

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

3SK199

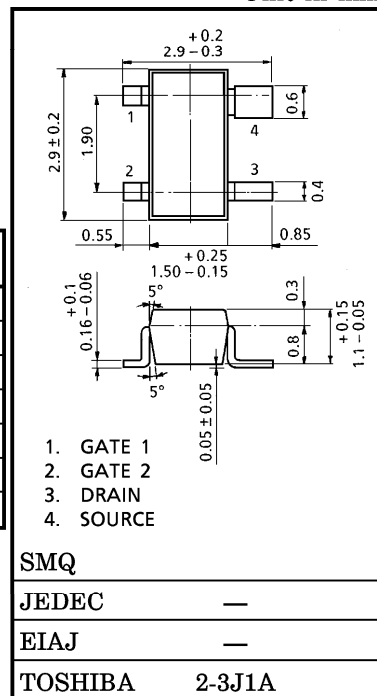
TV TUNER, UHF RF AMPLIFIER APPLICATIONS

Unit in mm

- Superior Cross Modulation Performance.
- Low Reverse Transfer Capacitance : $C_{RSS} = 0.015\text{pF}$ (Typ.)
- Low Noise Figure : $NF = 1.9\text{dB}$ (Typ.)

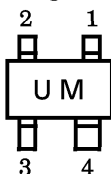
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	13.5	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	150	mW
Channel Temperature	T_{ch}	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$



Weight : 0.013g

Marking

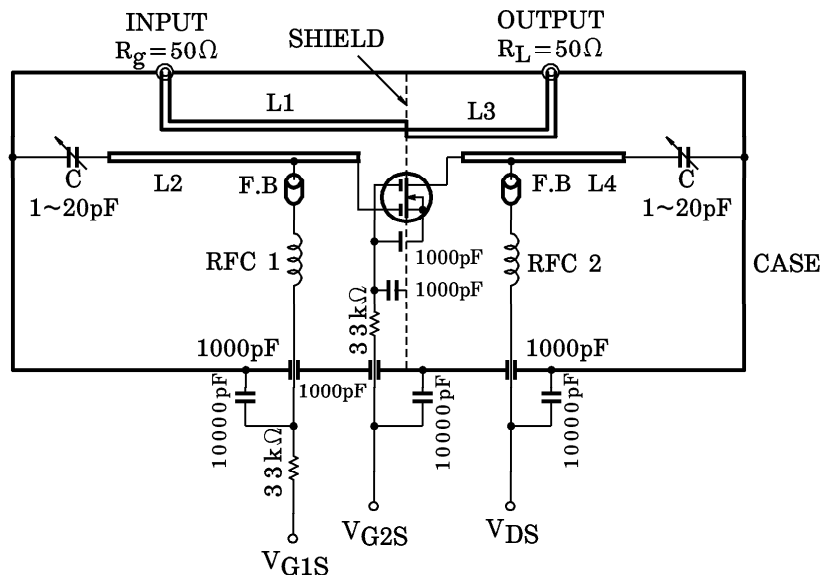


ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 1 Leakage Current	I_{G1SS}	$V_{DS} = 0, V_{G1S} = \pm 6V, V_{G2S} = 0$	—	—	± 50	nA
Gate 2 Leakage Current	I_{G2SS}	$V_{DS} = 0, V_{G1S} = 0, V_{G2S} = \pm 6V$	—	—	± 50	nA
Drain-Source Voltage	$V(\text{BR})_{DSX}$	$V_{G1S} = -4V, V_{G2S} = -4V, I_D = 100\mu\text{A}$	13.5	—	—	V
Drain Current	I_{DSS}	$V_{DS} = 6V, V_{G1S} = 0, V_{G2S} = 4V$	0	—	0.1	mA
Gate 1-Source Cut-off Voltage	$V_{G1S}(\text{OFF})$	$V_{DS} = 6V, V_{G2S} = 4V, I_D = 100\mu\text{A}$	0	—	1.0	V
Gate 2-Source Cut-off Voltage	$V_{G2S}(\text{OFF})$	$V_{DS} = 6V, V_{G1S} = 4V, I_D = 100\mu\text{A}$	0	—	1.2	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 6V, V_{G2S} = 4V, I_D = 10\text{mA}, f = 1\text{kHz}$	—	21.5	—	mS
Input Capacitance	C_{iss}	$V_{DS} = 6V, V_{G2S} = 4V, I_D = 10\text{mA}, f = 1\text{MHz}$	1.0	1.6	2.4	pF
Reverse Transfer Capacitance	C_{RSS}	$I_D = 10\text{mA}, f = 1\text{MHz}$	—	0.015	0.03	pF
Power Gain	G_{ps}	$V_{DS} = 6V, V_{G2S} = 4V, I_D = 10\text{mA}, f = 800\text{MHz}$ (Fig.1)	18	19.5	—	dB
Noise Figure	NF		—	1.9	3.0	dB

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

Fig.1 800MHz G_{ps} , NF TEST CIRCUIT

