

TOSHIBA Field Effect Transistor Silicon N Channel Dual Gate MOS Type

3SK259

TV Tuner, UHF RF Amplifier Applications

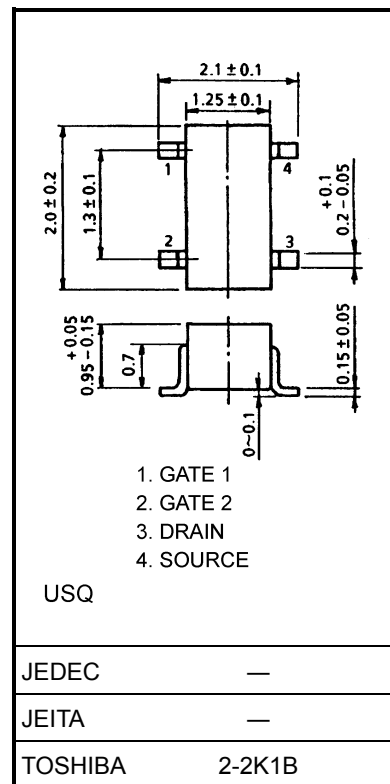
TV Tuner VHF Wide Band RF Amplifier Applications

Unit: mm

- Superior cross modulation performance.
- Low reverse transfer capacitance: $C_{rss} = 0.025$ pF (typ.)
- Low noise figure: NF = 2.6dB (typ.)

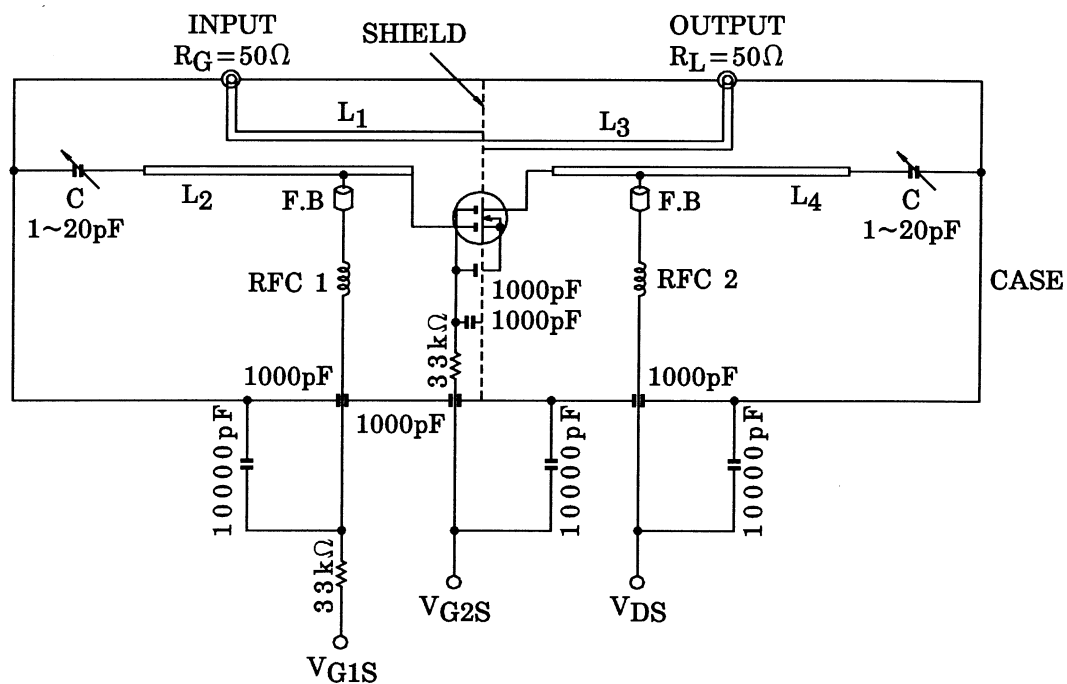
Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristics	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	100	mW
Channel temperature	T_{ch}	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	$-55\sim 125$	$^\circ\text{C}$

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

Weight: 0.006 g (typ.)

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	$V_{(BR)DSX}$	$V_{G1S} = -4\text{ V}, V_{G2S} = -4\text{ V}$ $I_D = 100\text{ }\mu\text{A}$	13.5	—	—	V
Drain current	I_{DSS}	$V_{DS} = 6\text{ V}, V_{G1S} = 0, V_{G2S} = 3\text{ V}$	0	—	2	mA
Gate 1-source cut-off voltage	$V_{G1S(OFF)}$	$V_{DS} = 6\text{ V}, V_{G2S} = 3\text{ V}, I_D = 100\text{ }\mu\text{A}$	-1.5	—	1	V
Gate 2-source cut-off voltage	$V_{G2S(OFF)}$	$V_{DS} = 6\text{ V}, V_{G1S} = 3\text{ V}, I_D = 100\text{ }\mu\text{A}$	-1.0	—	1	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 6\text{ V}, V_{G2S} = 3\text{ V}, I_D = 10\text{ mA}$ $f = 1\text{ kHz}$	—	21	—	mS
Input capacitance	C_{iss}	$V_{DS} = 6\text{ V}, V_{G2S} = 3\text{ V}, I_D = 10\text{ mA}$ $f = 1\text{ MHz}$	1.9	2.7	3.5	pF
Reverse transfer capacitance	C_{rss}		—	0.025	0.04	pF
Power gain	G_{ps}	$V_{DS} = 6\text{ V}, V_{G2S} = 3\text{ V}$	15	19	—	dB
Noise figure	NF	$I_D = 10\text{ mA}, f = 800\text{ MHz}$ (Figure 1)	—	2.6	4.0	dB



L₁~L₄: ϕ 0.8 mm silver plated copper wire

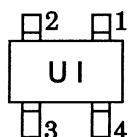
C: Air trimmer TTA25A200A (MURATA Manufacturing. Co., Ltd.)

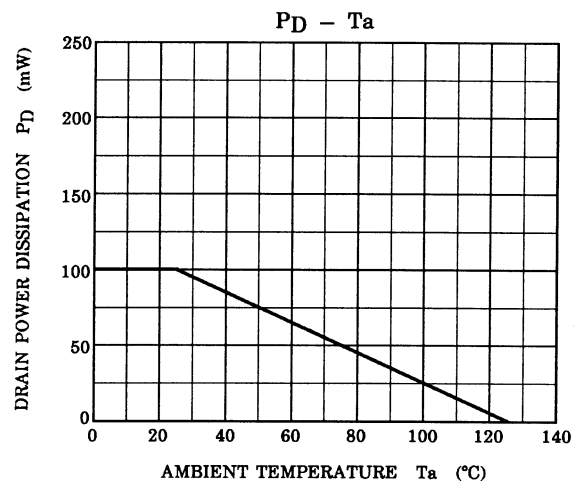
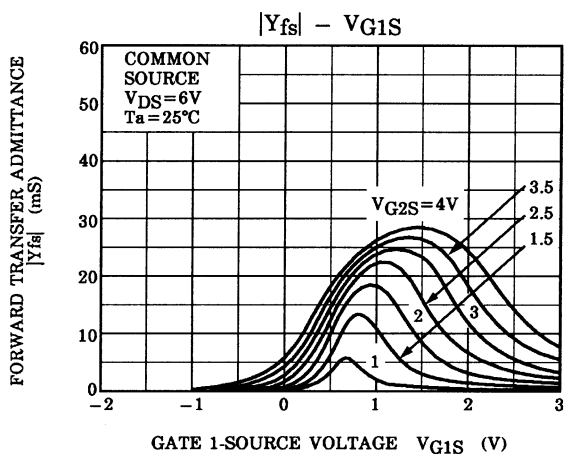
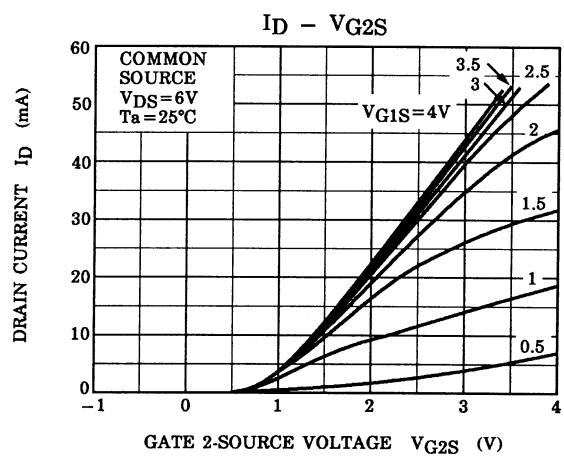
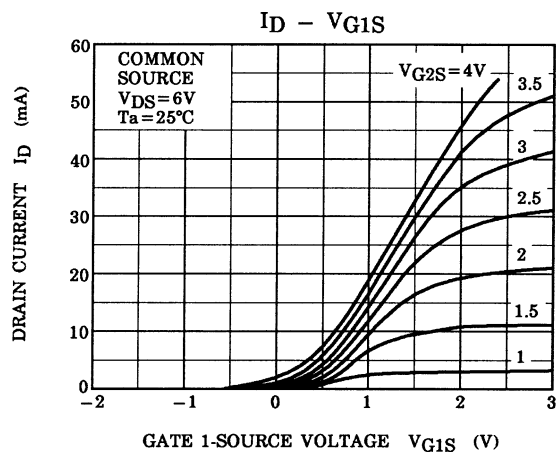
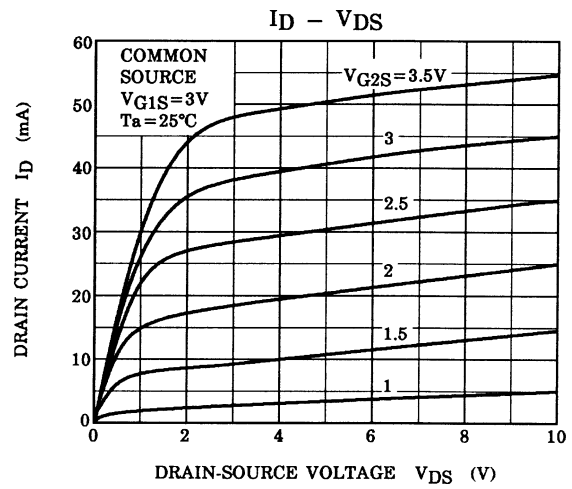
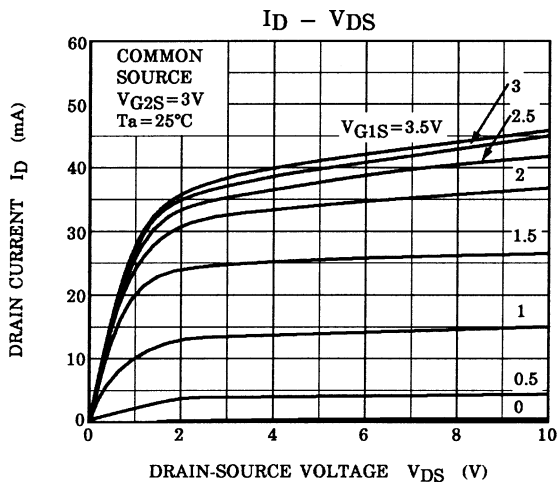
RFC 1: ϕ 0.35 mm copper wire 3 mm ID, 7 T

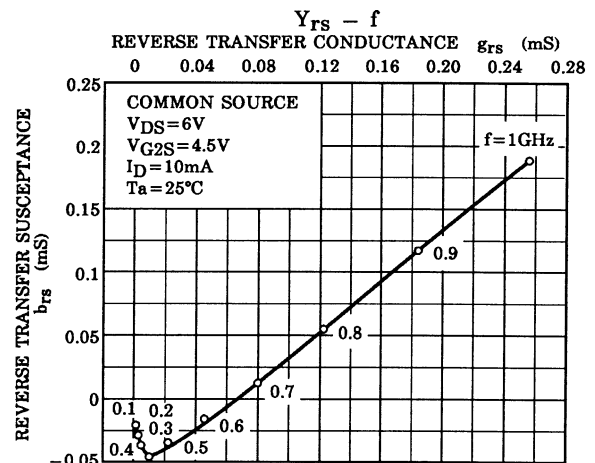
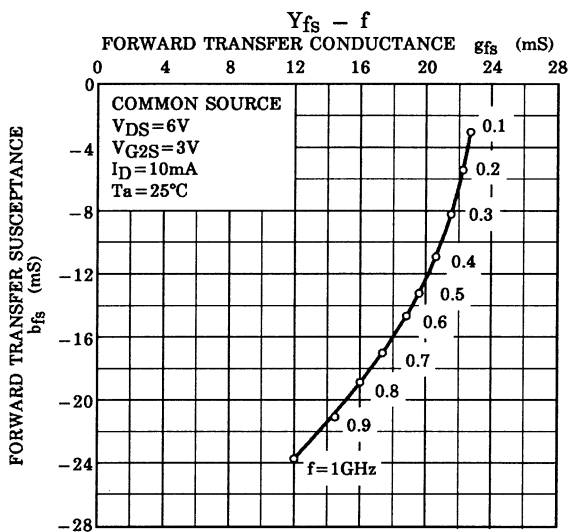
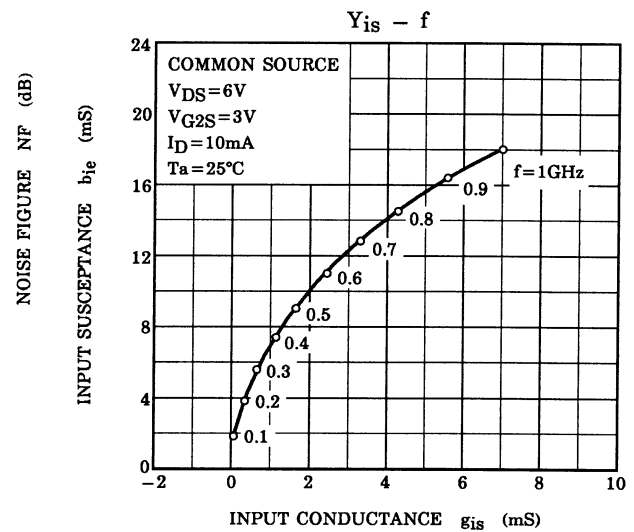
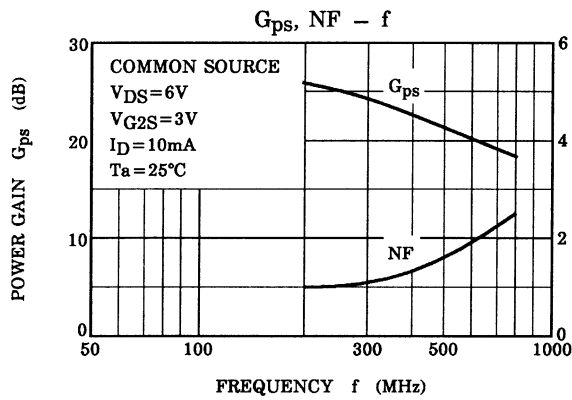
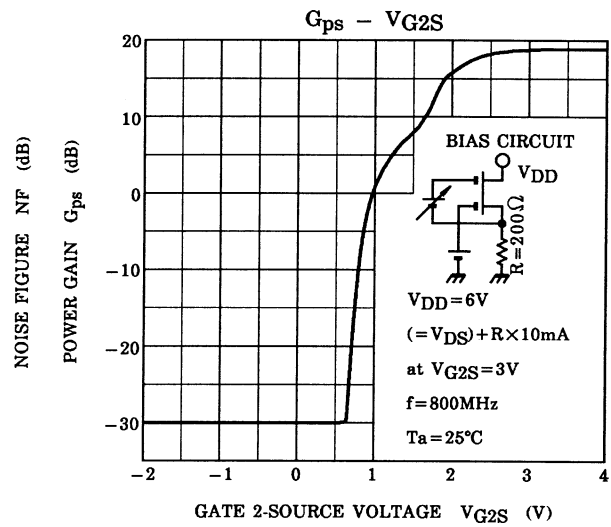
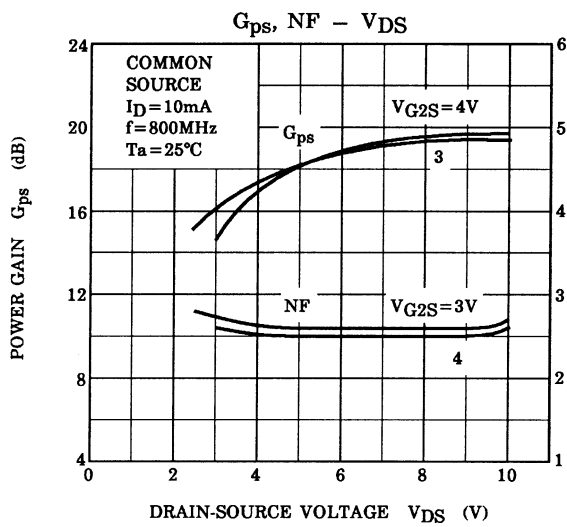
RFC 2: ϕ 0.35 mm copper wire 3 mm ID, 10 T

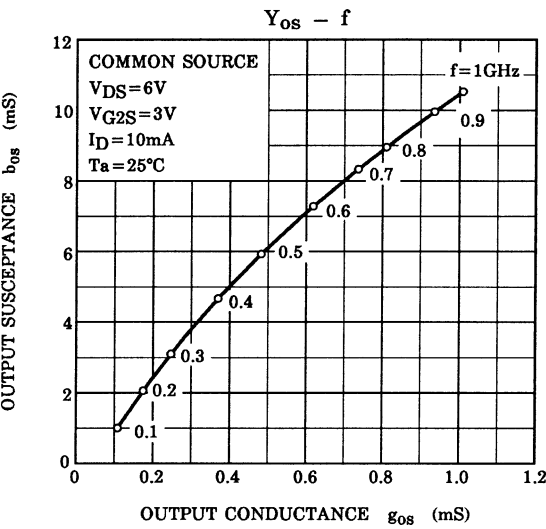
Figure 1 G_{ps}, NF Test Circuit

Marking









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