

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

# 3SK151

TV TUNER VHF MIXER APPLICATIONS

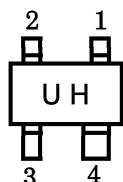
VHF RF AMPLIFIER APPLICATIONS

- High Conversion Gain :  $G_{CS}=24.5\text{dB}$  (Typ.)
- Low Noise Figure :  $NF_{CS}=3.3\text{dB}$  (Typ.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DS}$	15	V
Gate 1-Source Voltage	$V_{G1S}$	$\pm 8$	V
Gate 2-Source Voltage	$V_{G2S}$	$\pm 8$	V
Drain Current	$I_D$	30	mA
Drain Power Dissipation	$P_D$	150	mW
Channel Temperature	$T_{ch}$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55\sim 125$	$^\circ\text{C}$

Marking



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

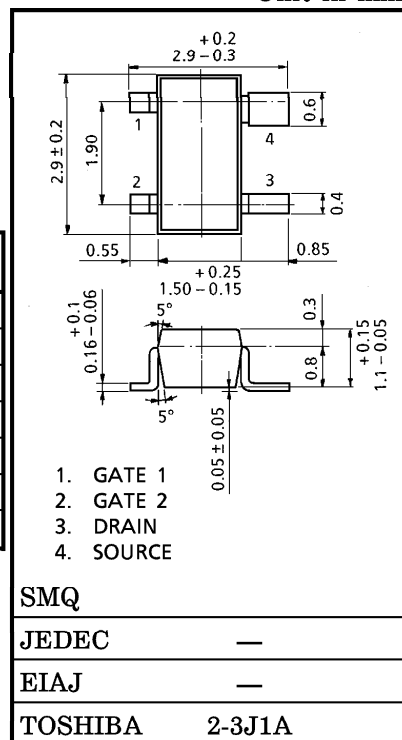
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 1 Leakage Current	$I_{G1SS}$	$V_{DS}=0, V_{G1S}=\pm 6\text{V}, V_{G2S}=0$	—	—	$\pm 50$	nA
Gate 2 Leakage Current	$I_{G2SS}$	$V_{DS}=0, V_{G1S}=0, V_{G2S}=\pm 6\text{V}$	—	—	$\pm 50$	nA
Drain-Source Voltage	$V$ (BR) DSX	$V_{G1S}=-4\text{V}, V_{G2S}=-4\text{V}, I_D=100\mu\text{A}$	15	—	—	V
Drain Current	$I_{DSS}$ (Note)	$V_{DS}=6\text{V}, V_{G1S}=0, V_{G2S}=3\text{V}$	3	—	14	mA
Gate 1-Source Cut-off Voltage	$V_{G1S}$ (OFF)	$V_{DS}=6\text{V}, V_{G2S}=3\text{V}, I_D=100\mu\text{A}$	-0.15	—	-1.5	V
Gate 2-Source Cut-off Voltage	$V_{G2S}$ (OFF)	$V_{DS}=6\text{V}, V_{G1S}=3\text{V}, I_D=100\mu\text{A}$	0	—	-1.0	V
Forward Transfer Admittance	$ Y_{fe} $	$V_{DS}=6\text{V}, V_{G2S}=3\text{V}, I_D=10\text{mA}, f=1\text{kHz}$	—	27	—	mS
Input Capacitance	$C_{iss}$	$V_{DS}=6\text{V}, V_{G2S}=3\text{V}, I_D=10\text{mA}, f=1\text{MHz}$	—	2.7	3.6	pF
Reverse Transfer Capacitance	$C_{rss}$	$I_D=10\text{mA}, f=1\text{MHz}$	—	0.025	0.04	pF
Conversion Gain	$G_{CS}$	$V_{DD}=10\text{V}, f=200\text{MHz}$	21	24.5	—	dB
Noise Figure	$NF_{CS}$	$f_L=245\text{MHz} (500\text{mV}_{rms})$ (Fig.1)	—	3.3	5.5	dB

Note :  $I_{DSS}$  Classification Y : 3~7mA, GR : 6~14mA

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Unit in mm



SMQ

JEDEC —

EIAJ —

TOSHIBA 2-3J1A

Weight : 0.013g



