TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

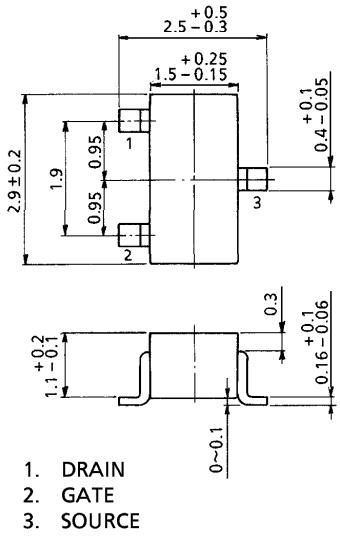
2SK211

FM TUNER APPLICATIONS

VHF BAND AMPLIFIER APPLICATIONS

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

Unit in mm



JEDEC	—
EIAJ	SC-59
TOSHIBA	2-3F1C

Weight : 0.012g

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

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

961001EAA2

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Marking

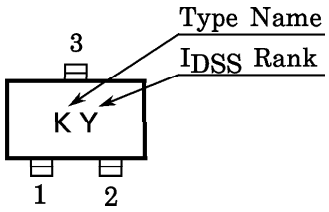
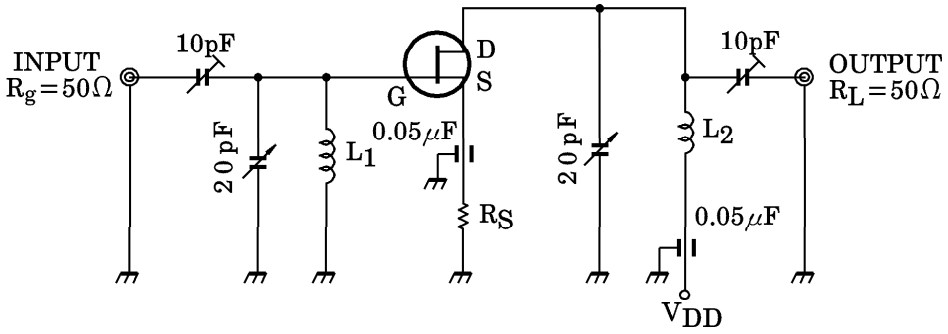


Fig. 100MHz G_{ps}, NF TEST CIRCUIT



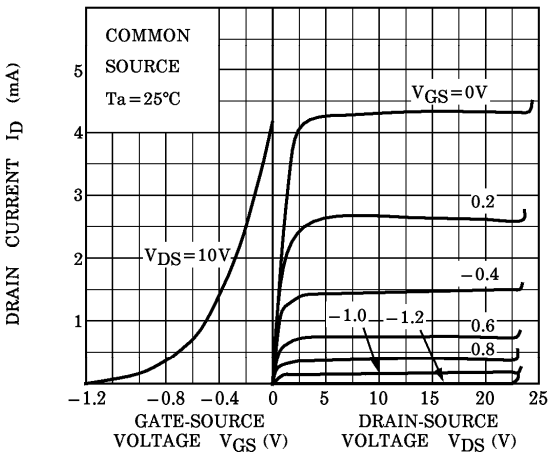
L_1 : 0.8mmϕ Ag PLATED Cu WIRE 3 TURNS, 10mm ID, 10mm LENGTH

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

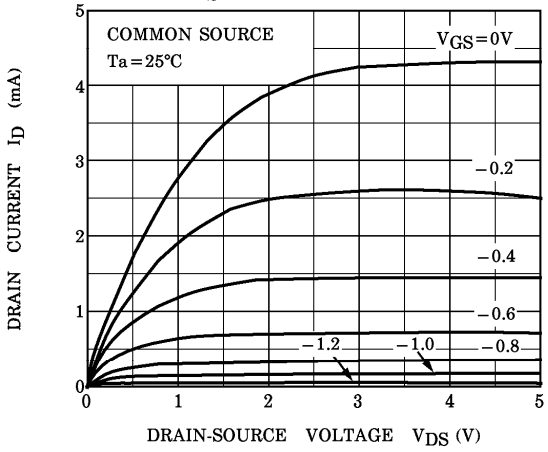
2SK211 is measured at each group by changing R_S.

GROUP	RS (Ω)
2SK211-O	0
2SK211-Y	18Ω±5%
2SK211-GR	100Ω±5%

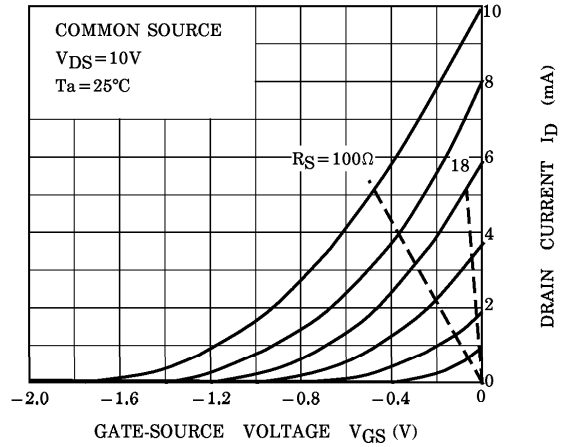
STATIC CHARACTERISTICS



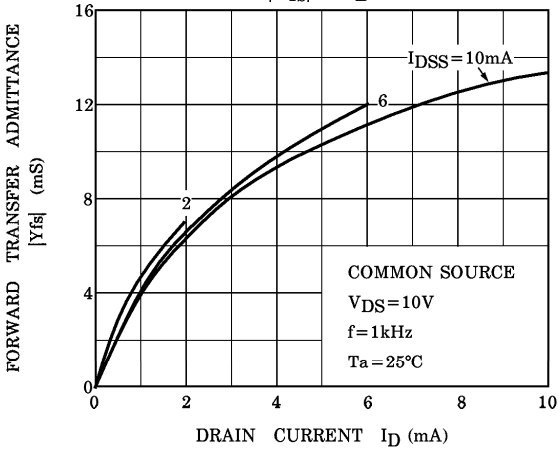
ID − VDS (LOW VOLTAGE REGION)



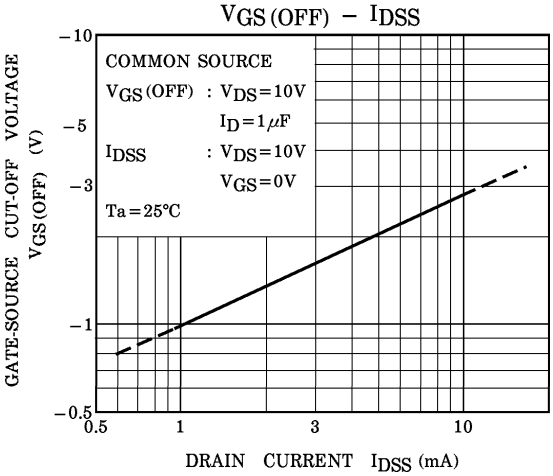
ID − VGS



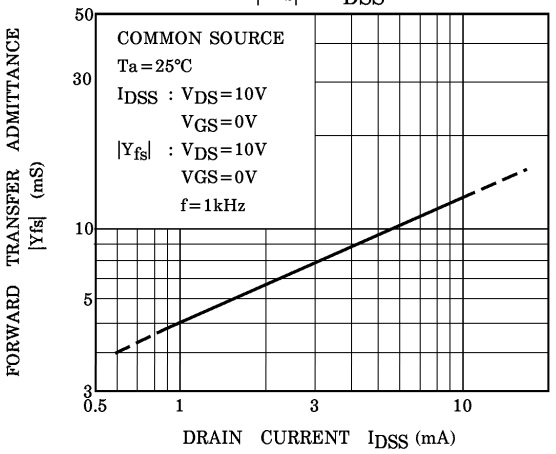
|Yfs| − ID



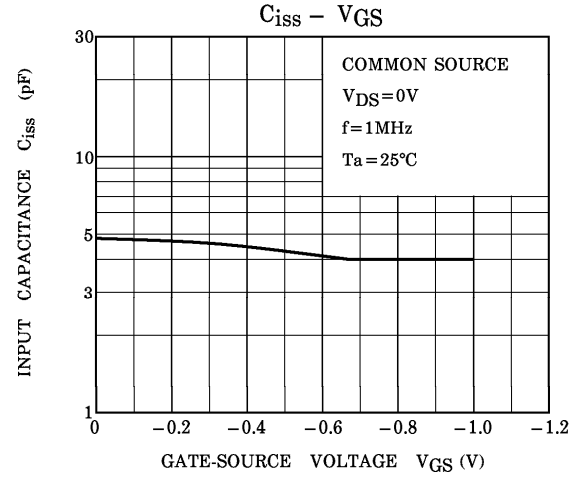
VGS (OFF) − IDSS



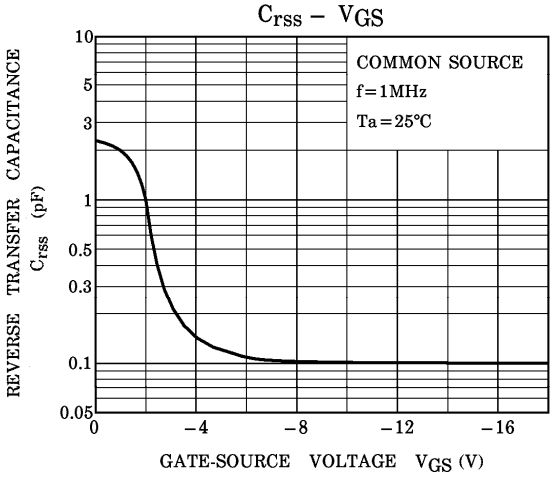
|Yfs| − IDSS



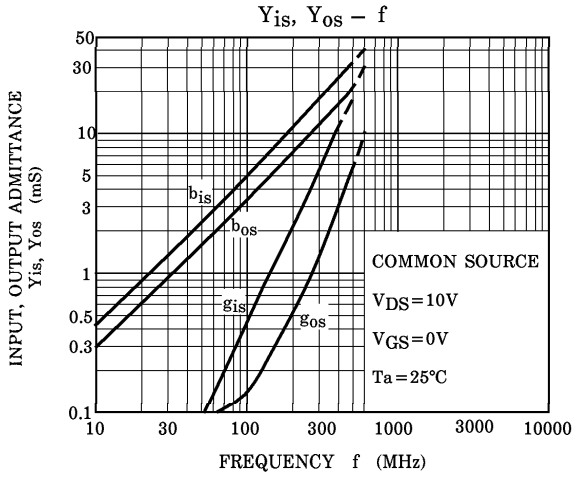
C_{iss} – V_{GS}



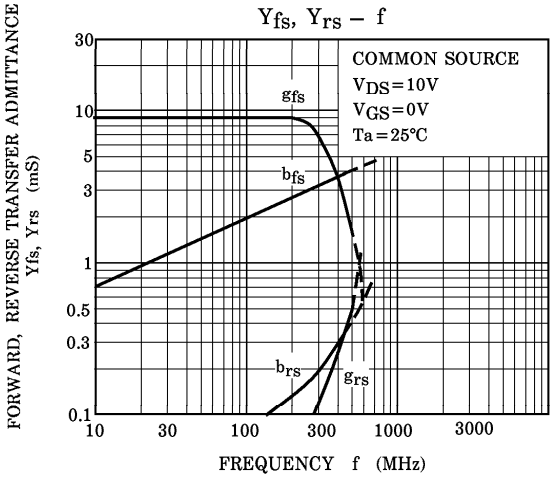
C_{rss} – V_{GS}



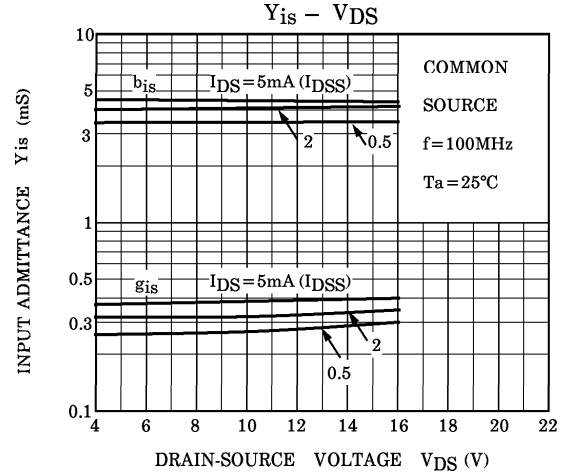
Y_{is}, Y_{os} – f



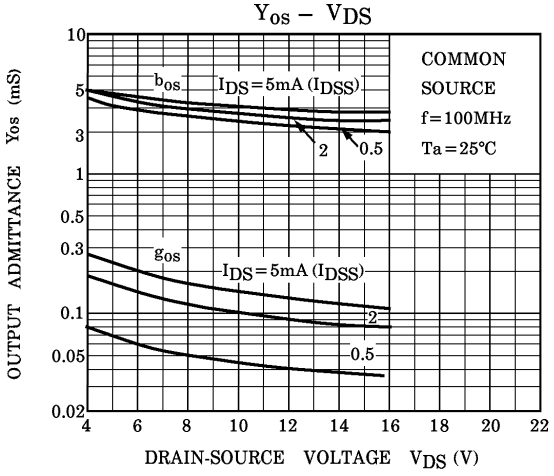
Y_{fs}, Y_{rs} – f



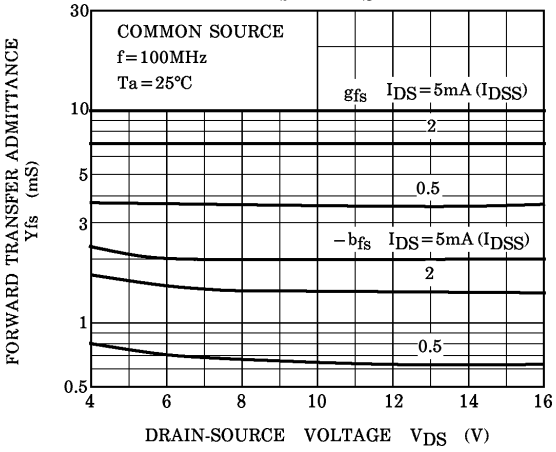
Y_{is} – V_{DS}



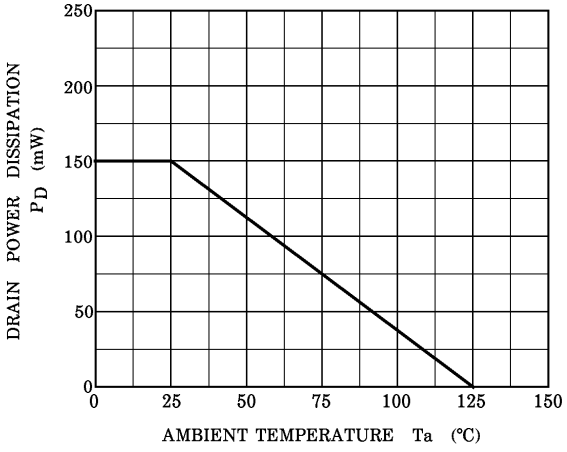
Y_{os} – V_{DS}



Y_{fs} – V_{DS}


COMMON SOURCE
f=100MHz
Ta=25°C
gfs IDS=5mA (IDSS)
2
0.5
−bfs IDS=5mA (IDSS)
2
0.5
FORWARD TRANSFER ADMITTANCE Yfs (mS)
30
10
5
3
1
0.5
4
6
8
10
12
14
16
DRAIN-SOURCE VOLTAGE VDS (V)

P_D – Ta


DRAIN POWER DISSIPATION PD (mW)
250
200
150
100
50
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE Ta (°C)

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