

TOSHIBA Field Effect Transistor Silicon N Channel Dual Gate MOS Type

3SK249

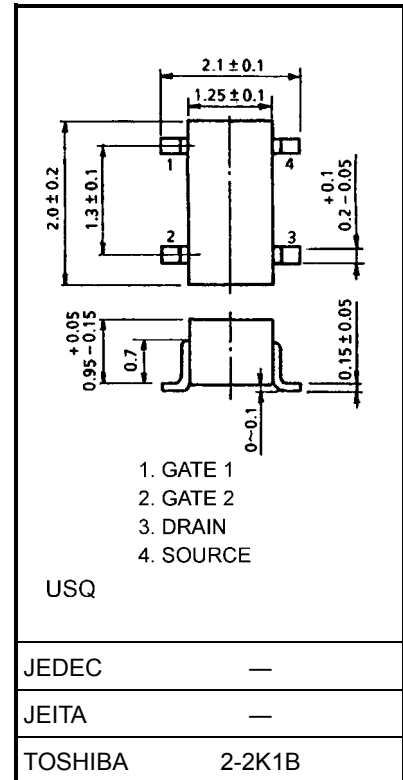
TV Tuner, UHF RF Amplifier Applications

Unit: mm

- Superior cross modulation performance.
- Low reverse transfer capacitance: $C_{RSS} = 20 \text{ fF}$ (typ.)
- Low noise figure.: $NF = 1.5\text{dB}$ (typ.)

Maximum Ratings (Ta = 25°C)

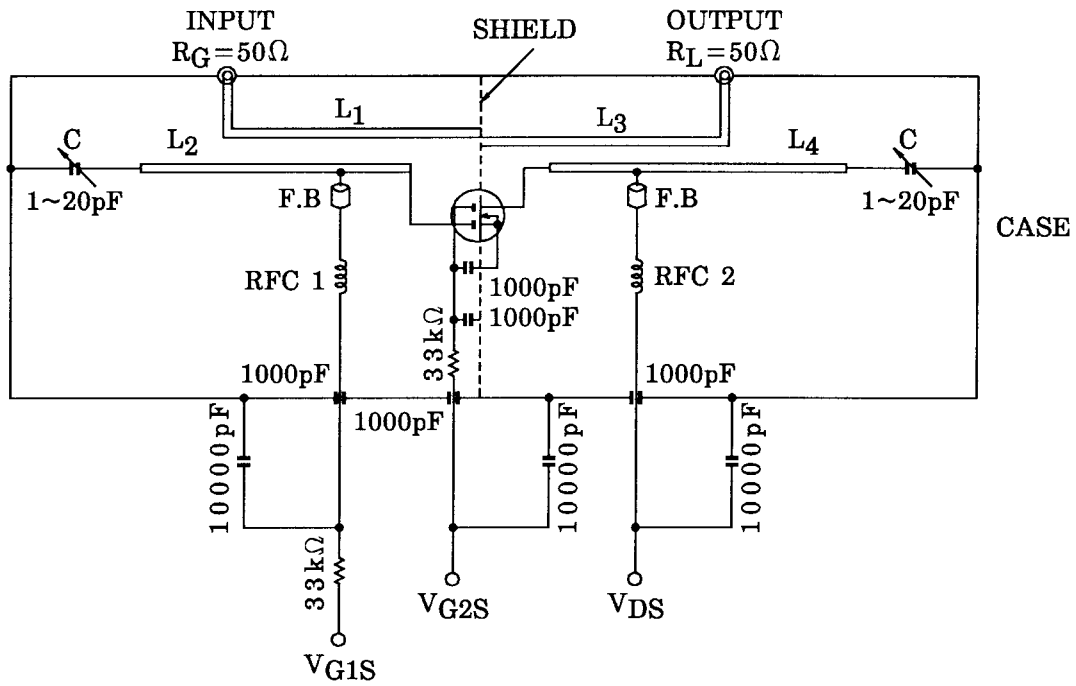
Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	12.5	V
Gate 1-source voltage	V_{G1S}	± 8	V
Gate 2-source voltage	V_{G2S}	± 8	V
Drain current	I_D	30	mA
Drain power dissipation	P_D	100	mW
Channel temperature	T_{ch}	125	°C
Storage temperature range	T_{stg}	-55~125	°C



Weight: 0.006 g (typ.)

Electrical Characteristics (Ta = 25°C)

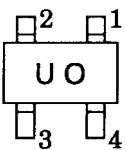
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate 1 leakage current	I_{G1SS}	$V_{DS} = 0, V_{G1S} = \pm 6 \text{ V}, V_{G2S} = 0$	—	—	± 50	nA
Gate 2 leakage current	I_{G2SS}	$V_{DS} = 0, V_{G1S} = 0, V_{G2S} = \pm 6 \text{ V}$	—	—	± 50	nA
Drain-source voltage	$V_{(BR)DSX}$	$V_{G1S} = -0.5 \text{ V}, V_{G2S} = -0.5 \text{ V}$ $I_D = 100 \mu\text{A}$	12.5	—	—	V
Drain current	I_{DSS}	$V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, V_{G1S} = 0 \text{ V}$	0	—	0.1	mA
Gate 1-source cut-off voltage	$V_{G1S(OFF)}$	$V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 100 \mu\text{A}$	0.4	0.9	1.4	V
Gate 2-source cut-off voltage	$V_{G2S(OFF)}$	$V_{DS} = 6 \text{ V}, V_{G1S} = 4.0 \text{ V}, I_D = 100 \mu\text{A}$	0.5	1.0	1.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA},$ $f = 1 \text{ kHz}$	17	21	—	mS
Input capacitance	C_{iss}	$V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA},$ $f = 1 \text{ MHz}$	0.9	1.5	2.1	pF
Reverse transfer capacitance	C_{rss}		—	20	40	fF
Power gain	G_{ps}	$V_{DS} = 6 \text{ V}, V_{G2S} = 4.5 \text{ V}, I_D = 10 \text{ mA},$ $f = 800 \text{ MHz}$	18	20	—	dB
Noise figure	NF		—	1.5	2.5	dB

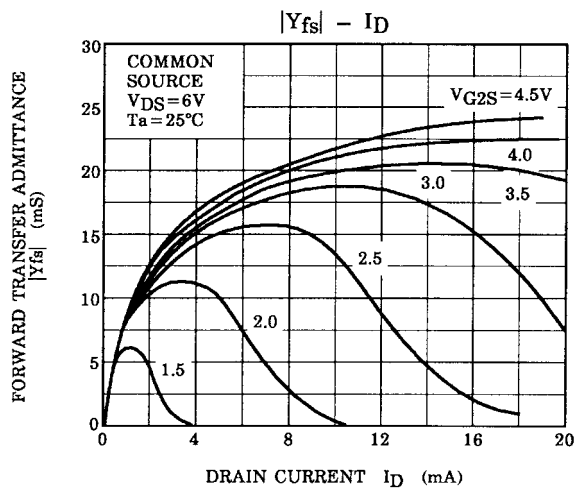
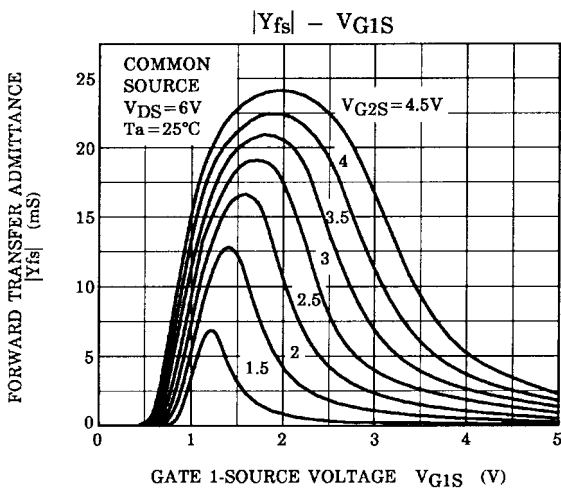
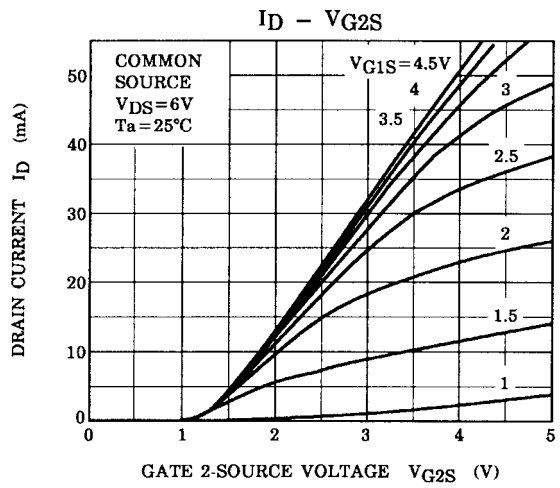
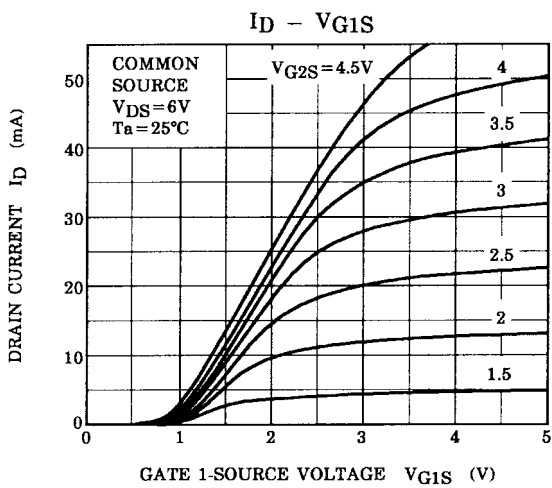
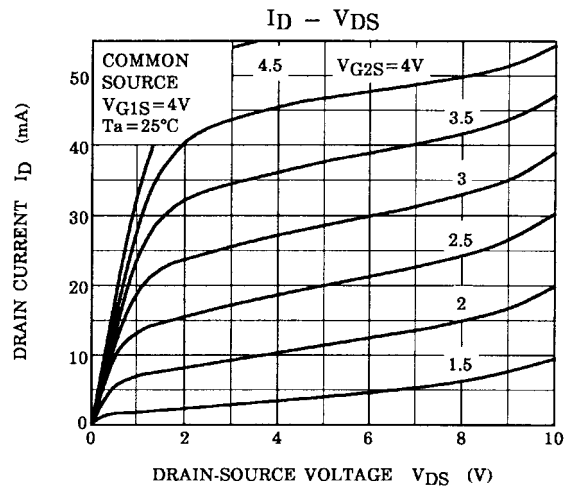
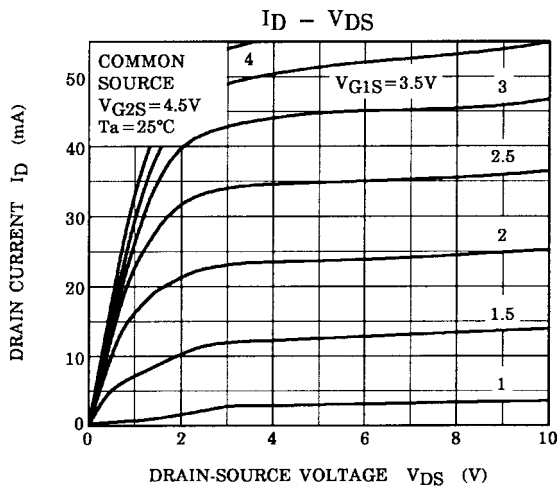


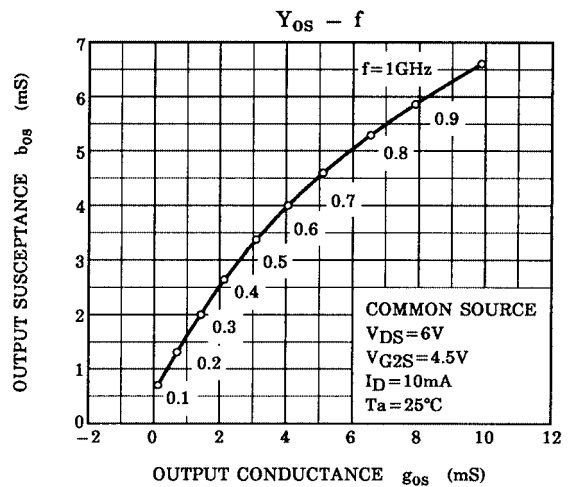
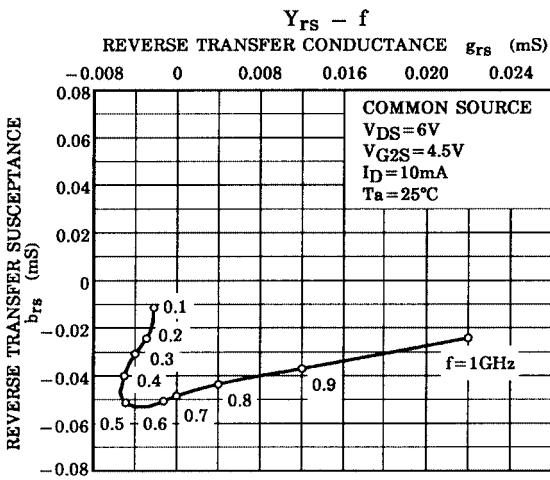
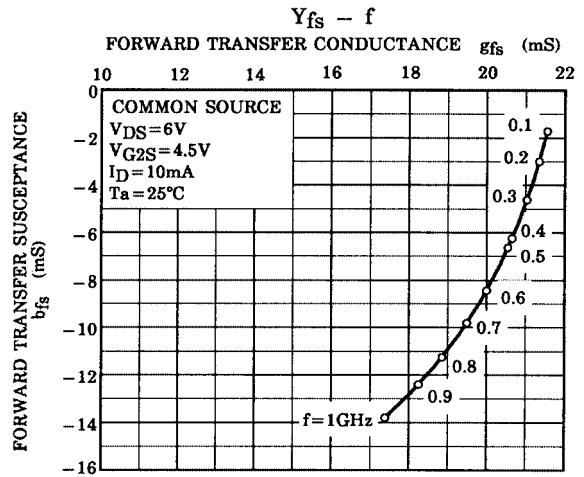
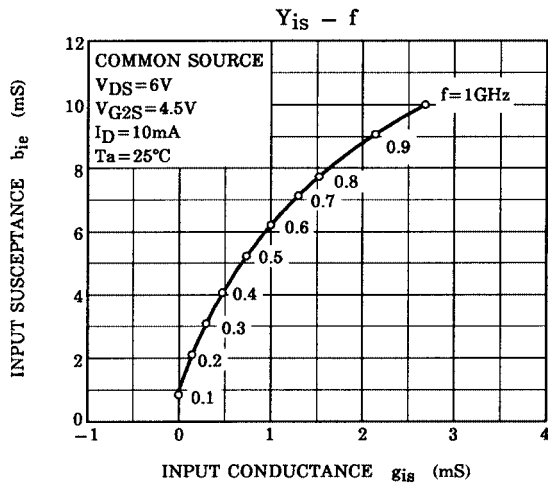
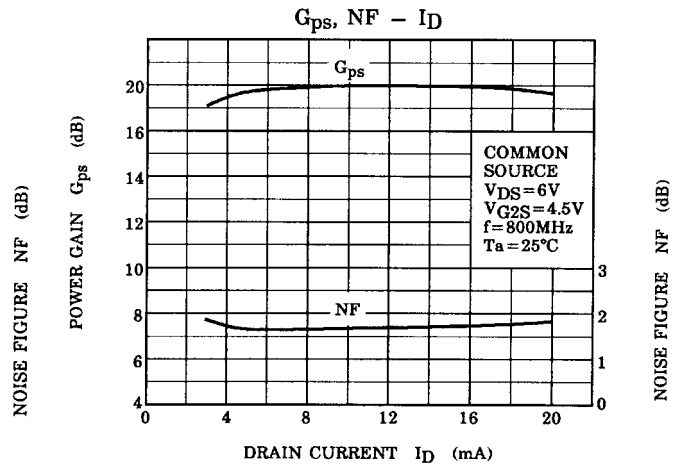
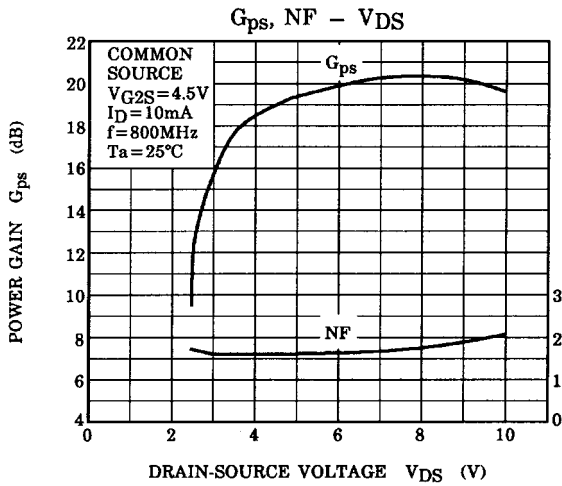
- L₁~L₄: φ0.8 mm silver plated copper wire
- C: Air trimmer TTA25A200A (MURATA Manufacturing, Co., Ltd.)
- RFC 1: φ0.35 mm copper wire 3 mm ID, 7 T
- RFC 2: φ0.35 mm copper wire 3 mm ID, 10 T

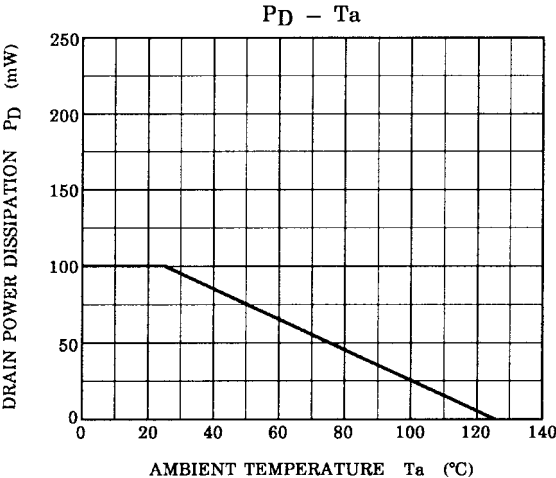
Figure 1 G_{ps}, NF Test Circuit

Marking









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