TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

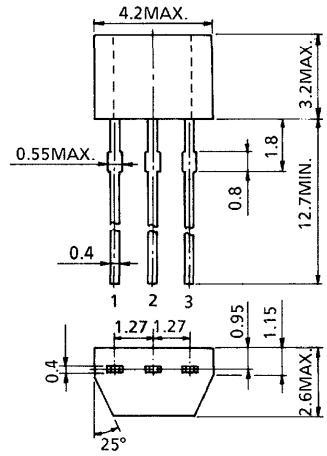
2SK161

FM TUNER APPLICATIONS

VHF BAND AMPLIFIER APPLICATIONS

- Low Noise Figure : NF = 2.5dB (Typ.) (f = 100 MHz)
- High Forward Transfer Admittance : $|Y_{fs}|$ = 9 mS (Typ.)
- Extremely Low Reverse Transfer Capacitance : C_{rss} = 0.1 pF (Typ.)

Unit in mm



1. DRAIN
2. SOURCE
3. GATE

JEDEC	—
JEITA	—
TOSHIBA	2-4E1D

Weight : 0.13 g

MAXIMUM RATINGS (Ta = 25°C)

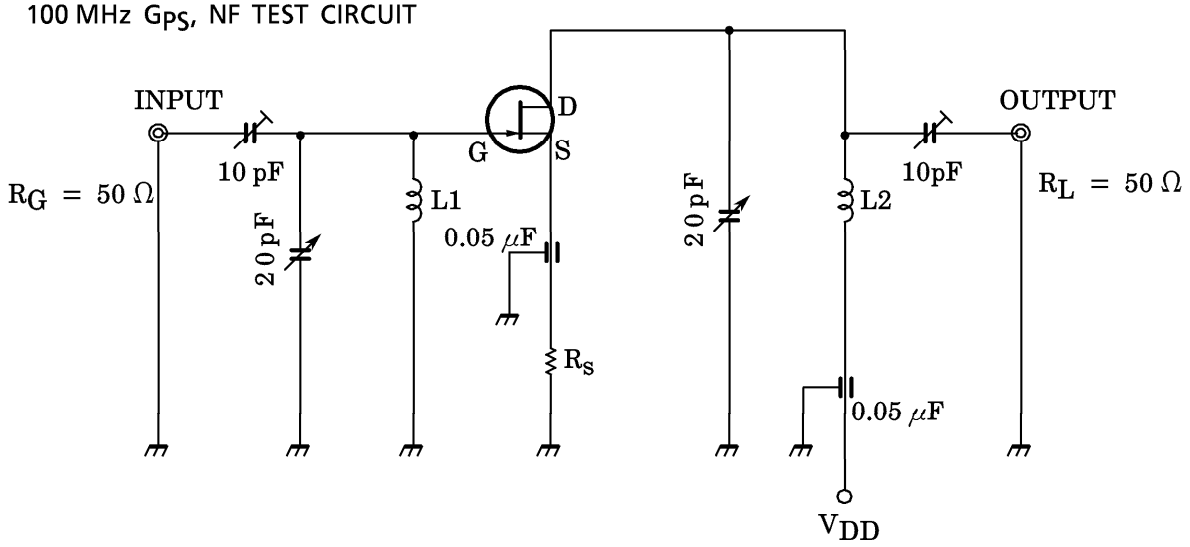
CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V_{GDO}	−18	V
Gate Current	I_G	10	mA
Drain Power Dissipation	P_D	200	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	V_{GS} = −0.5 V, V_{DS} = 0	—	—	−10	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDO}$	I_G = −100 μA	−18	—	—	V
Drain Current	I_{DSS} (Note)	V_{GS} = 0, V_{DS} = 10 V	1.0	—	10	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	V_{DS} = 10 V, I_D = 1 μA	−0.4	—	−4.0	V
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{GS} = 0, V_{DS} = 10 V, f = 1 kHz	—	9	—	mS
Input Capacitance	C_{iss}	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz	—	6.0	—	pF
Reverse Transfer Capacitance	C_{rss}	V_{GD} = −10 V, f = 1 MHz	—	0.10	0.15	pF
Power Gain	G_{PS}	V_{DD} = 10 V, f = 100 MHz (Fig.)	—	18	—	dB
Noise Figure	NF	V_{DD} = 10 V, f = 100 MHz (Fig.)	—	2.5	3.5	dB

(Note) : I_{DSS} Classification O : 1.0~3.0 mA, Y : 2.5~6.0 mA, GR : 5.0~10.0 mA

Fig.1 100 MHz G_{PS}, NF TEST CIRCUIT



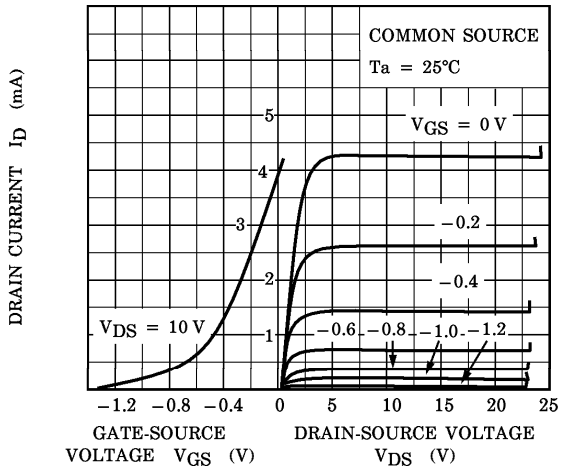
L_1 : 0.8 mmϕ A_g PLATED Cu WIRE, 3 TURNS, 10 mm ID, 10 mm LENGTH.

L_2 : 0.8 mmϕ A_g PLATED Cu WIRE, 3 TURNS, 10 mm ID, 10 mm LENGTH.

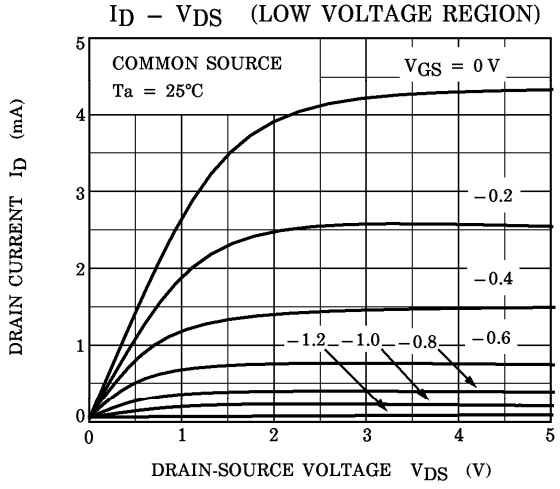
2SK161 is measured at each group by changing R_S

GROUP	R_S (Ω)
2SK161-O	0
2SK161-Y	18 Ω ± 5%
2SK161-GR	100 Ω ± 5%

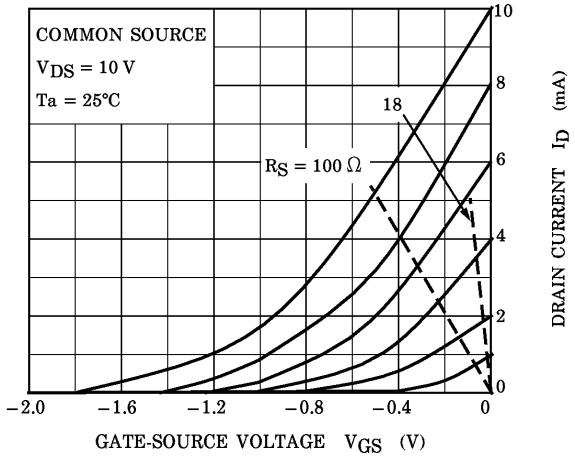
STATIC CHARACTERISTICS



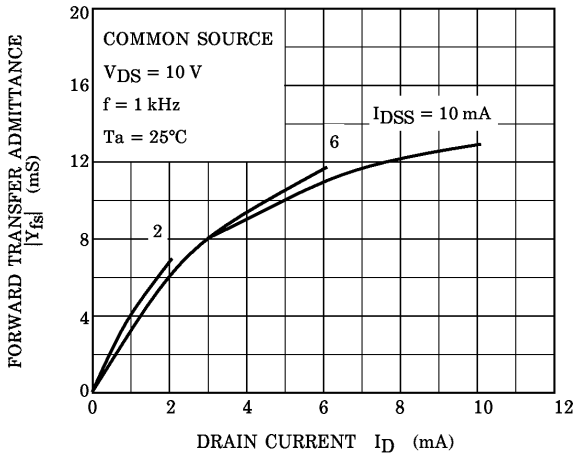
I_D – V_{DS} (LOW VOLTAGE REGION)



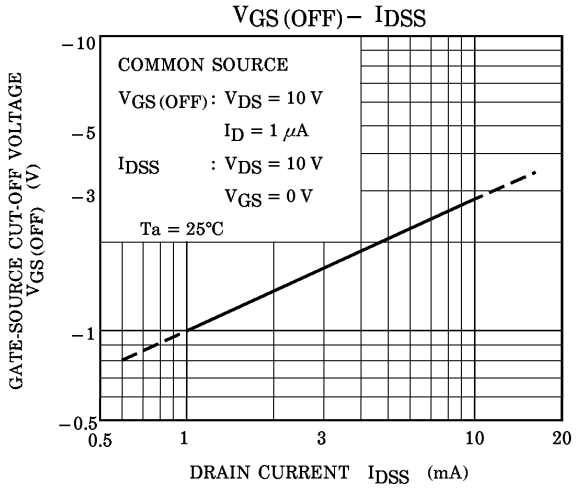
$I_D - V_{GS}$



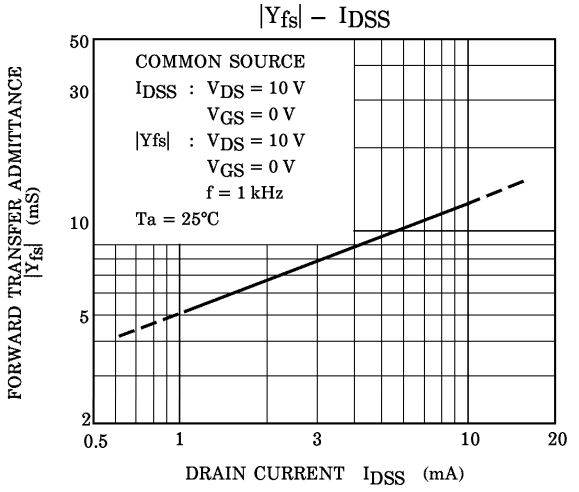
$|Y_{fs}| - I_D$



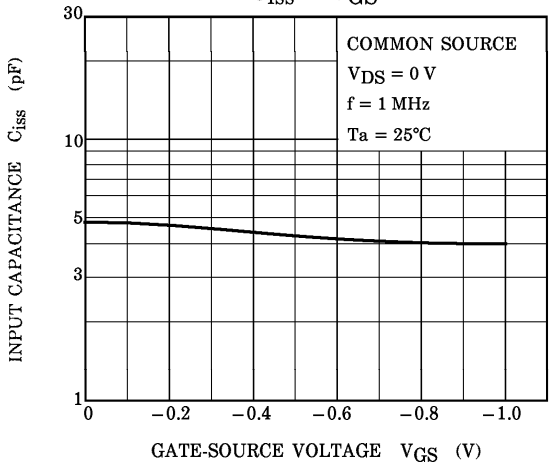
$V_{GS(OFF)} - I_{DSS}$



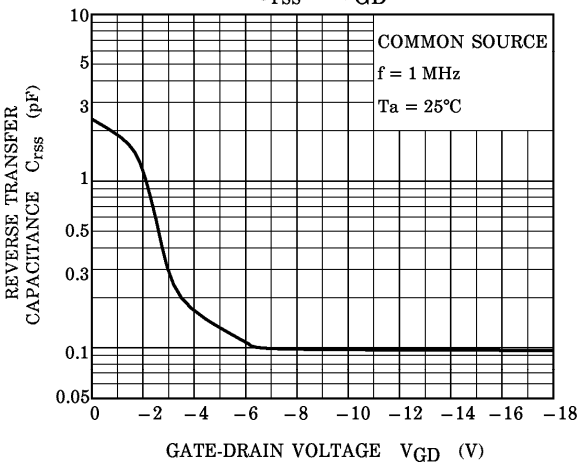
$|Y_{fs}| - I_{DSS}$



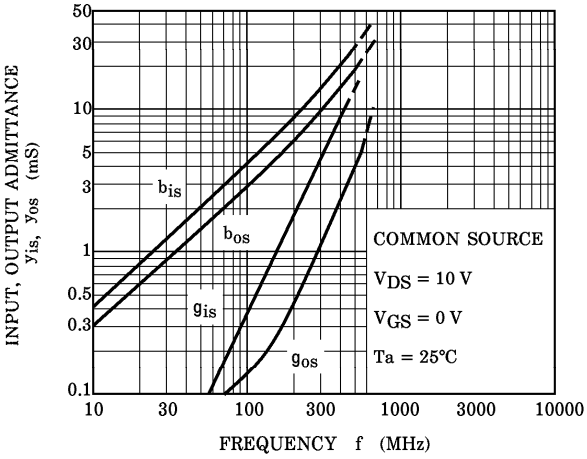
$C_{iss} - V_{GS}$



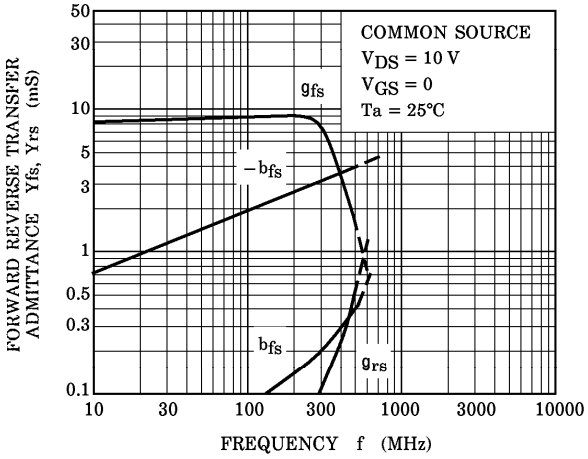
$C_{rss} - V_{GD}$



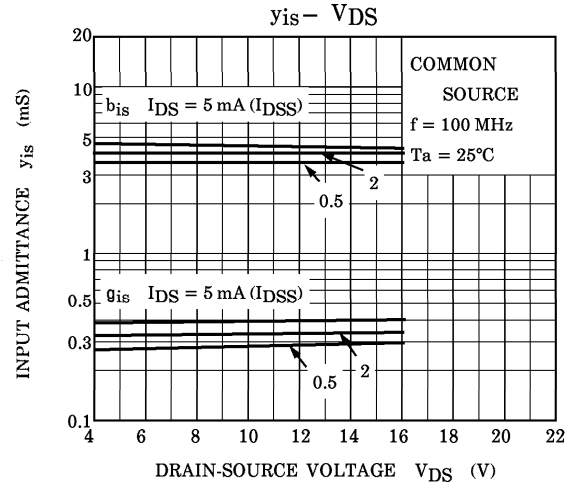
y_{is}, y_{os} – f



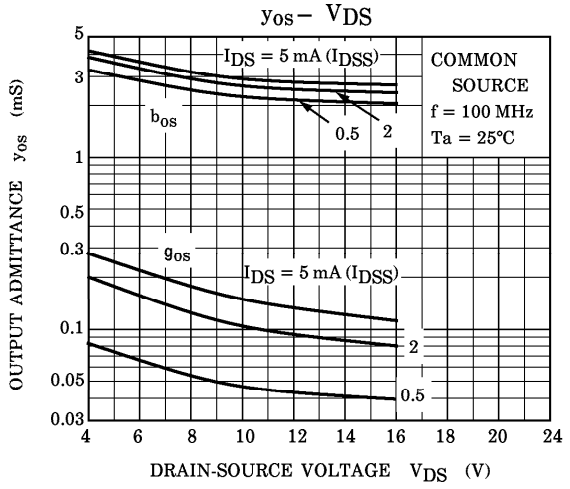
y_{fs}, y_{rs} – f



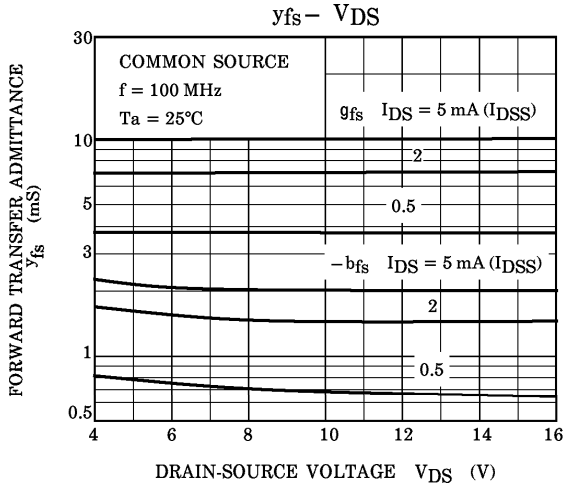
y_{is} – V_{DS}



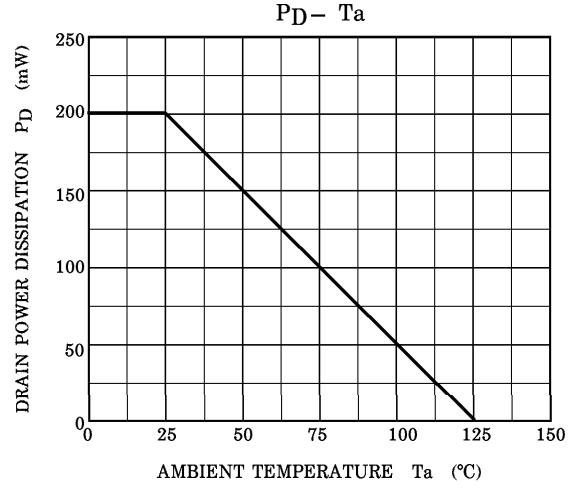
y_{os} – V_{DS}



y_{fs} – V_{DS}



P_D – Ta



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