

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

3SK151

TV TUNER VHF MIXER APPLICATIONS

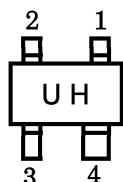
VHF RF AMPLIFIER APPLICATIONS

- 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}	± 8	V
Gate 2-Source Voltage	V_{G2S}	± 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 ($T_a = 25^\circ\text{C}$)

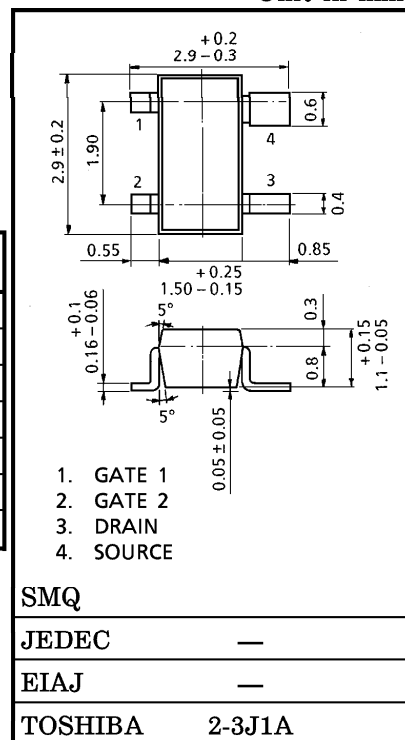
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 1 Leakage Current	I_{G1SS}	$V_{DS} = 0, V_{G1S} = \pm 6\text{V}, V_{G2S} = 0$	—	—	± 50	nA
Gate 2 Leakage Current	I_{G2SS}	$V_{DS} = 0, V_{G1S} = 0, V_{G2S} = \pm 6\text{V}$	—	—	± 50	nA
Drain-Source Voltage	V (BR) DSX	$V_{G1S} = -4\text{V}, V_{G2S} = -4\text{V}, I_D = 100\mu\text{A}$	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



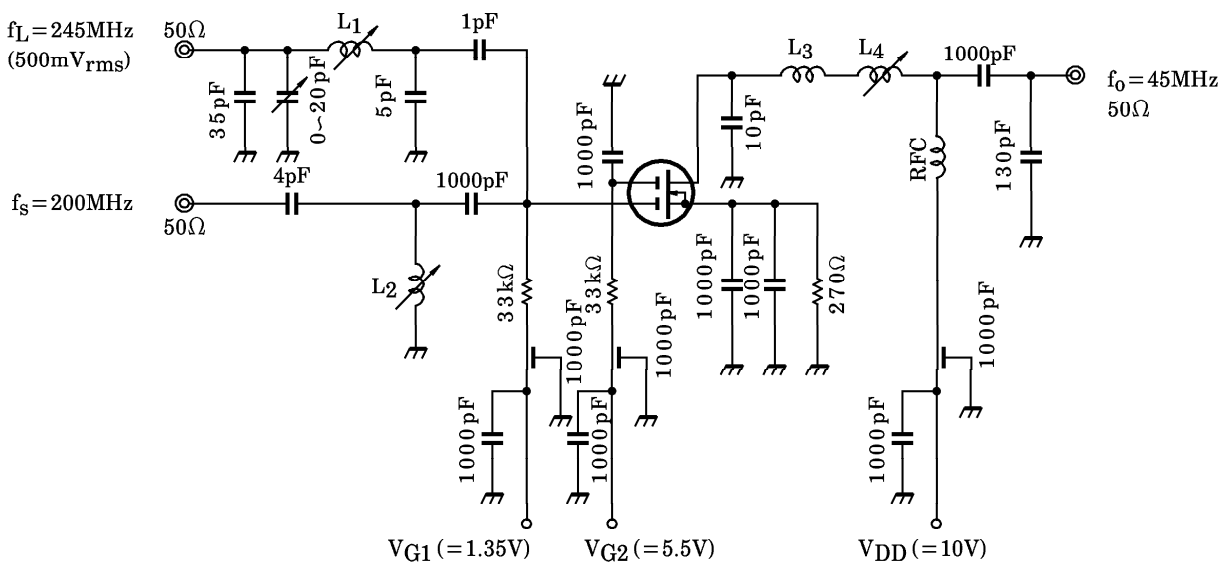
SMQ

JEDEC —

EIAJ —

TOSHIBA 2-3J1A

Weight : 0.013g



- L1 : ϕ 6.5mm BOBBIN WITH FERRITE CORE, ϕ 0.7mm UEW, 2T
- L2 : ϕ 6.5mm BOBBIN WITH FERRITE CORE, ϕ 0.7mm UEW, 2T
- L3 : 3mm ID, ϕ 0.5mm UEW, 4T
- L4 : ϕ 8mm BOBBIN WITH FERRITE CORE, ϕ 0.35mm UEW, 7T
- RFC : 100 μ H

Fig.1 200MHz GCS, NFCS TEST CIRCUIT

