TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

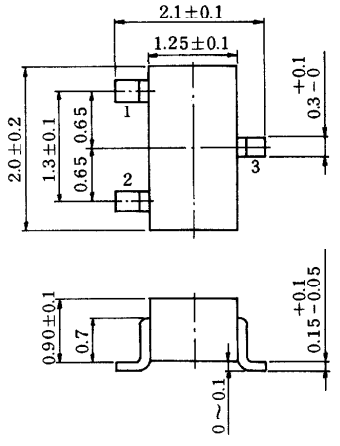
2SK881

FM TUNER APPLICATIONS.

VHF BAND AMPLIFIER APPLICATIONS.

- Low Noise Figure : NF = 2.5dB (Typ.) (f = 100MHz)
- High Forward Transfer Admittance
  : $|y_{fs}|$ = 9mS (Typ.)

Unit in mm



1. DRAIN
2. GATE
3. SOURCE

JEDEC	—
EIAJ	SC-70
TOSHIBA	2-2E1C

Weight : 0.006g

MAXIMUM RATINGS (Ta = 25°C)

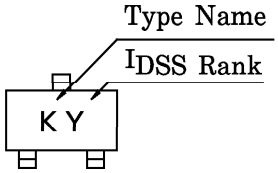
CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V_{GDO}	−18	V
Gate Current	I_G	10	mA
Drain Power Dissipation	P_D	100	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

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

Marking



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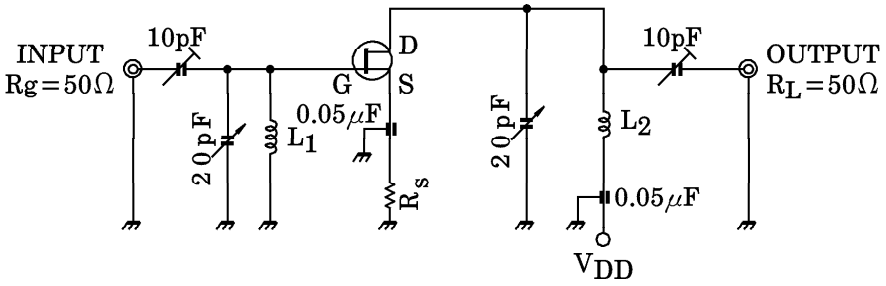


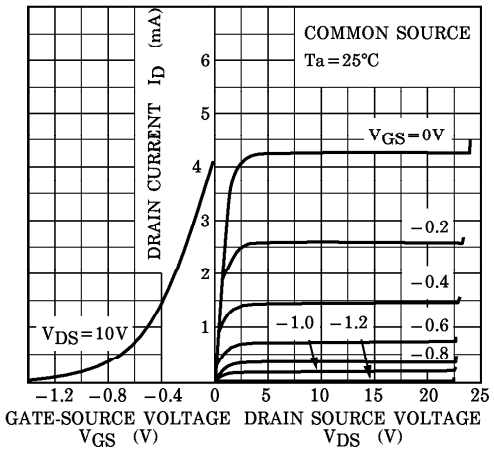
L_1 : 0.8mmϕ Ag PLATED Cu WIRE, 3. TURNS, 10mm ID, 10mm LENGTH.
L_2 : 0.8mmϕ Ag PLATED Cu WIRE, 3.5 TURNS, 10mm ID, 10mm LENGTH.

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

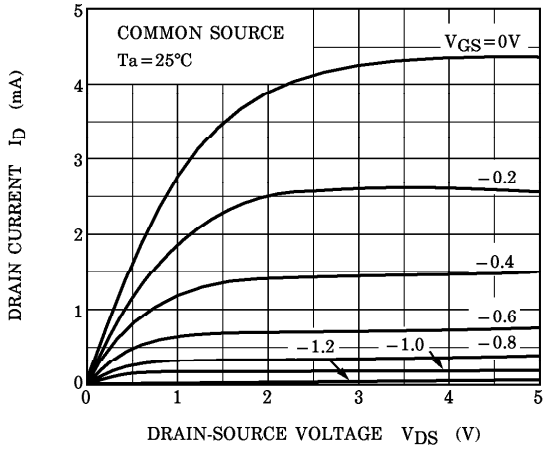
2SK881 is measured at each group by changing R_S.

GROUP	R_S (Ω)
2SK881-O	0
2SK881-Y	18Ω±5%
2SK881-GR	100Ω±5%

STATIC CHARACTERISTICS



I_D – V_{DS} (LOW VOLTAGE REGION)



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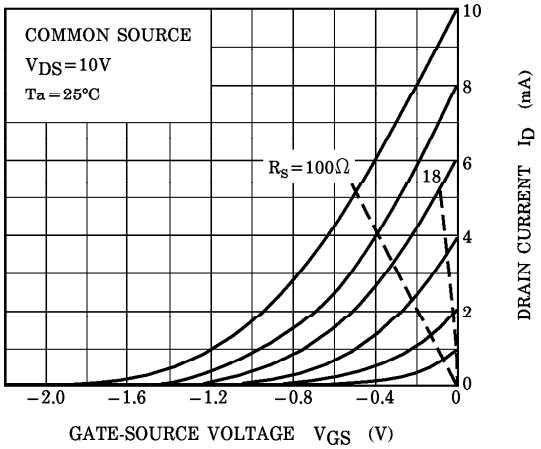
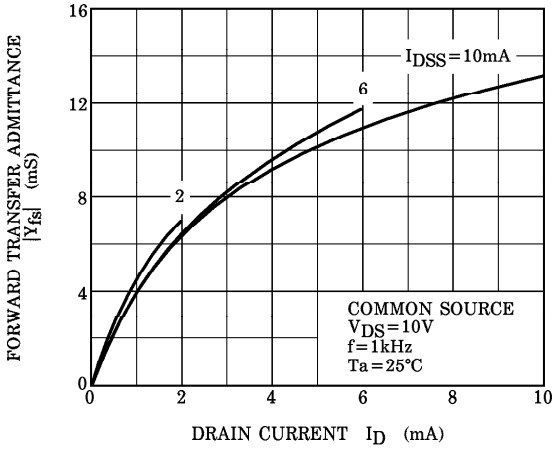
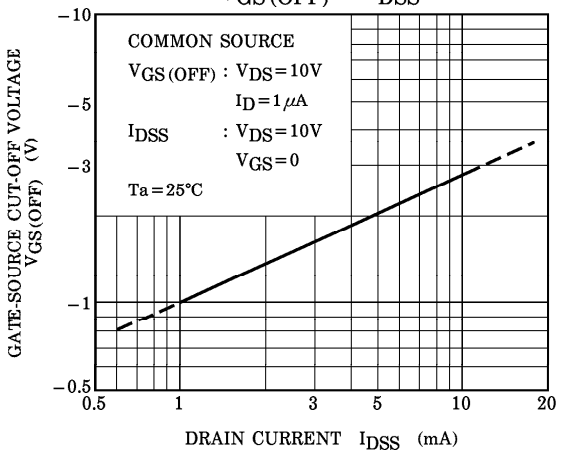
$I_D - V_{GS}$



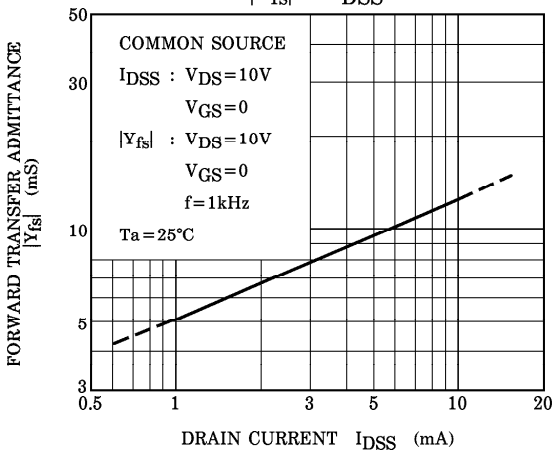
$|Y_{fs}| - I_D$



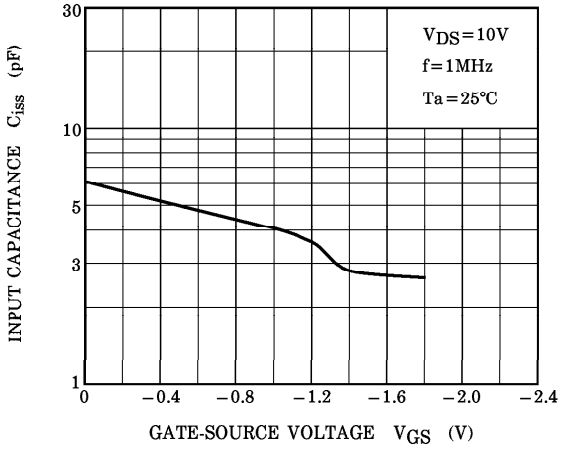
$V_{GS(OFF)} - I_{DSS}$



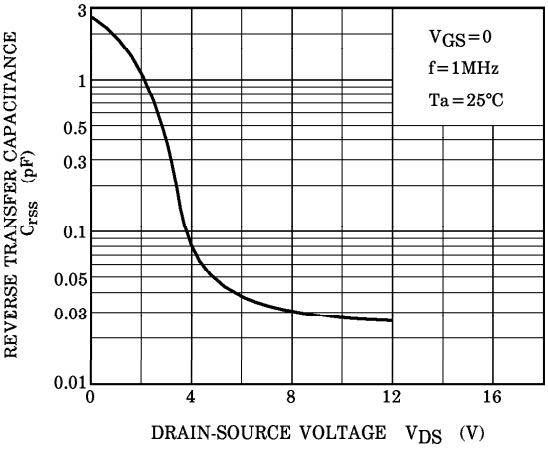
$|Y_{fs}| - I_{DSS}$

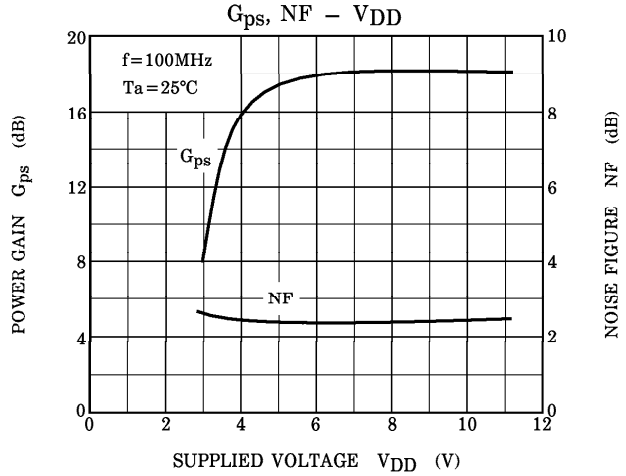


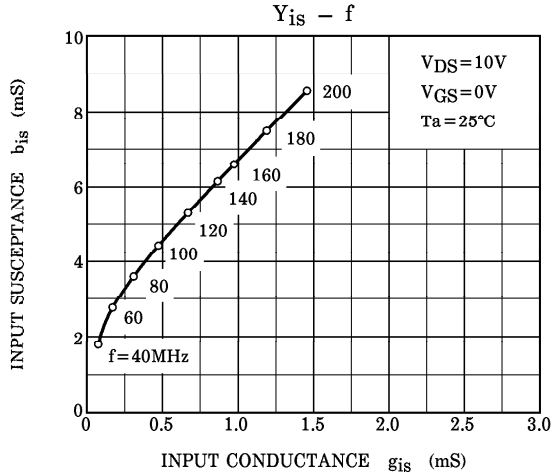
$C_{iss} - V_{GS}$

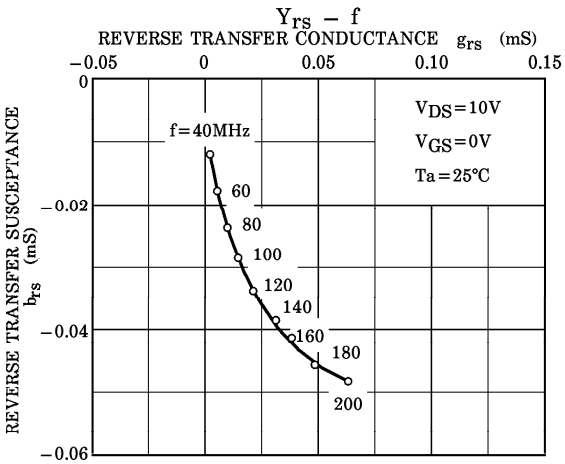


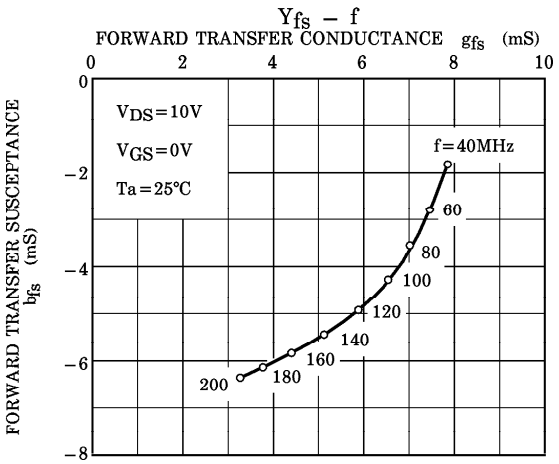
$C_{rss} - V_{DS}$

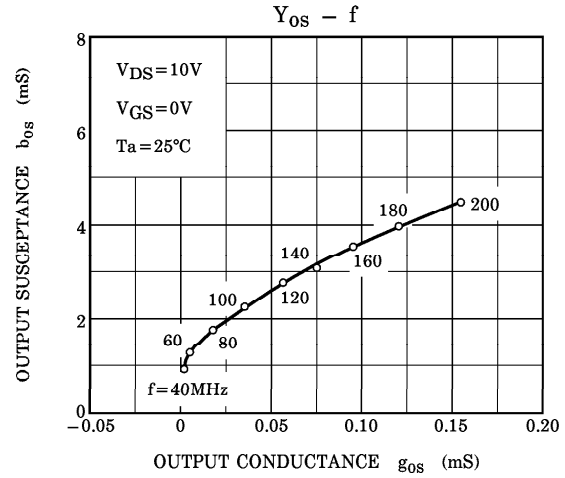


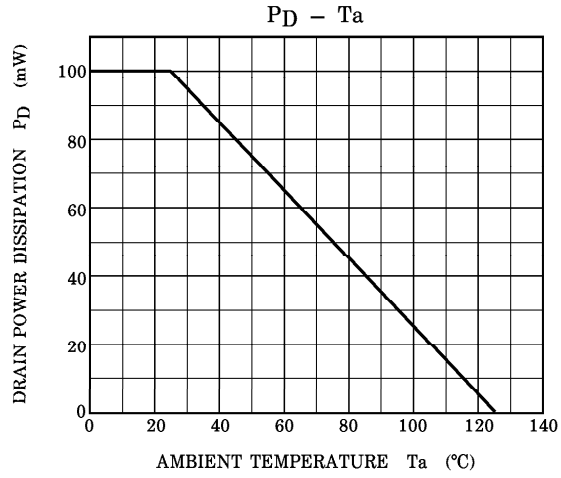

G_{ps}, NF – V_{DD}
f=100MHz
Ta=25°C
G_{ps}
NF
POWER GAIN G_{ps} (dB)
NOISE FIGURE NF (dB)
SUPPLIED VOLTAGE V_{DD} (V)


Y_{is} – f
V_{DS}=10V
V_{GS}=0V
Ta=25°C
f=40MHz
60
80
100
120
140
160
180
200
INPUT SUSCEPTANCE b_{is} (mS)
INPUT CONDUCTANCE g_{is} (mS)


Y_{rs} – f
REVERSE TRANSFER CONDUCTANCE g_{rs} (mS)
V_{DS}=10V
V_{GS}=0V
Ta=25°C
f=40MHz
60
80
100
120
140
160
180
200
REVERSE TRANSFER SUSCEPTANCE b_{rs} (mS)


Y_{fs} – f
FORWARD TRANSFER CONDUCTANCE g_{fs} (mS)
V_{DS}=10V
V_{GS}=0V
Ta=25°C
f=40MHz
60
80
100
120
140
160
180
200
FORWARD TRANSFER SUSCEPTANCE b_{fs} (mS)


Y_{os} – f
V_{DS}=10V
V_{GS}=0V
Ta=25°C
f=40MHz
60
80
100
120
140
160
180
200
OUTPUT SUSCEPTANCE b_{os} (mS)
OUTPUT CONDUCTANCE g_{os} (mS)


P_D – Ta
DRAIN POWER DISSIPATION P_D (mW)
AMBIENT TEMPERATURE Ta (°C)