

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N-CHANNEL DUAL GATE MOS TYPE

3SK294

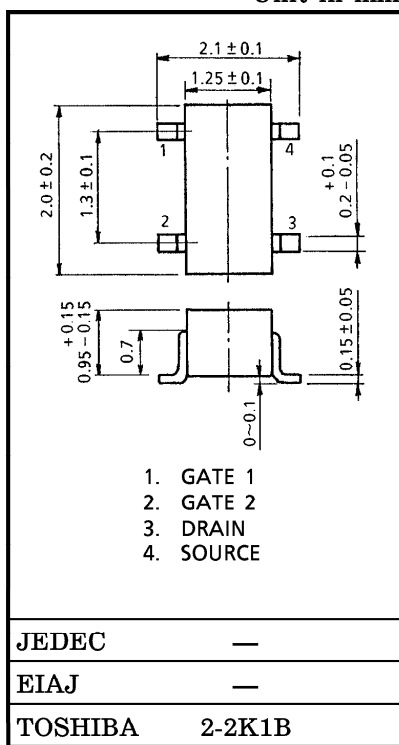
TV TUNER, VHF RF AMPLIFIER APPLICATION

Unit in mm

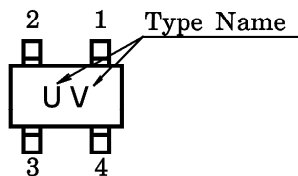
- Superior Cross Modulation Performance
- Low Reverse Transfer Capacitance : $C_{rss}=20\text{fF}$ (Typ.)
- Low Noise Figure : $NF=1.4\text{dB}$ (Typ.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	12.5	V
Gate 1-Source Voltage	V_{G1S}	± 8	V
Gate 2-Source Voltage	V_{G2S}	± 8	V
Drain Current	I_D	30	mA
Drain Power Dissipation	P_D	100	mW
Channel Temperature	T_{ch}	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 125$	$^\circ\text{C}$



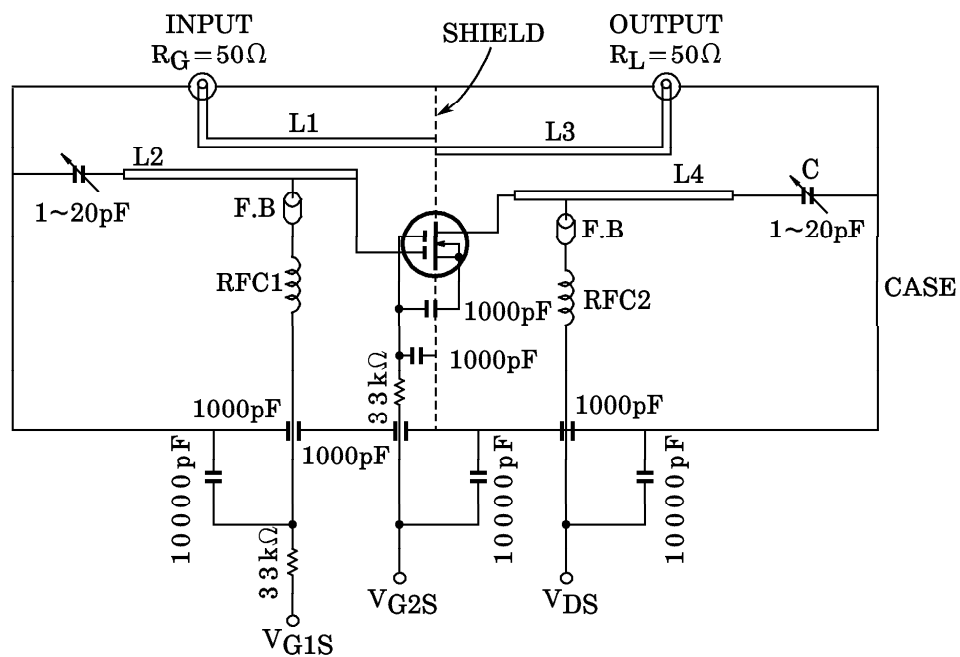
MARKING

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 1 Leakage Current	I_{G1SS}	$V_{DS}=0, V_{G1S}=\pm 6\text{V}, V_{G2S}=0$	—	—	± 50	nA
Gate 2 Leakage Current	I_{G2SS}	$V_{DS}=0, V_{G1S}=0, V_{G2S}=\pm 6\text{V}$	—	—	± 50	nA
Drain-Source Voltage	$V_{(BR)DSX}$	$V_{G1S}=-0.5\text{V}, V_{G2S}=-0.5\text{V}, I_D=100\mu\text{A}$	12.5	—	—	V
Drain Current	I_{DSS}	$V_{DS}=6\text{V}, V_{G1S}=0, V_{G2S}=4.5\text{V}$	—	—	0.1	mA
Gate 1-Source Cut-off Voltage	$V_{G1S(OFF)}$	$V_{DS}=6\text{V}, V_{G2S}=4.5\text{V}, I_D=100\mu\text{A}$	0.3	0.9	1.3	V
Gate 2-Source Cut-off Voltage	$V_{G2S(OFF)}$	$V_{DS}=6\text{V}, V_{G1S}=4.0\text{V}, I_D=100\mu\text{A}$	0.5	1.0	1.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=6\text{V}, V_{G2S}=4.5\text{V}, I_D=10\text{mA}, f=1\text{kHz}$	19.5	23.5	—	mS
Input Capacitance	C_{iss}	$V_{DS}=6\text{V}, V_{G2S}=4.5\text{V}, I_D=10\text{mA}, f=1\text{MHz}$	—	2.5	3.1	pF
Reverse Transfer Capacitance	C_{rss}		—	20	40	fF
Power Gain	G_{ps}	$V_{DS}=6\text{V}, V_{G2S}=4.5\text{V}, I_D=10\text{mA}, f=500\text{MHz}$	23.5	26.0	—	dB
Noise Figure	NF		—	1.4	2.5	

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Fig.1 G_{ps}/NF TEST CIRCUIT

- L1~L4 : ϕ 0.8mm SILVER PLATED COPPER WIRE
 C : AIR TRIMMER TTA25A200A (MURATA MFG, Co., Ltd.)
 RFC 1 : ϕ 0.35mm VEW 3I.D.7T
 RFC 2 : ϕ 0.35mm VEW 3I.D.10T

