

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

# 3SK199

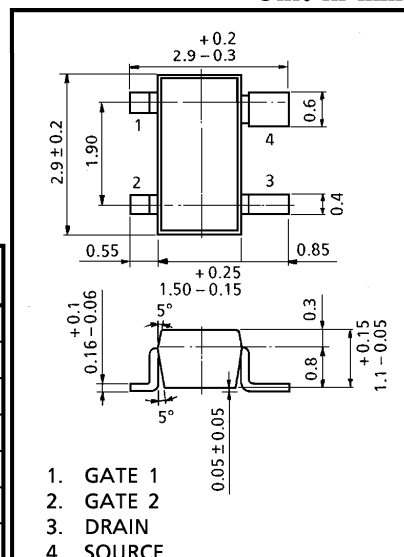
TV TUNER, UHF RF AMPLIFIER APPLICATIONS

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

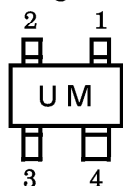
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DS}$	13.5	V
Gate 1-Source Voltage	$V_{G1S}$	$\pm 8$	V
Gate 2-Source Voltage	$V_{G2S}$	$\pm 8$	V
Drain Current	$I_D$	30	mA
Drain Power Dissipation	$P_D$	150	mW
Channel Temperature	$T_{ch}$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55\sim 125$	$^\circ\text{C}$



SMQ	
JEDEC	—
EIAJ	—
TOSHIBA	2-3J1A

Weight : 0.013g

Marking

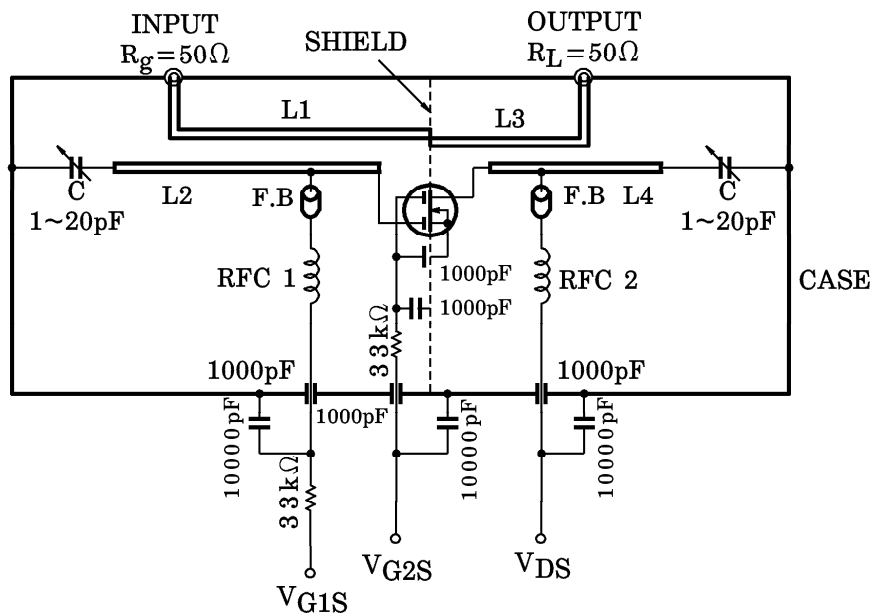


ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

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

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

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

