

TOSHIBA MOS TYPE INTEGRATED CIRCUIT GaAs MONOLITHIC

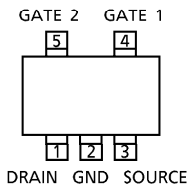
TG2000F

TV TUNER, UHF RF AMPLIFIER APPLICATIONS.

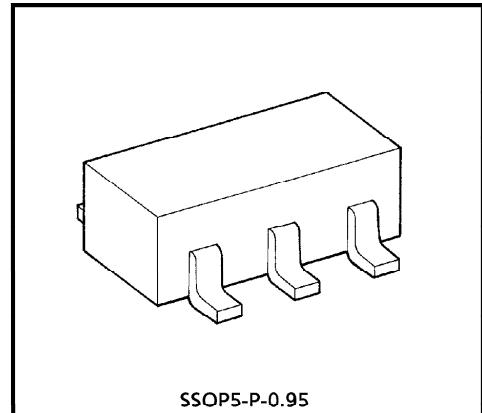
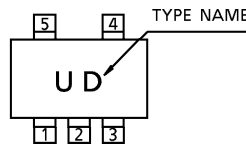
FEATURES

- On account of this Device build in Bias Circuit, Cut down number of articles.
- Low Noise Figure. : NF = 1.5dB (Typ.)
- Operating Voltage. : $V_{DD} = 4\sim 5V$

PIN ASSIGNMENT (TOP VIEW)



MARKING



Weight : 0.014g (Typ.)

MAXIMUM RATING (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{DD}	6	V
Gate 2-Drain Voltage	V_{G2DO}	-6	V
Gate 2-Source Voltage	V_{G2S}	-4	V
Gate 2 Current	I_{G2}	1	mA
Drain Power Dissipation	P_D	150	mW
Operating Temperature Range	T_{opr}	-40~85	°C
Storage Temperature Range	T_{stg}	-55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 2 Leakage Current	I_{G2SS}	—	$V_{DS} = 0, V_{G1S} = 0, V_{G2S} = -3V$	—	—	-4	μA
Drain Current	I_{DSS}	—	$V_{DS} = 2V, V_{G1S} = 0, V_{G2S} = 0$	4	—	16	mA
Gate 2-Source Cut-off Voltage	$V_{G2S} (OFF)$	—	$V_{DS} = 2V, V_{G1S} = 0$ $I_D = 100\mu A$	-0.75	—	-1.3	V
Forward Transfer Admittance	$ Y_{fs} $	—	$V_{DS} = 2V, V_{G2S} = 0.5V$ $I_D = 2mA, f = 1kHz$	—	12	—	mS
Drain Current	I_{DD}	1	$V_{DD} = 4.5V, V_{G2} = 2.5V$ $R = 390\Omega$	—	11	—	mA
Power Gain	G_{ps}	2	$V_{DD} = 4.5V, V_{G2} = 2.5V$ $f = 800MHz, R = 390\Omega$	15	19	—	dB
Noise Figure	NF			—	1.5	2.5	dB

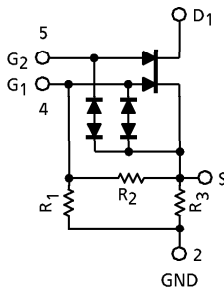
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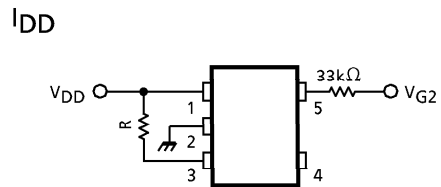
CAUTION

GaAs (Gallium Arsenide) is used in this product. The dust or vapor can be dangerous to humans. Do not break, cut, crush or dissolve chemically. Dispose of this product properly according to law. Do not intermingle with normal industrial or domestic waste. This device is electrostatic sensitivity. Please handle with caution.

EQUIVALENT CIRCUIT

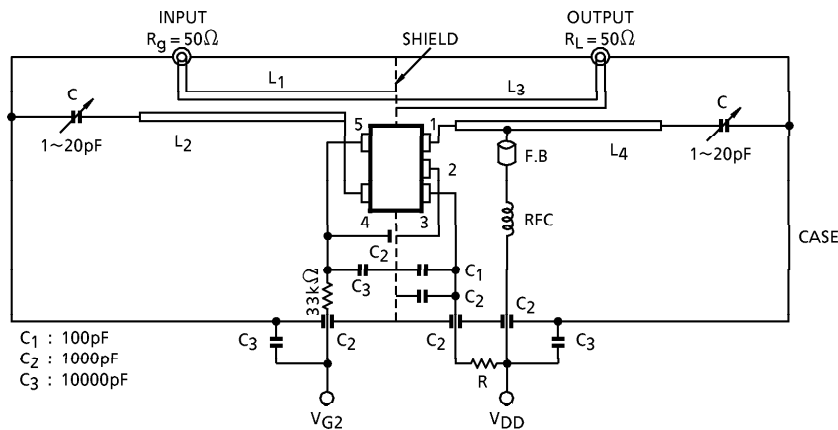


TEST CIRCUIT 1



TEST CIRCUIT 2

800MHz G_{ps} , NF

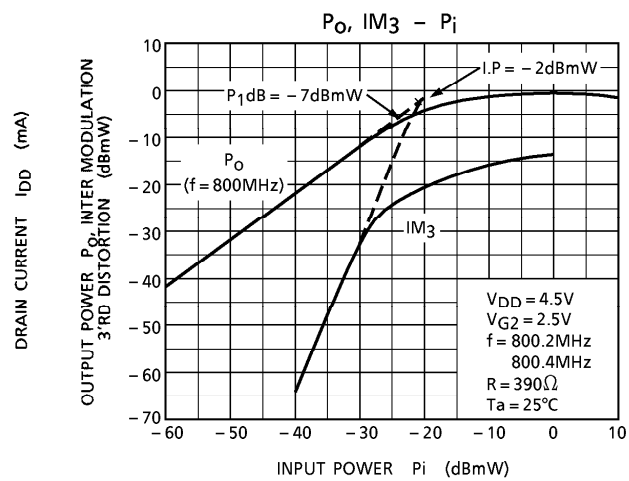
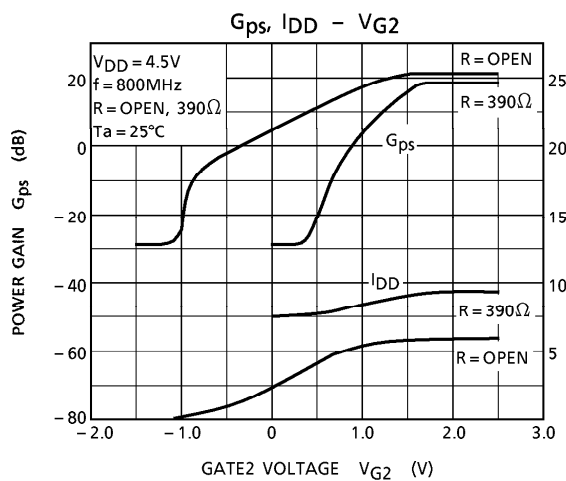
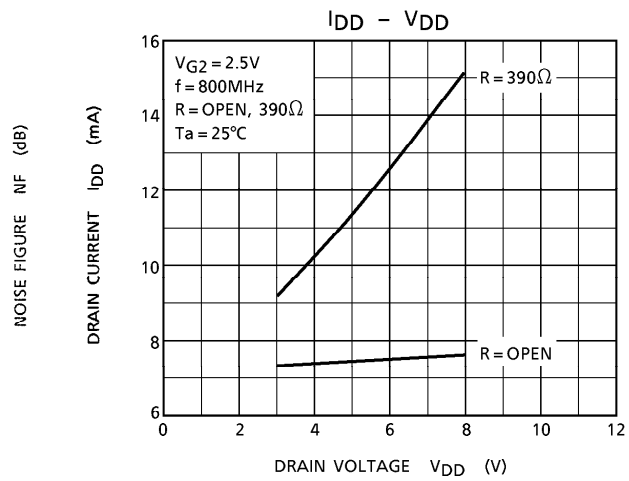
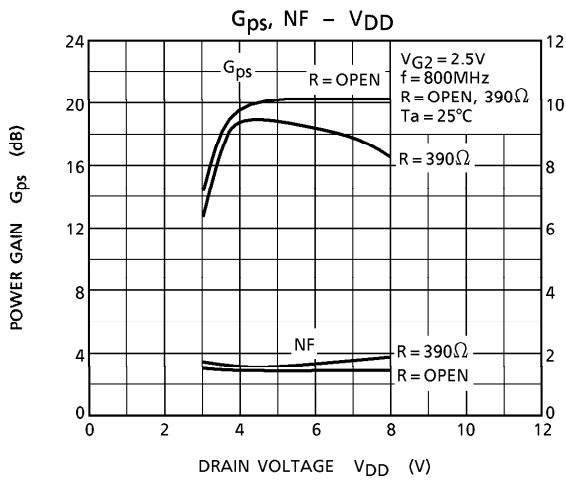
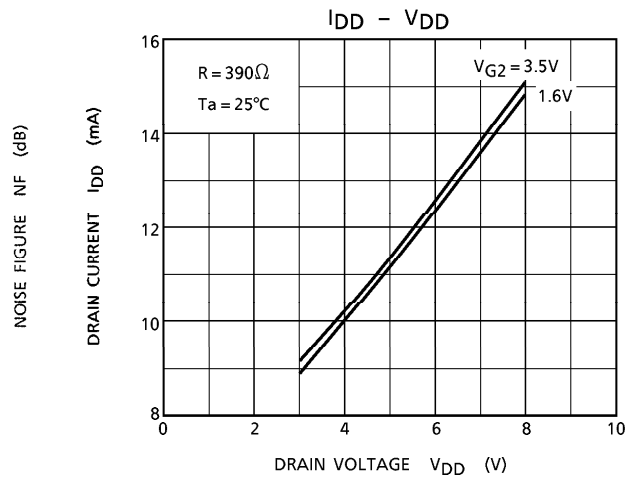
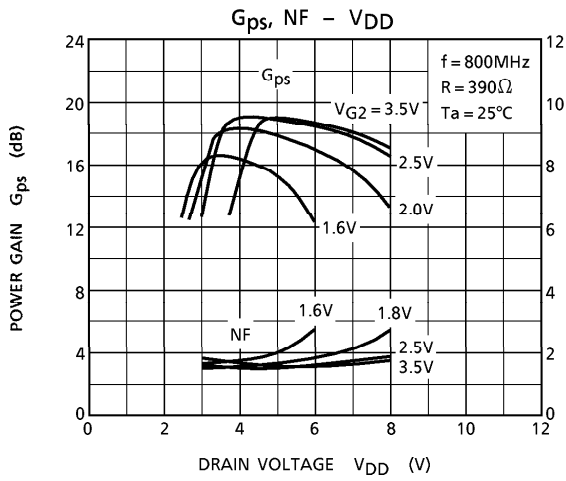


C1 : 100pF
 C2 : 1000pF
 C3 : 10000pF

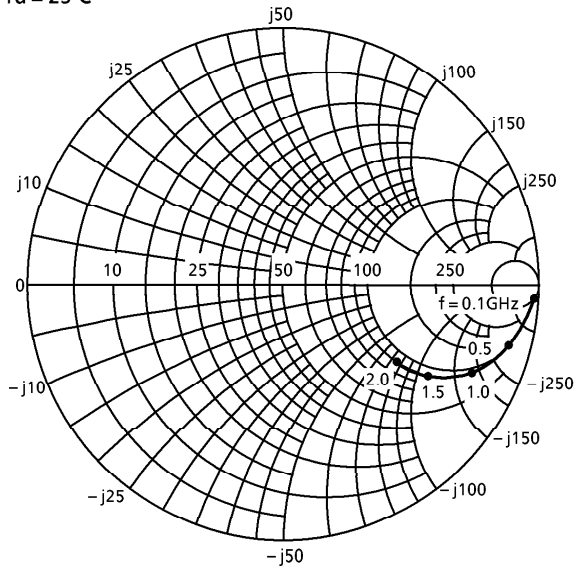
L1~L4 : ϕ 0.8mm SILVER PLATED COPPER WIRE
 C : AIR TRIMMER TTA25A200A (MURATA MFG. Co., LTD.)
 RFC : ϕ 0.35mm COPPER WIRE 3mm ID, 10T

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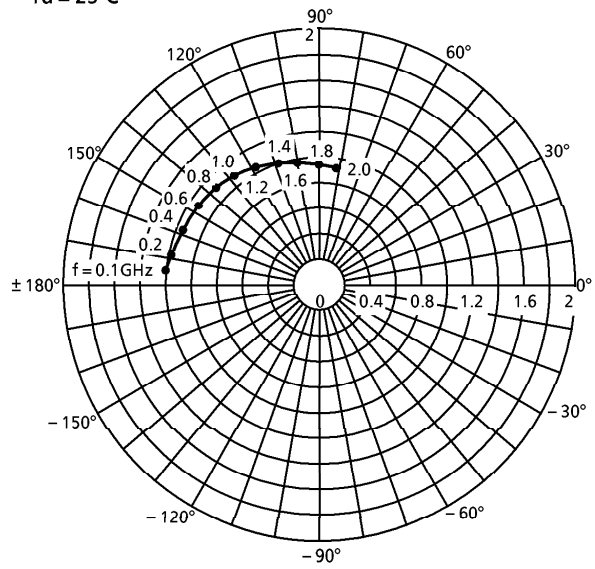
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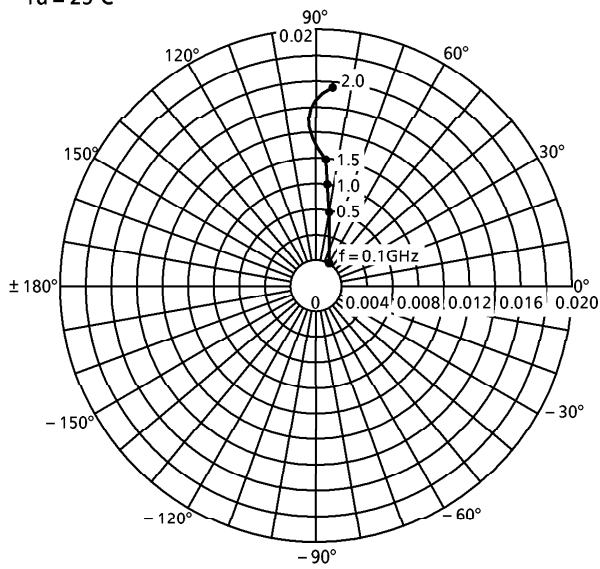
S11
 V_{DD} = 4.5V
 V_{G2} = 2.5V
 f = 800MHz
 R = 390Ω
 T_a = 25°C



S21
 V_{DD} = 4.5V
 V_{G2} = 2.5V
 f = 800MHz
 R = 390Ω
 T_a = 25°C



S12
 V_{DD} = 4.5V
 V_{G2} = 2.5V
 f = 800MHz
 R = 390Ω
 T_a = 25°C



S22
 V_{DD} = 4.5V
 V_{G2} = 2.5V
 f = 800MHz
 R = 390Ω
 T_a = 25°C

