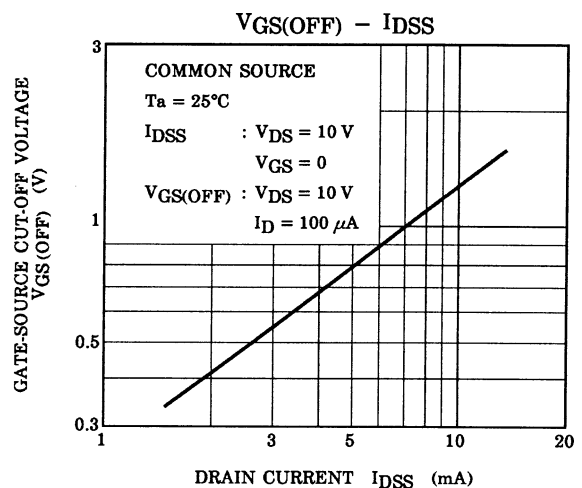
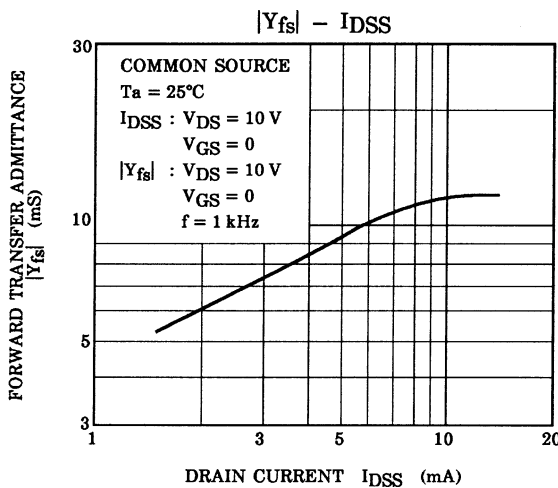
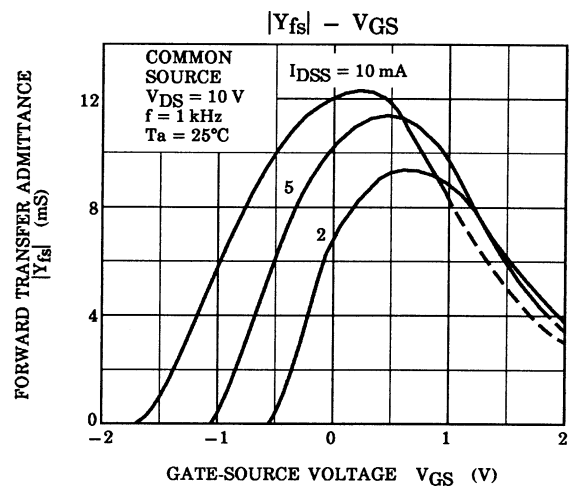
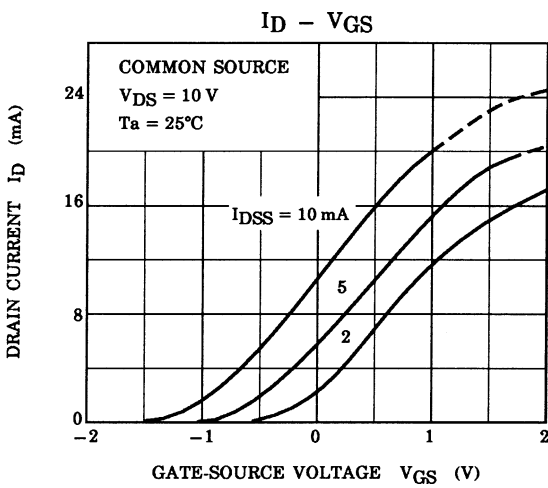
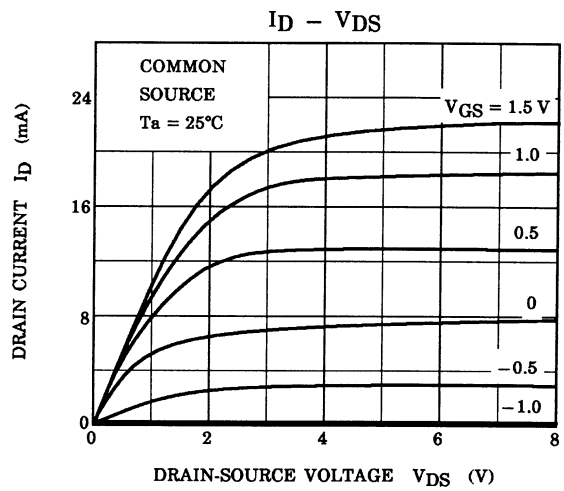
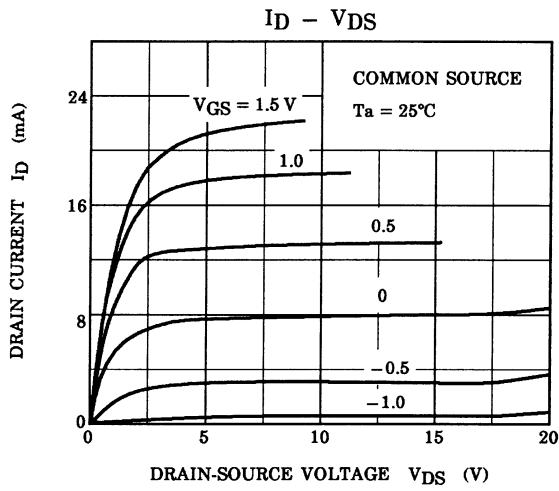
Note:  $I_{DSS}$  classification O: 1.5~3.5, Y: 3.0~7.0, GR: 6.0~14.0

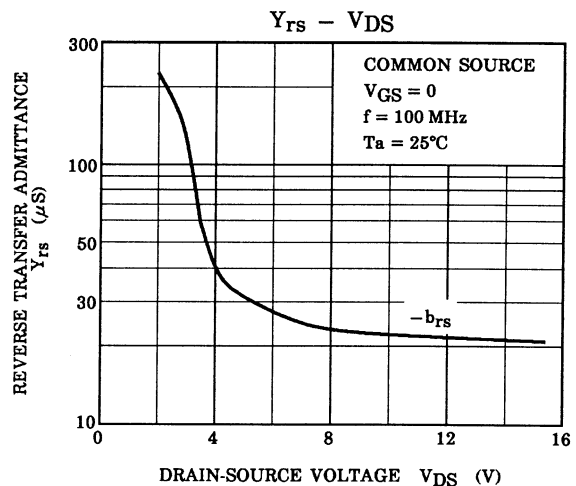
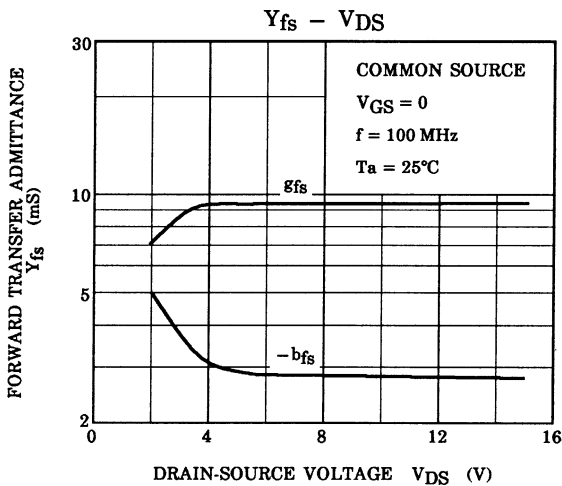
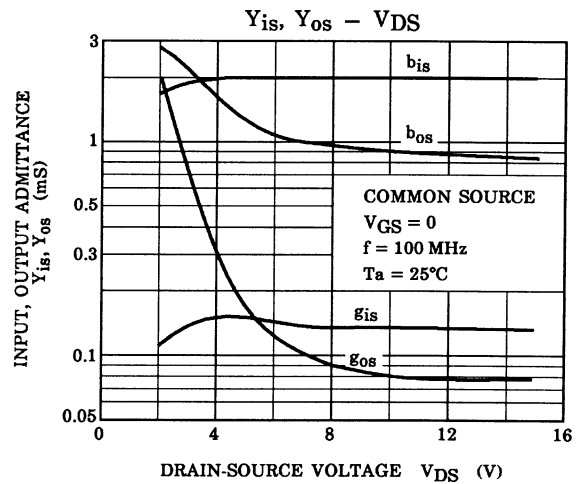
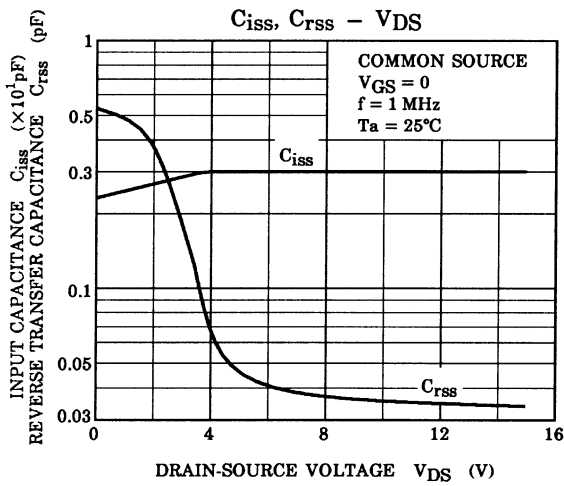
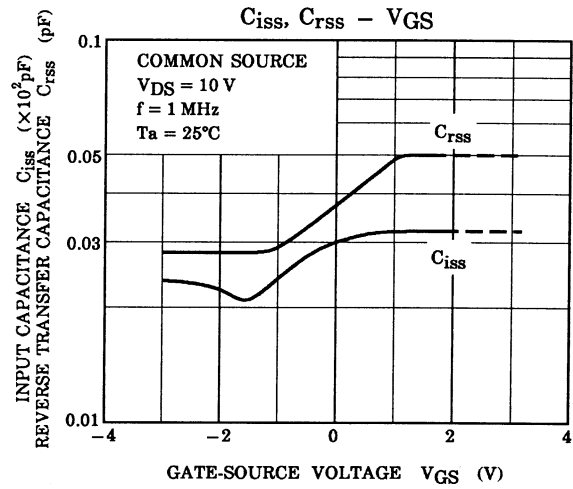
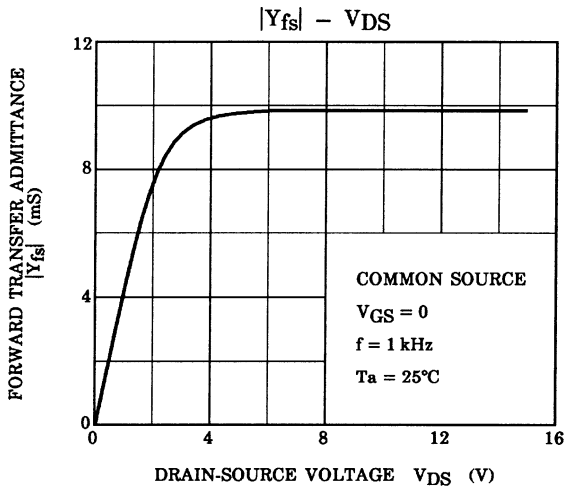


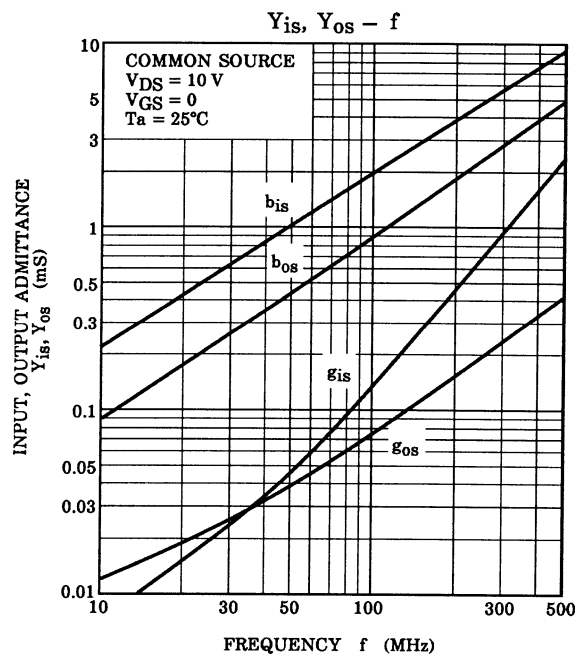
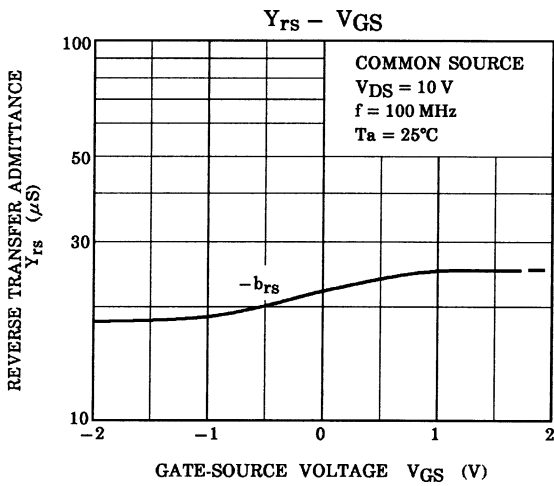
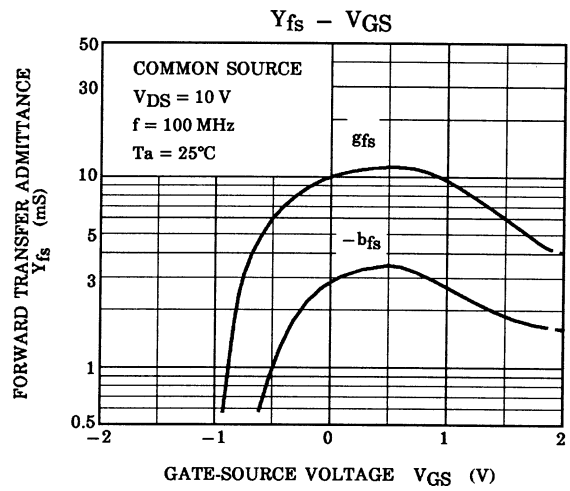
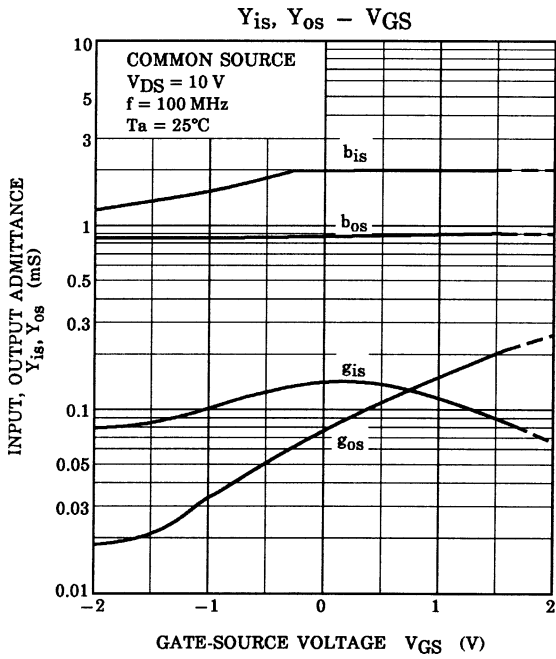
L<sub>1</sub>: 1.0 mmφ silver plated copper wire 4.0 T, 8 mmφ ID TAP at 1.0 T from coil end

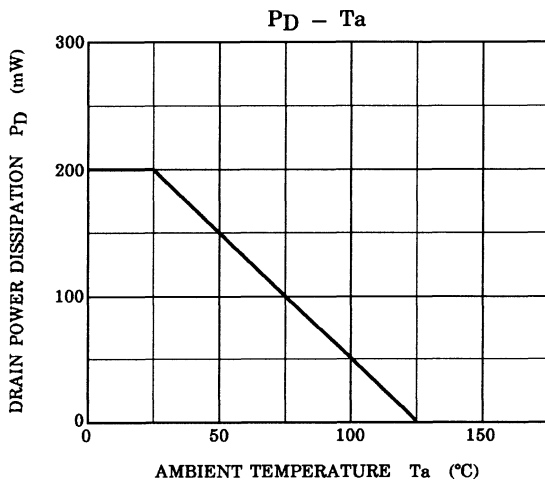
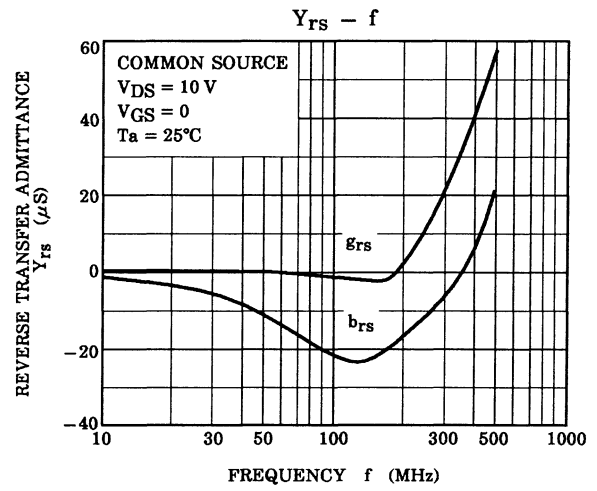
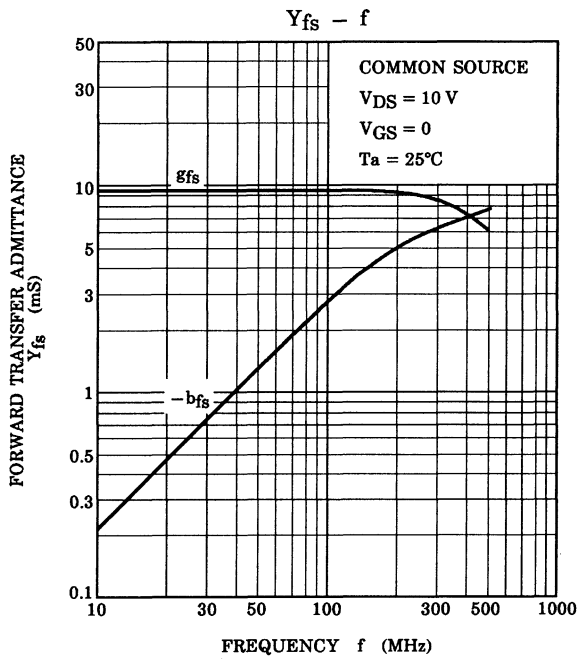
L<sub>2</sub>: 1.0 mmφ silver plated copper wire 3.0 T, 8 mmφ ID, 10 mm length

**Figure 1 G<sub>ps</sub>, NF Test Circuit**









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