

TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

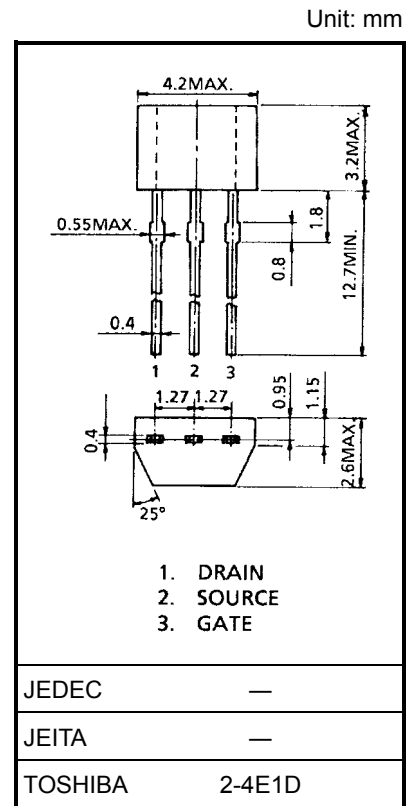
# 2SK161

FM Tuner Applications  
VHF Band Amplifier Applications

- Low noise figure: NF = 2.5dB (typ.) (f = 100 MHz)
- High forward transfer admittance:  $|Y_{fs}| = 9 \text{ mS}$  (typ.)
- Extremely low reverse transfer capacitance:  $C_{rss} = 0.1 \text{ pF}$  (typ.)

### Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V <sub>GDO</sub>	-18	V
Gate current	I <sub>G</sub>	10	mA
Drain power dissipation	P <sub>D</sub>	200	mW
Junction temperature	T <sub>j</sub>	125	°C
Storage temperature range	T <sub>stg</sub>	-55~125	°C

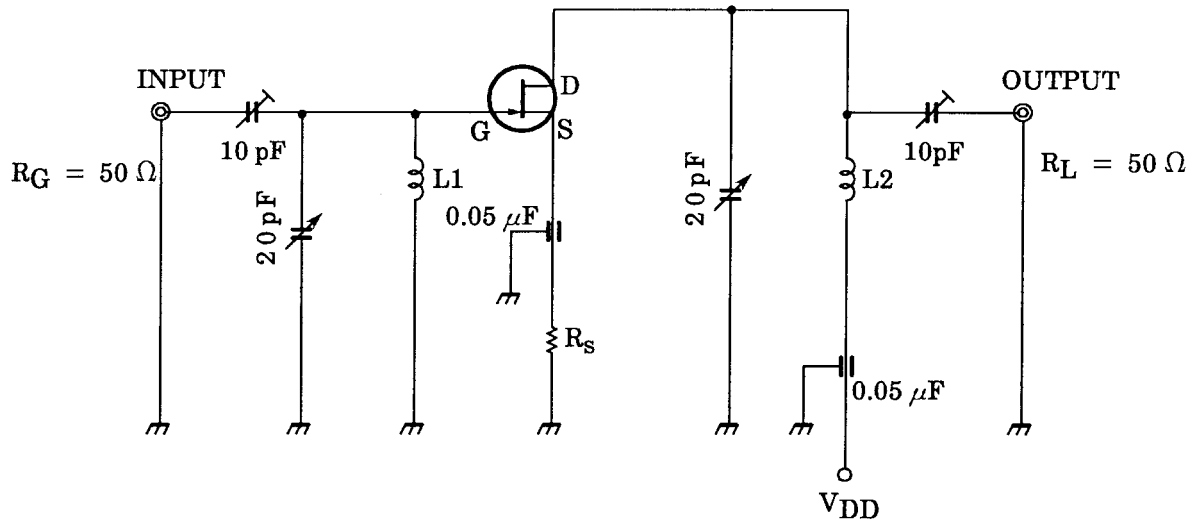


### Electrical Characteristics (Ta = 25°C)

Weight: 0.13 g (typ.)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = -0.5 V, V <sub>DS</sub> = 0	—	—	-10	nA
Gate-drain breakdown voltage	V <sub>(BR) GDO</sub>	I <sub>G</sub> = -100 μA	-18	—	—	V
Drain current	I <sub>DSS</sub> (Note)	V <sub>GS</sub> = 0, V <sub>DS</sub> = 10 V	1.0	—	10	mA
Gate-source cut-off voltage	V <sub>GS (OFF)</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 μA	-0.4	—	-4.0	V
Forward transfer admittance	Y <sub>fs</sub>	V <sub>GS</sub> = 0, V <sub>DS</sub> = 10 V, f = 1 kHz	—	9	—	mS
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0, f = 1 MHz	—	6.0	—	pF
Reverse transfer capacitance	C <sub>rss</sub>	V <sub>GD</sub> = -10 V, f = 1 MHz	—	0.10	0.15	pF
Power gain	G <sub>PS</sub>	V <sub>DD</sub> = 10 V, f = 100 MHz (Figure 1)	—	18	—	dB
Noise figure	NF	V <sub>DD</sub> = 10 V, f = 100 MHz (Figure 1)	—	2.5	3.5	dB

Note: I<sub>DSS</sub> classification O: 1.0~3.0 mA, Y: 2.5~6.0 mA, GR: 5.0~10.0 mA



L1: 0.8 mmφ Ag plated Cu wire, 3 turns, 10 mm ID, 10 mm length.

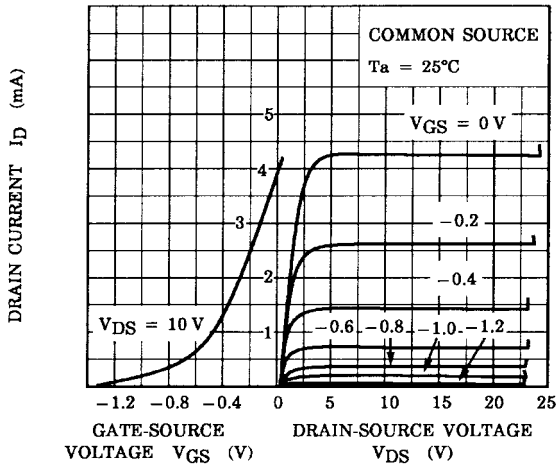
L2: 0.8 mmφ Ag plated Cu wire, 3 turns, 10 mm ID, 10 mm length.

**Figure 1 100 MHz Gps, NF Test Circuit**

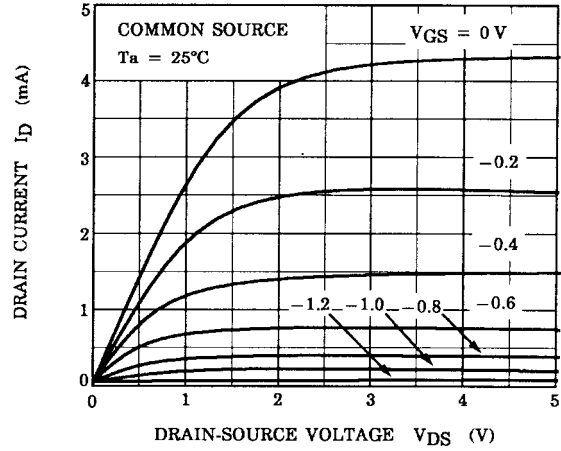
2SK161 is measured at each group by changing RS

Group	RS (Ω)
2SK161-O	0
2SK161-Y	18 Ω ± 5%
2SK161-GR	100 Ω ± 5%

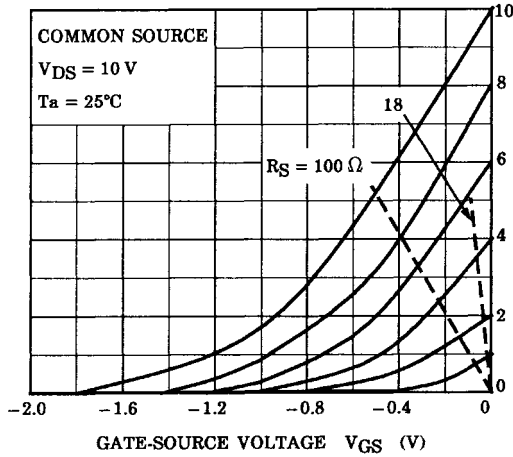
STATIC CHARACTERISTICS



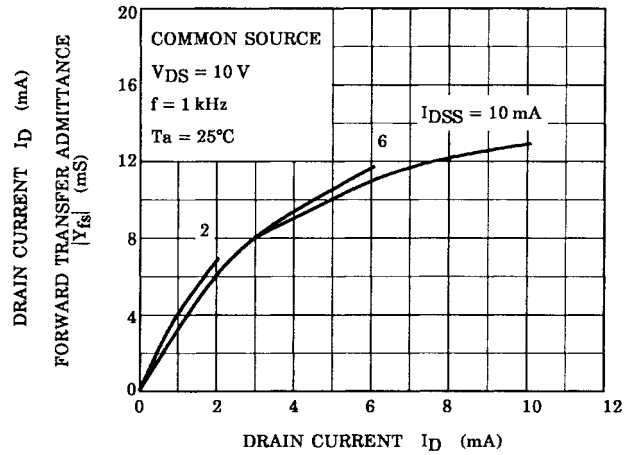
ID - VDS (LOW VOLTAGE REGION)



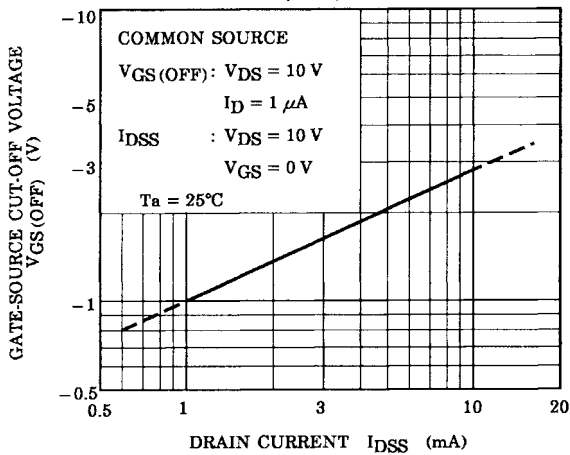
ID - VGS



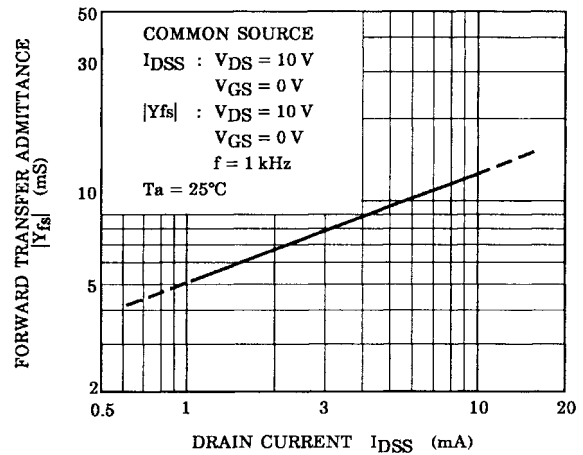
|Yfs| - ID

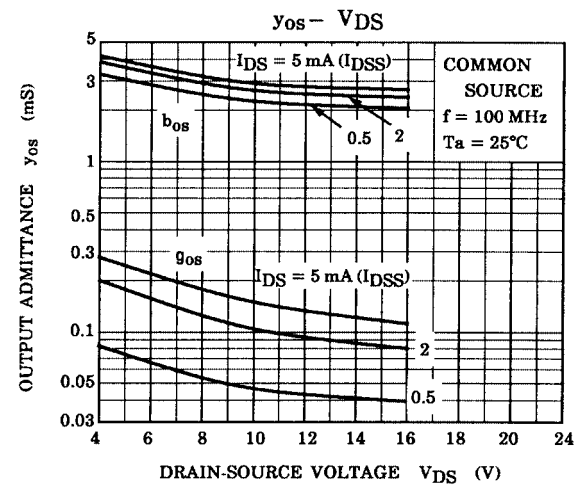
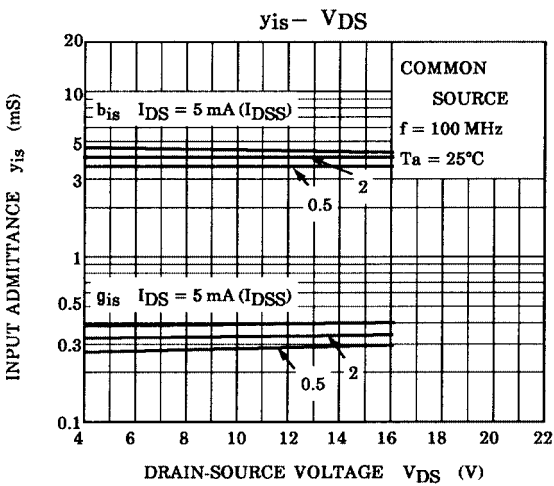
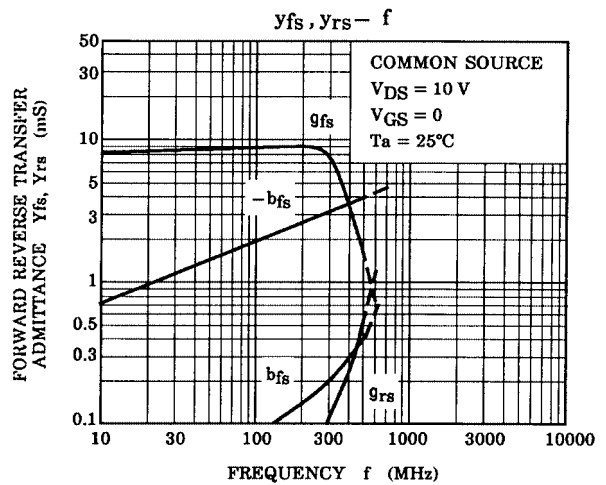
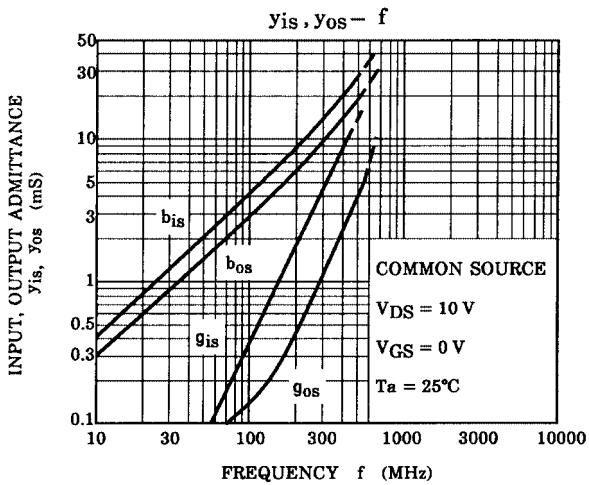
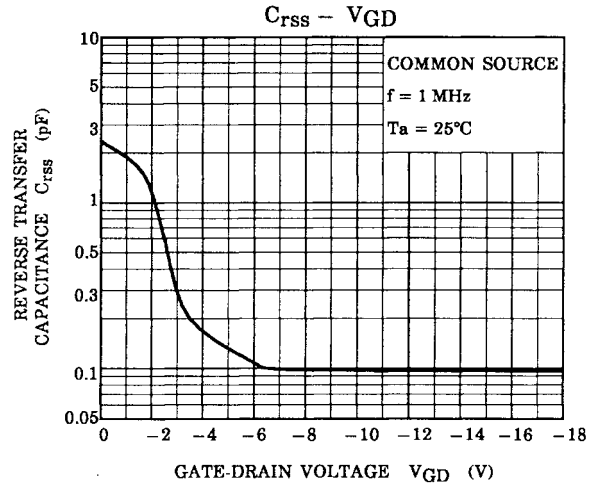
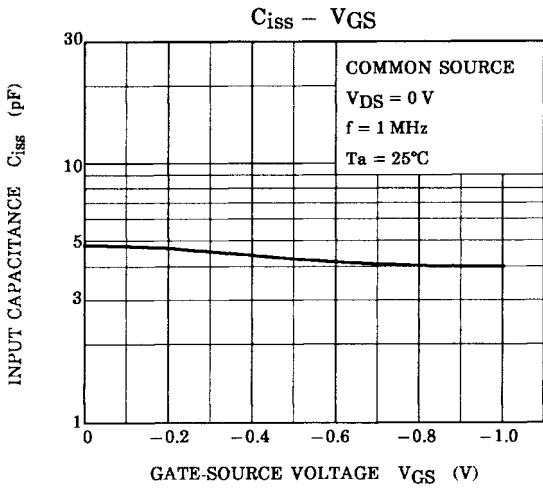


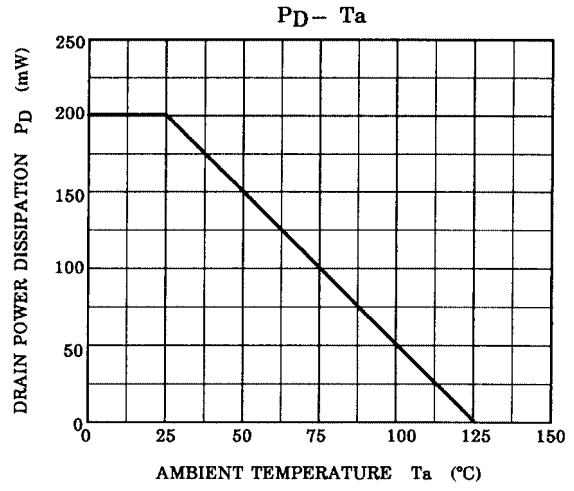
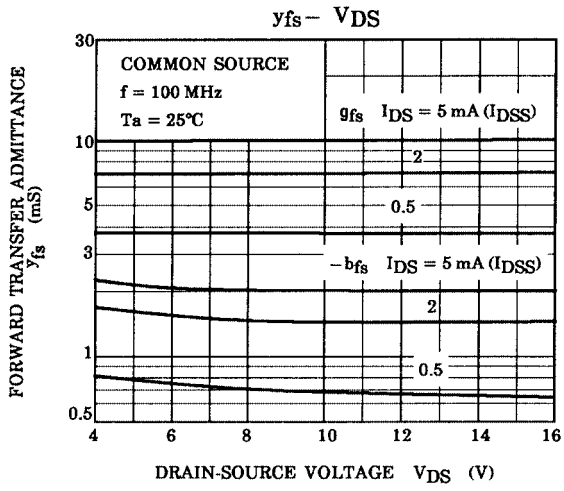
VGS(OFF) - IDSS



|Yfs| - IDSS







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