

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL DUAL GATE MOS TYPE

# 3SK258

TV TUNER, VHF RF AMPLIFIER APPLICATIONS

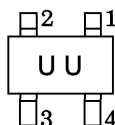
FM TUNER APPLICATIONS

- Superior Cross Modulation Performance.
- Low Reverse Transfer Capacitance :  $C_{RSS} = 0.015\text{pF}$  (Typ.)
- Low Noise Figure :  $NF = 1.1\text{dB}$  (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	$P_D$	100	mW
Chanel Temperature	$T_{ch}$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55 \sim 125$	$^\circ\text{C}$

Marking



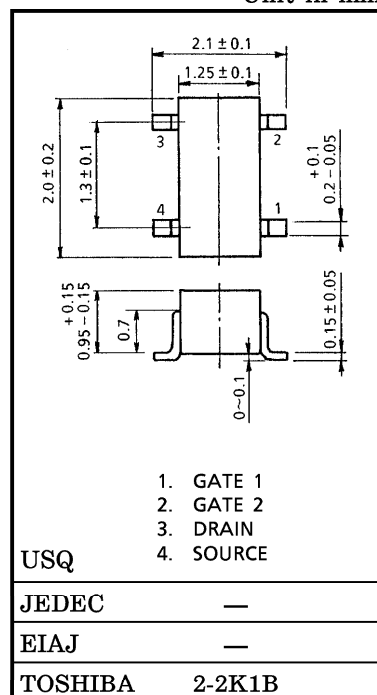
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 1 Leakage Current	$I_{G1SS}$	$V_{DS} = 0, V_{G1S} = \pm 6V, V_{G2S} = 0$	—	—	$\pm 50$	nA
Gate 2 Leakage Current	$I_{G2SS}$	$V_{DS} = 0, V_{G1S} = 0, V_{G2S} = \pm 6V$	—	—	$\pm 50$	nA
Drain-Source Voltage	$V_{(BR)DSX}$	$V_{G1S} = -1V, V_{G2S} = -1V$ $I_D = 100\mu\text{A}$	13.5	—	—	V
Drain Current	$I_{DSS}$	$V_{DS} = 6V, V_{G1S} = 0,$ $V_{G2S} = 4.5V$	0	—	0.1	mA
Gate 1-Source Cut-off Voltage	$V_{G1S(OFF)}$	$V_{DS} = 6V, V_{G2S} = 4.5V,$ $I_D = 100\mu\text{A}$	0	—	1.0	V
Gate 2-Source Cut-off Voltage	$V_{G2S(OFF)}$	$V_{DS} = 6V, V_{G1S} = 4V,$ $I_D = 100\mu\text{A}$	0.5	1.0	1.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 6V, V_{G2S} = 4.5V$ $I_D = 10\text{mA}, f = 1\text{kHz}$	—	13	—	mS
Input Capacitance	$C_{iss}$	$V_{DS} = 6V, V_{G2S} = 4.5V$ $I_D = 10\text{mA}, f = 1\text{MHz}$	2.1	2.7	3.3	pF
Reverse Transfer Capacitance	$C_{rss}$		—	0.015	0.03	
Power Gain	$G_{ps}$	$V_{DS} = 6V, V_{G2S} = 4.5V$	23	27	—	dB
Noise Figure	NF	$I_D = 10\text{mA}, f = 800\text{MHz}$ (Fig.1)	—	1.1	2.2	

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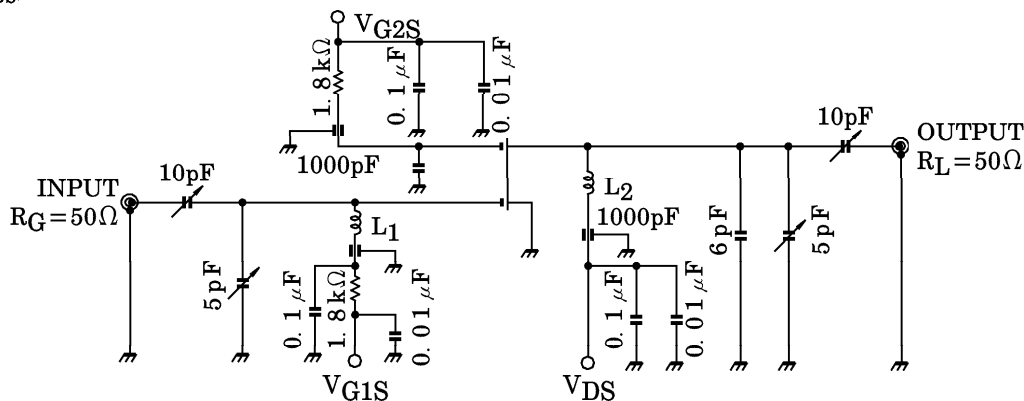
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Unit in mm



Weight : 0.006g

Fig.1  $G_{ps}$ , NF Test Circuit



$L_1$  : 1mm  $\phi$  Ag Plated Copper Wire, 2 Turns, 8mm ID  
 $L_2$  : 1mm  $\phi$  Ag Plated Copper Wire, 2.5 Turns, 8mm ID

