

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

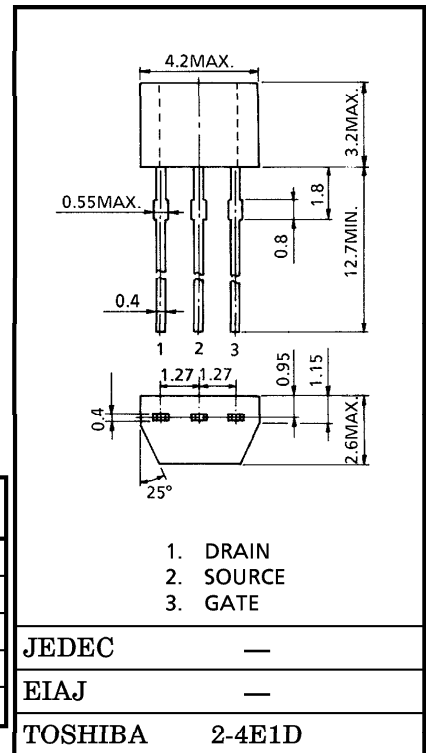
# 2SK161

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  
:  $C_{rss} = 0.1\text{ pF (Typ.)}$

Unit in mm



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	$P_D$	200	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ\text{C}$

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

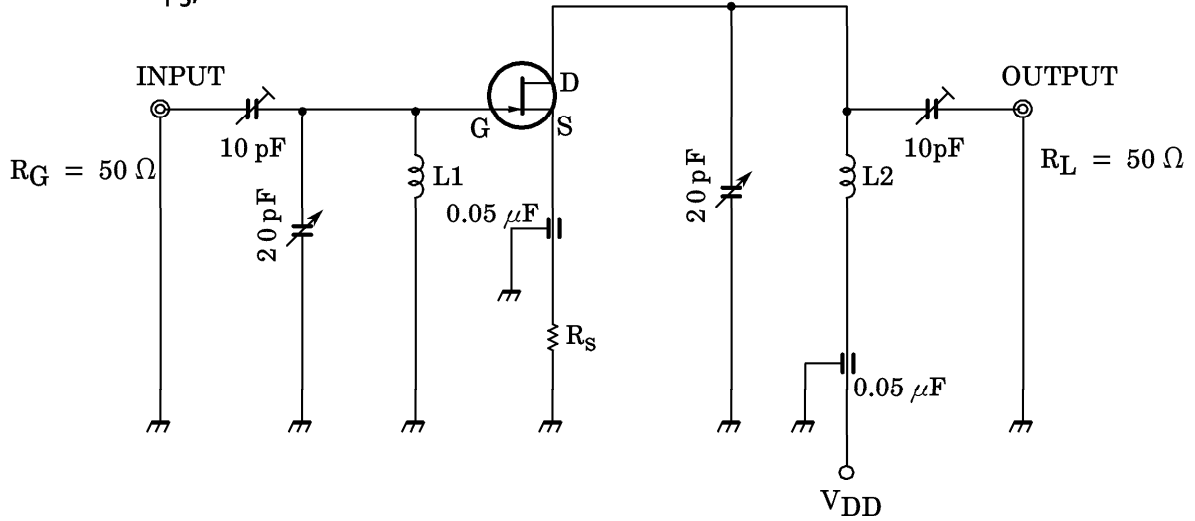
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	$I_{GSS}$	$V_{GS} = -0.5\text{ V}, V_{DS} = 0$	—	—	-10	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G = -100\text{ }\mu\text{A}$	-18	—	—	V
Drain Current	$I_{DSS}$ (Note)	$V_{GS} = 0, V_{DS} = 10\text{ V}$	1.0	—	10	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	$V_{DS} = 10\text{ V}, I_D = 1\text{ }\mu\text{A}$	-0.4	—	-4.0	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{GS} = 0, V_{DS} = 10\text{ V}, f = 1\text{ kHz}$	—	9	—	mS
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	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 : 1.0~3.0 mA, Y : 2.5~6.0 mA, GR : 5.0~10.0 mA

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Fig.1 100 MHz Gp<sub>S</sub>, NF TEST CIRCUIT



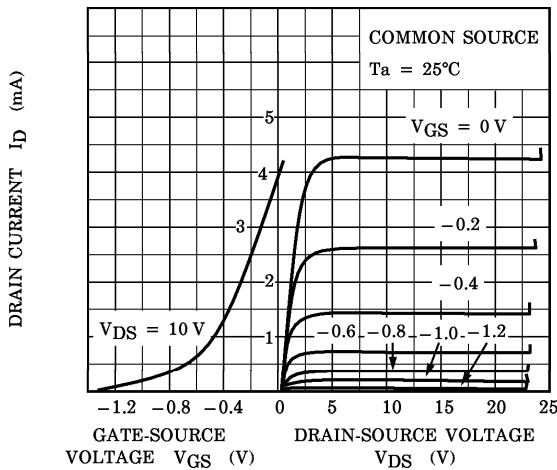
L<sub>1</sub> : 0.8 mmϕ A<sub>g</sub> PLATED Cu WIRE, 3 TURNS, 10 mm ID, 10 mm LENGTH.

L<sub>2</sub> : 0.8 mmϕ A<sub>g</sub> PLATED Cu WIRE, 3 TURNS, 10 mm ID, 10 mm LENGTH.

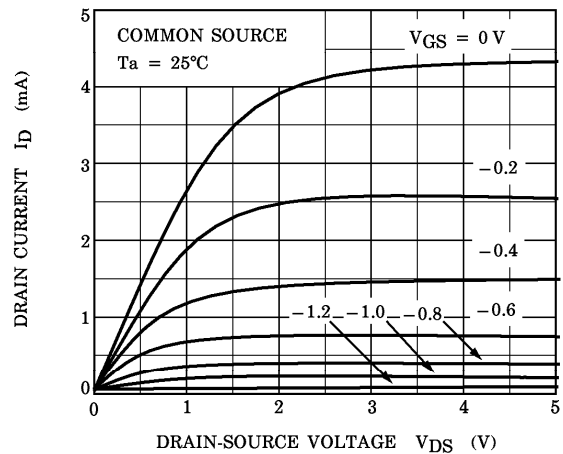
2SK161 is measured at each group by changing R<sub>S</sub>

GROUP	R <sub>S</sub> (Ω)
2SK161-O	0
2SK161-Y	18 Ω ± 5%
2SK161-GR	100 Ω ± 5%

STATIC CHARACTERISTICS



I<sub>D</sub> - V<sub>DS</sub> (LOW VOLTAGE REGION)



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