

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

2SK210

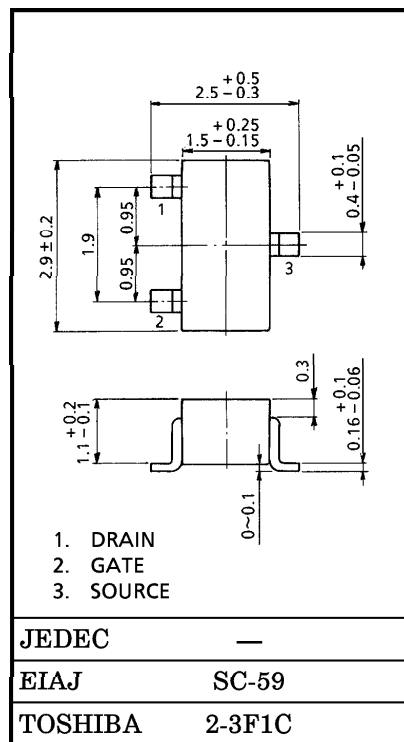
Unit in mm

FM TUNER APPLICATIONS
VHF BAND AMPLIFIER APPLICATIONS

- High Power Gain : $G_{PS} = 24\text{dB}$ (Typ.) ($f = 100\text{MHz}$)
- Low Noise Figure : $NF = 1.8\text{dB}$ (Typ.) ($f = 100\text{MHz}$)
- High Forward Transfer Admittance : $|Y_{fs}| = 7\text{mS}$ (Typ.) ($f = 1\text{kHz}$)

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	100	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}	$V_{GS} = -1.0\text{V}, V_{DS} = 0\text{V}$	—	—	-10	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G = -100\mu\text{A}$	-18	—	—	V
Drain Current	I_{DSS} (Note)	$V_{GS} = 0\text{V}, V_{DS} = 10\text{V}$	3	—	24	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	$V_{DS} = 10\text{V}, I_D = 1\mu\text{A}$	-1.2	-3	—	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{GS} = 0\text{V}, V_{DS} = 10\text{V}, f = 1\text{kHz}$	—	7	—	mS
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	—	3.5	—	pF
Reverse Transfer Capacitance	C_{rss}	$V_{GD} = 10\text{V}, f = 1\text{MHz}$	—	—	0.65	pF
Power Gain	G_{PS}	$V_{DD} = 10\text{V}, f = 100\text{MHz}$ (Fig.)	—	24	—	dB
Noise Figure	NF	$V_{DD} = 10\text{V}, f = 100\text{MHz}$ (Fig.)	—	1.8	3.5	dB

Note : I_{DSS} Classification Y : 3.0~7.0mA, GR (R) : 6.0~14.0mA, BL (L) : 12.0~24.0mA

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Marking

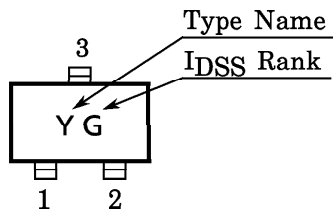
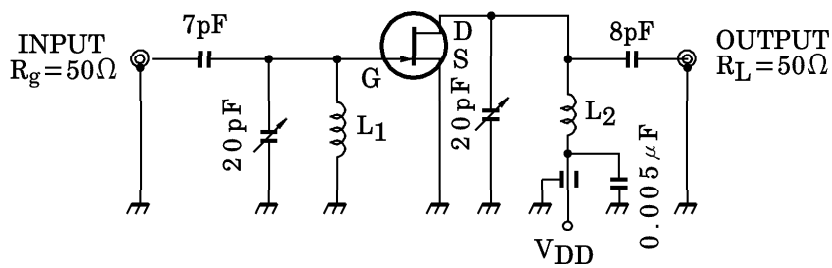


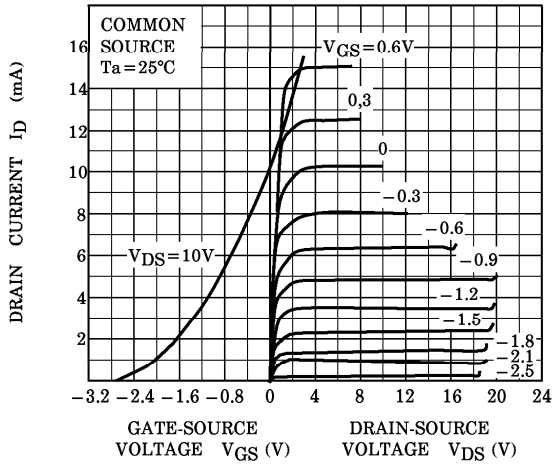
Fig. 100MHz G_{ps} NF TEST CIRCUIT



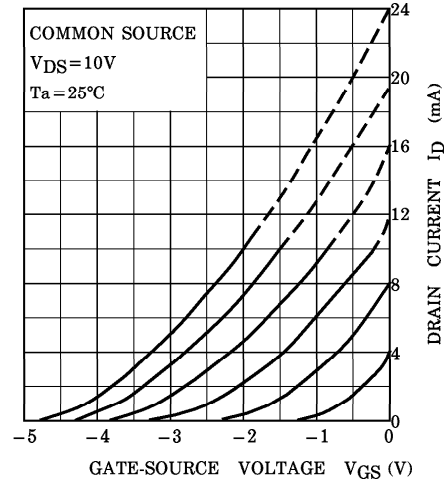
L_1 : 0.8mm ϕ Ag PLATED Cu WIRE 3 TURNS, 10mm ID, 10mm LENGTH

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

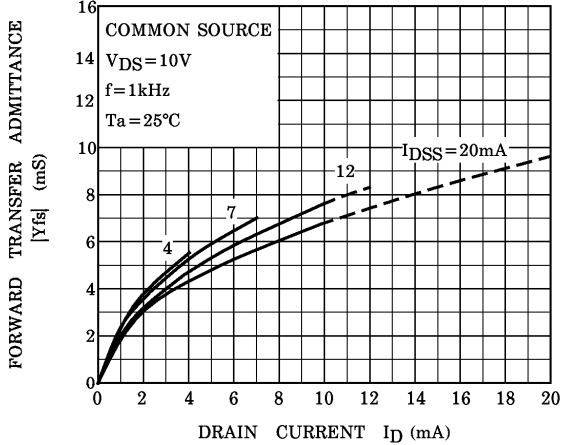
STATIC CHARACTERISTICS



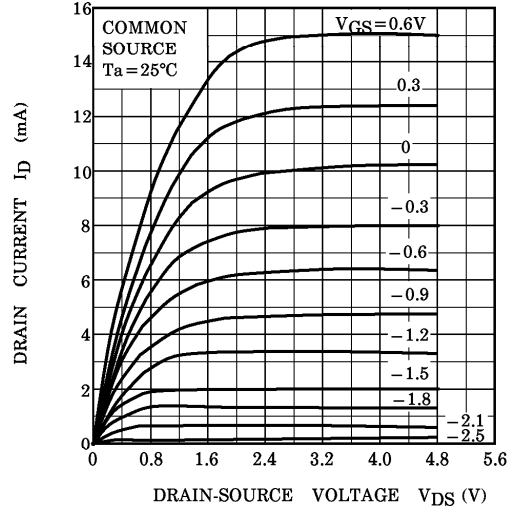
$I_D - V_{GS}$



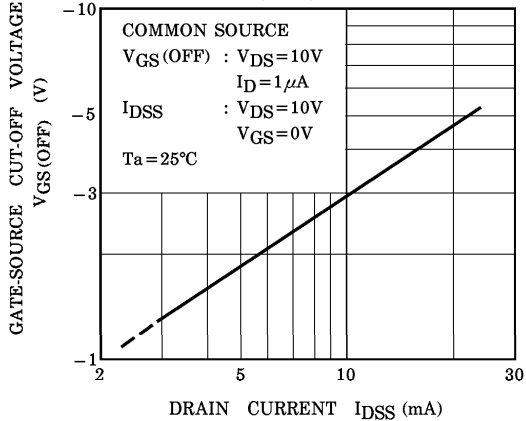
$|Y_{fs}| - I_D$



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



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



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

