

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

2SK211

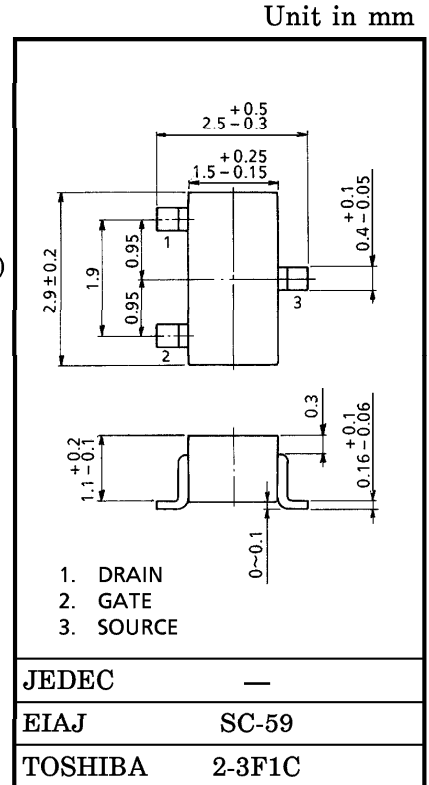
FM TUNER APPLICATIONS

VHF BAND AMPLIFIER APPLICATIONS

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

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$



Weight : 0.012g

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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

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

Marking

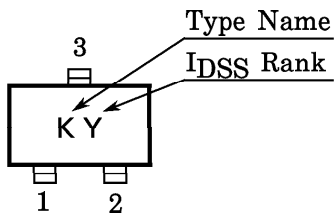
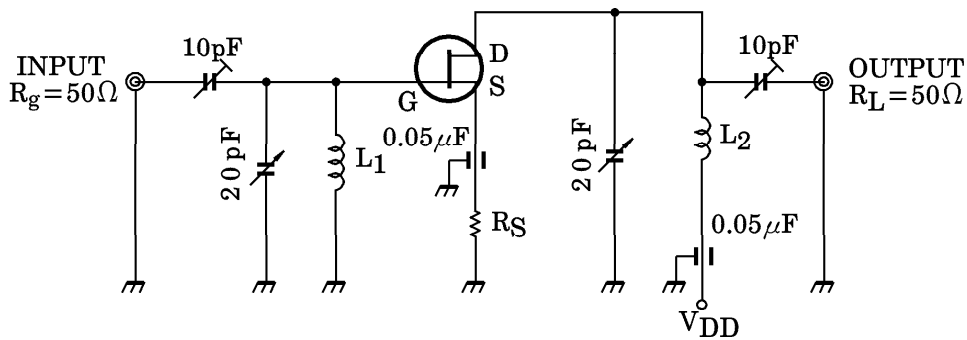


Fig. 100MHz G_{ps} , NF TEST CIRCUIT



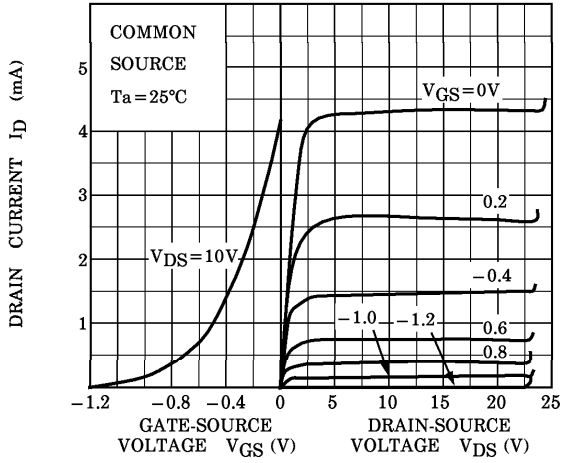
L_1 : 0.8mm ϕ Ag PLATED Cu WIRE 3 TURNS, 10mm ID, 10mm LENGTH

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

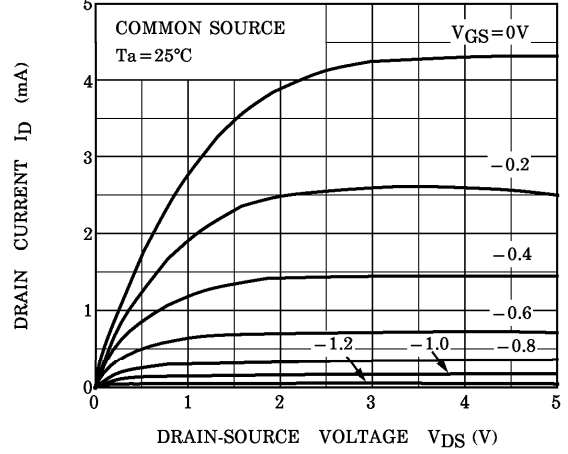
2SK211 is measured at each group by changing R_S .

GROUP	R_S (Ω)
2SK211-O	0
2SK211-Y	$18\Omega \pm 5\%$
2SK211-GR	$100\Omega \pm 5\%$

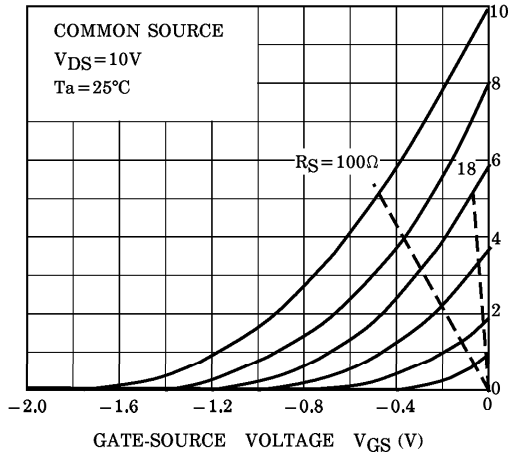
STATIC CHARACTERISTICS



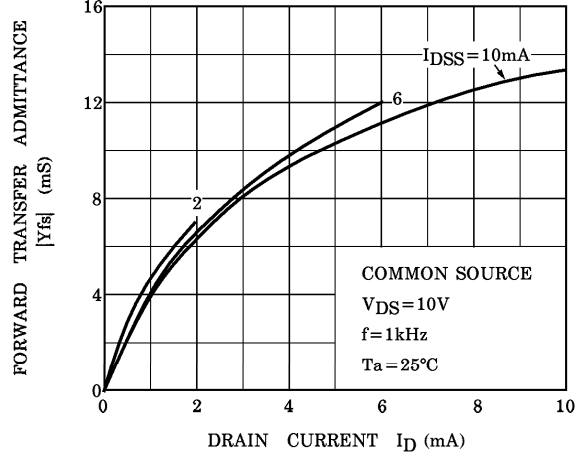
$I_D - V_{DS}$ (LOW VOLTAGE REGION)



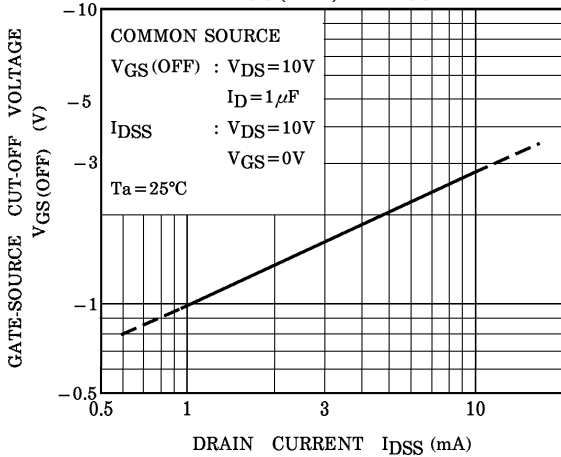
$I_D - V_{GS}$



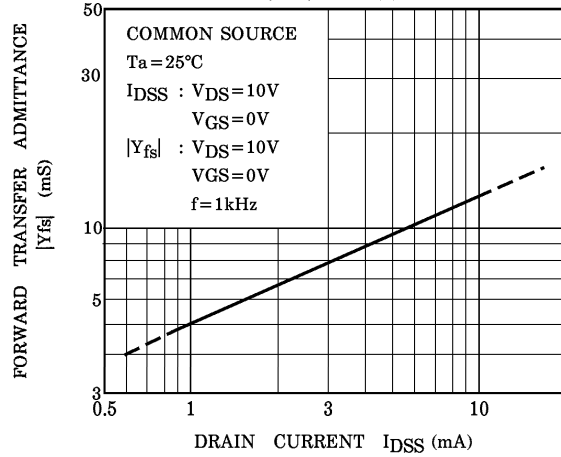
$|Y_{fs}| - I_D$

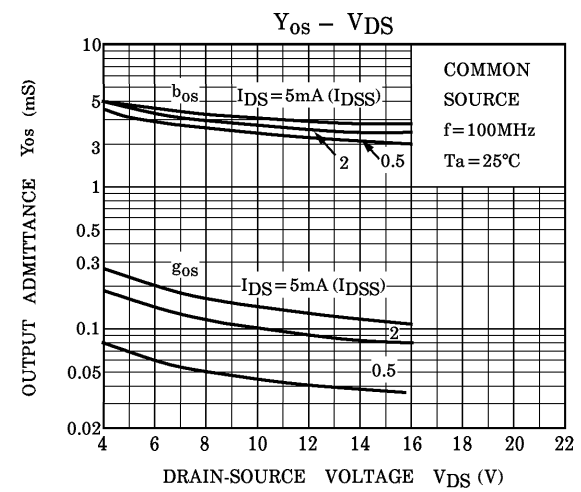
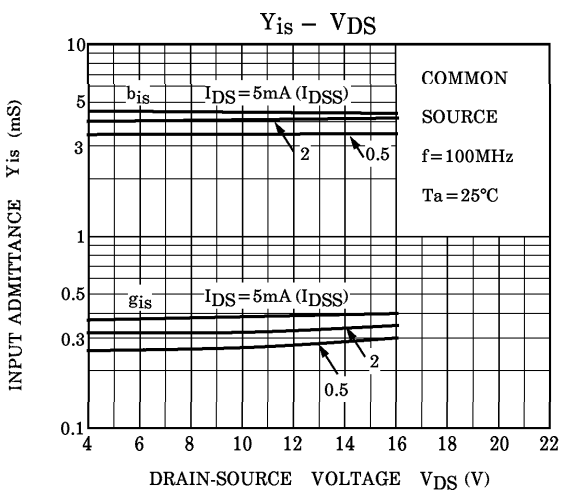
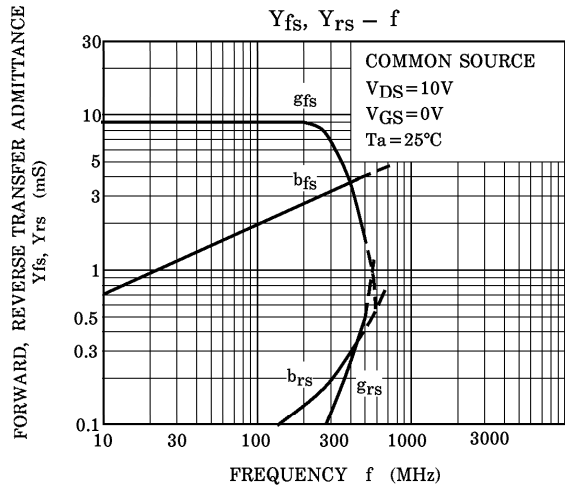
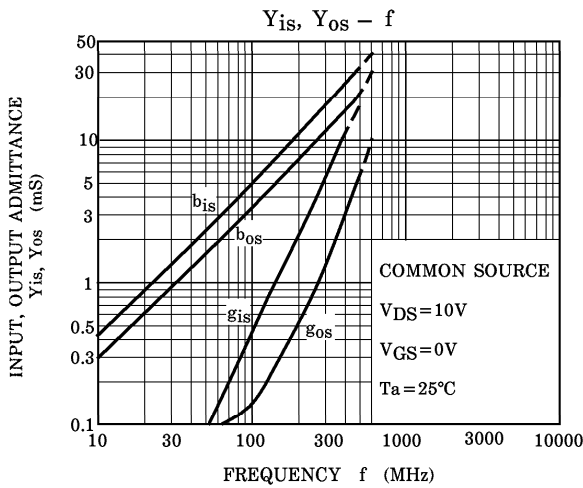
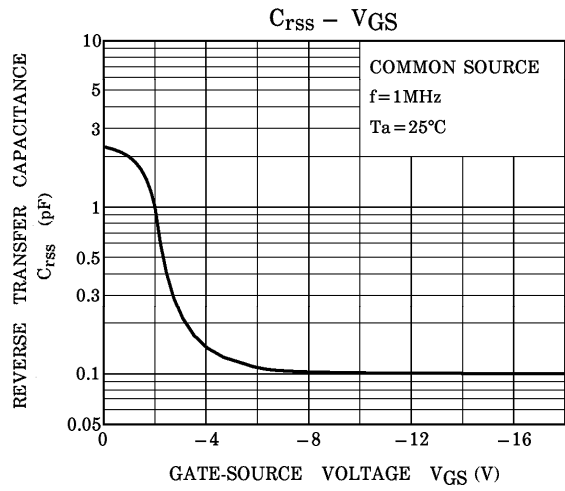
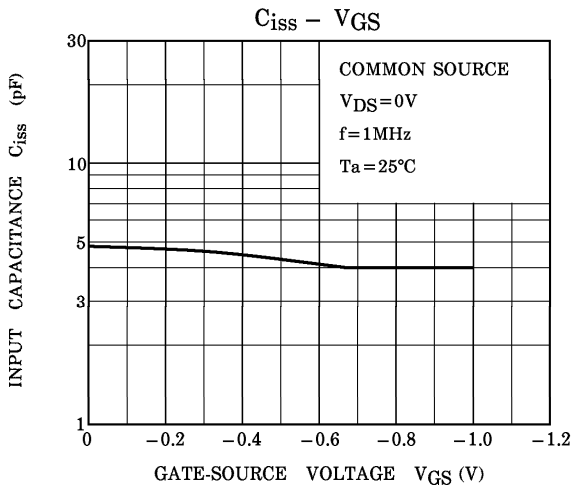


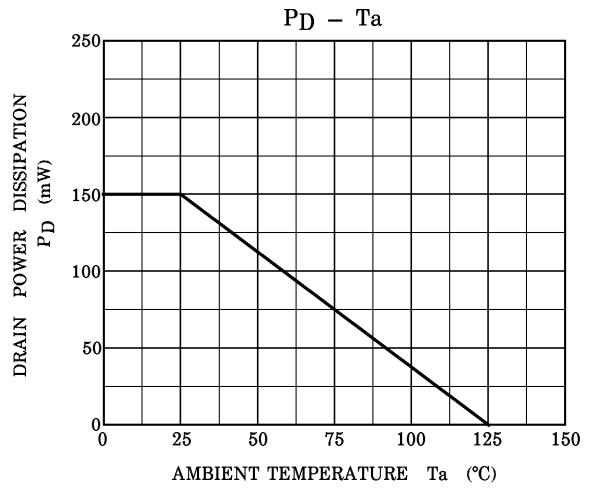
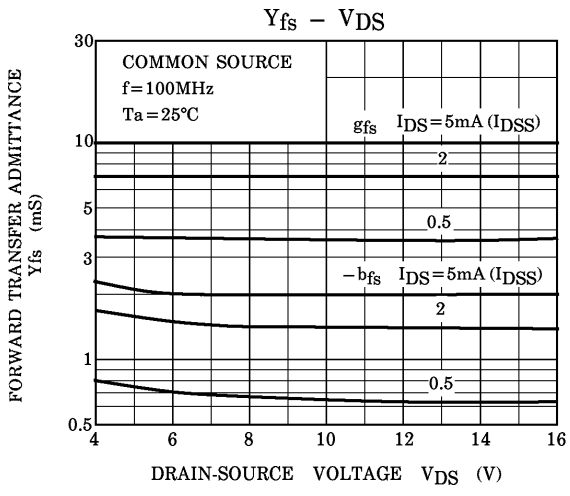
$V_{GS}(\text{OFF}) - I_{DSS}$



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







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