TOSHIBA FIELD EFFECT TRANSISTOR GaAs N-CHANNEL DUAL GATE MES TYPE

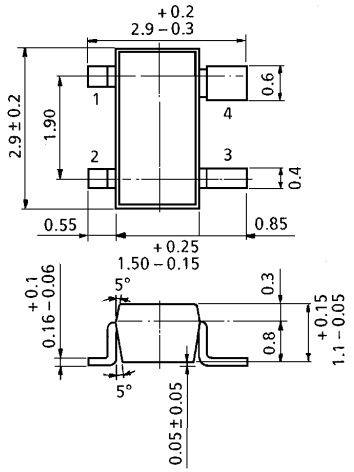
3SK283

TV TUNER, UHF RF AMPLIFIER APPLICATIONS

Unit in mm

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate 1-Drain Voltage	V_{G1DO}	−6	V
Gate 2-Drain Voltage	V_{G2DO}	−6	V
Gate 1-Source Voltage	V_{G1S}	−4	V
Gate 2-Source Voltage	V_{G2S}	−4	V
Gate 1 Current	I_{G1}	1	mA
Gate 2 Current	I_{G2}	1	mA
Power Dissipation	P_D	150	mW
Channel Temperature	T_{ch}	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

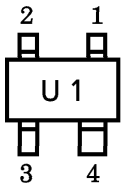


1. GATE 1
2. GATE 2
3. DRAIN
4. SOURCE

JEDEC	—
EIAJ	—
TOSHIBA	2-3J1A

Weight : 0.013g

Marking



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate 1 Leakage Current	I_{G1SS}	V_{DS}=0, V_{G1S}=−3V, V_{G2S}=0	—	—	−4	μA
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 1-Source Cut-off Voltage	$V_{G1S\,(OFF)}$	V_{DS}=2V, V_{G2S}=0, I_D=100μA	−0.5	—	−1.5	V
Gate 2-Source Cut-off Voltage	$V_{G2S\,(OFF)}$	V_{DS}=2V, V_{G1S}=0, I_D=100μA	−0.5	—	−1.5	V
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{DS}=2V, V_{G2S}=0.5V, I_D=2mA, f=1kHz	—	12	—	mS
Input Capacitance	C_{iss}	V_{DS}=2V, V_{G2S}=0.5V, I_D=2mA, f=1MHz	—	0.65	1.3	pF
Reverse Transfer Capacitance	C_{rss}		—	0.015	0.03	
Power Gain	G_{ps}	V_{DS}=2V, V_{G2S}=0.5V, I_D=2mA, f=800MHz (Fig.1)	15	18.5	—	dB
Noise Figure	NF		—	1.3	2.5	

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.

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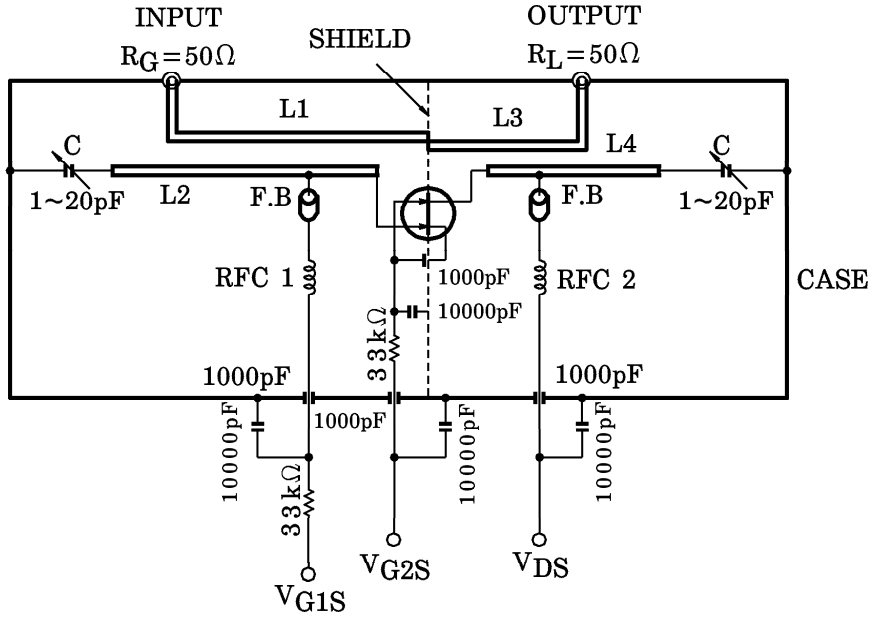
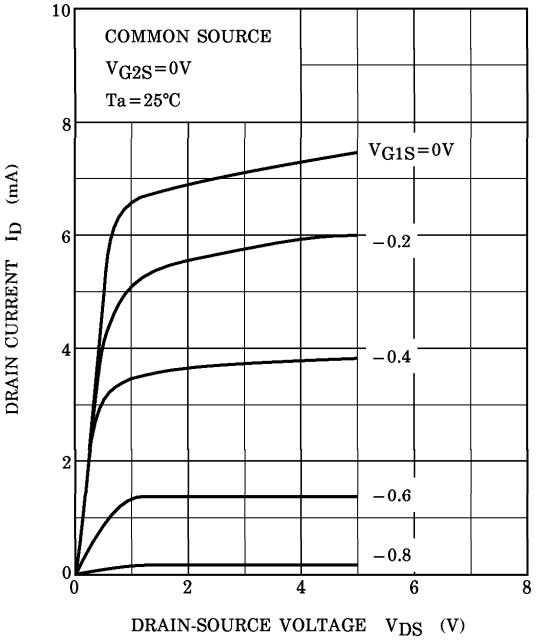
Fig.1 800MHz G_{ps}, NF TEST CIRCUIT

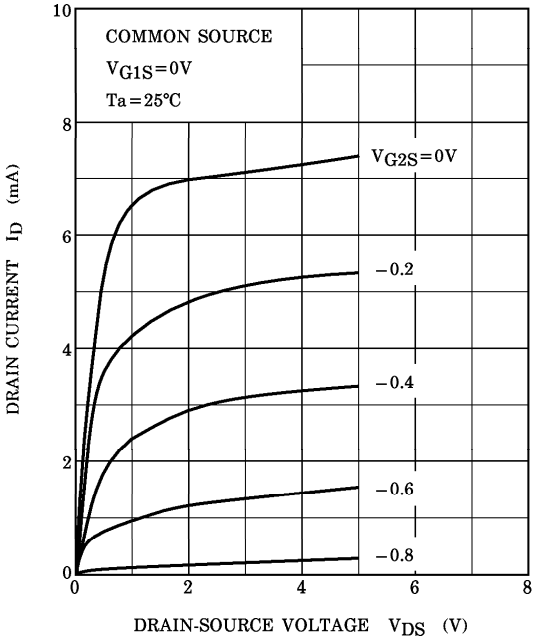


L1~L4 : ϕ1.0mm SILVER PLATED COPPER WIRE
C : AIR TRIMMER TTA25A200A (MURATA MFG. Co., LTD.)
RFC 1 : ϕ0.35mm COPPER WIRE 3mm ID, 7T
RFC 2 : ϕ0.35mm COPPER WIRE 3mm ID, 10T

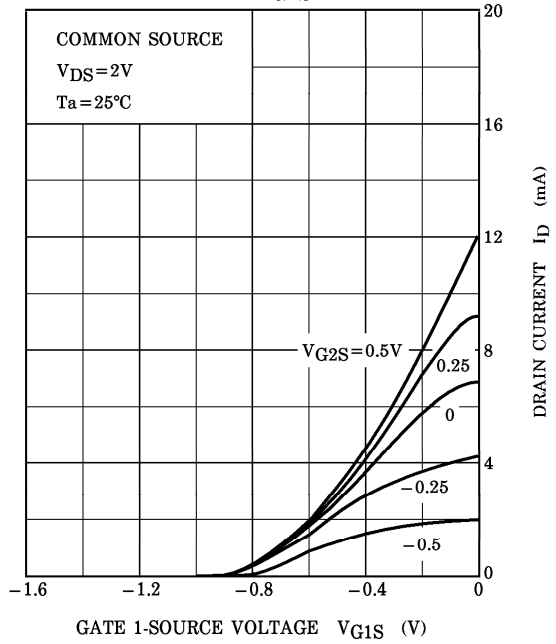
$I_D - V_{DS}$



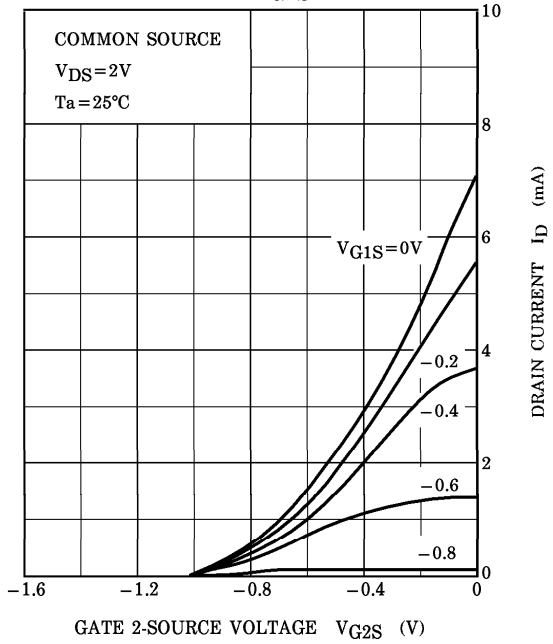
$I_D - V_{DS}$



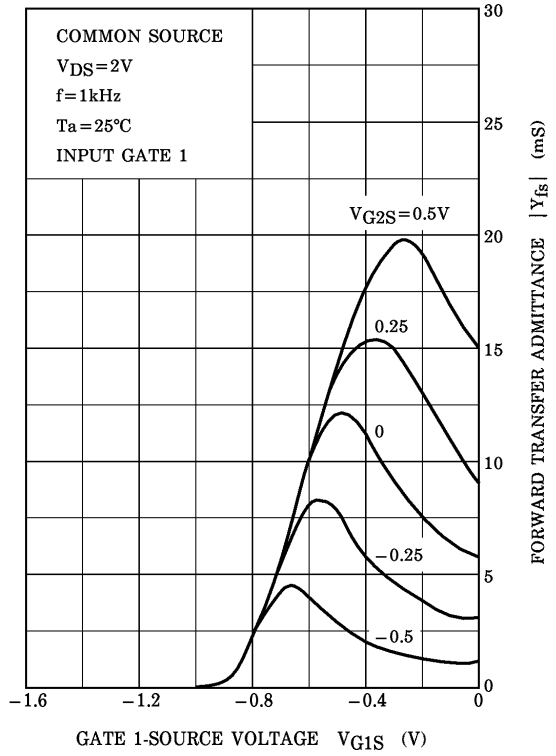
$I_D - V_{G1S}$



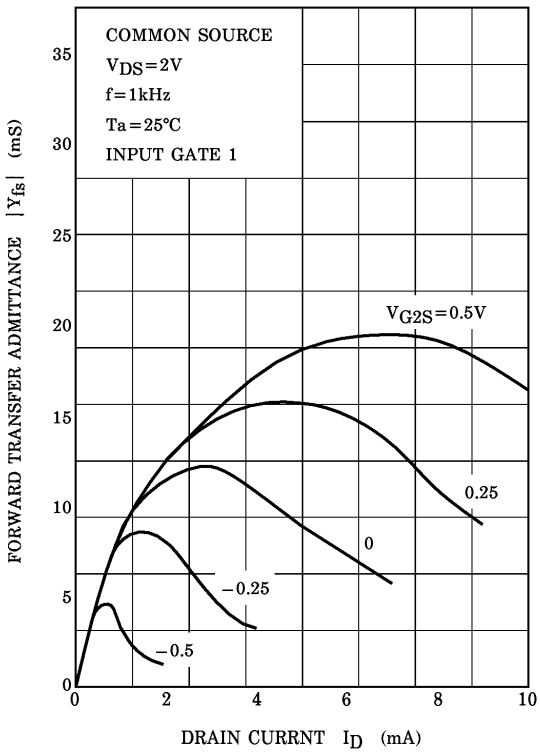
$I_D - V_{G2S}$



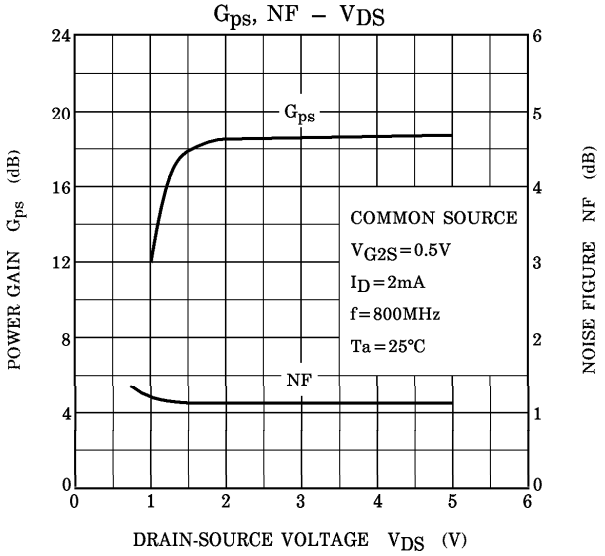
$|Y_{fs}|$ – V_{G1S}



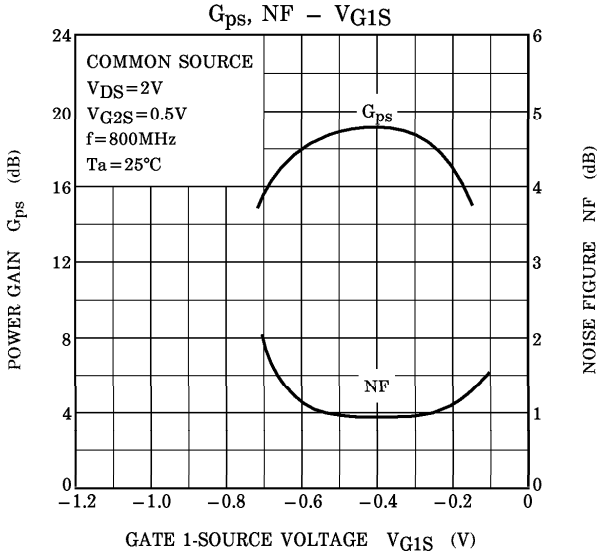
$|Y_{fs}|$ – I_D



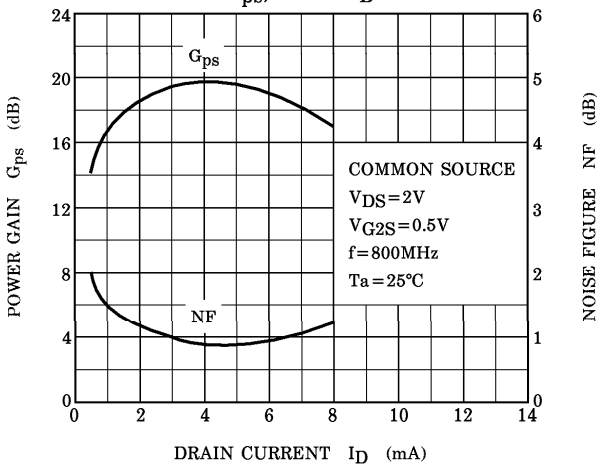
G_{ps}, NF – V_{DS}



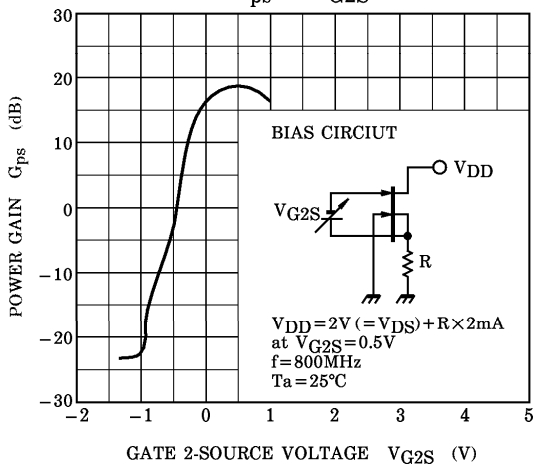
G_{ps}, NF – V_{G1S}



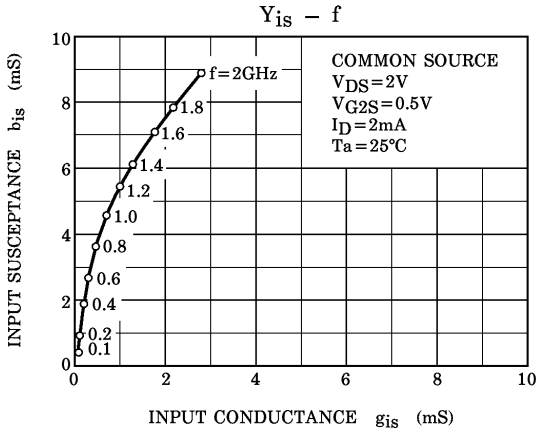
G_{ps}, NF – I_D



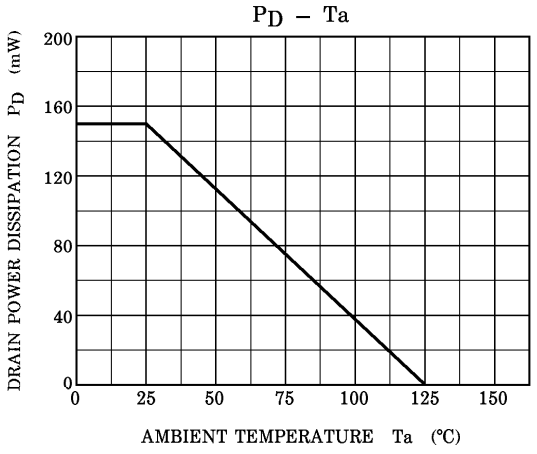
G_{ps} – V_{G2S}



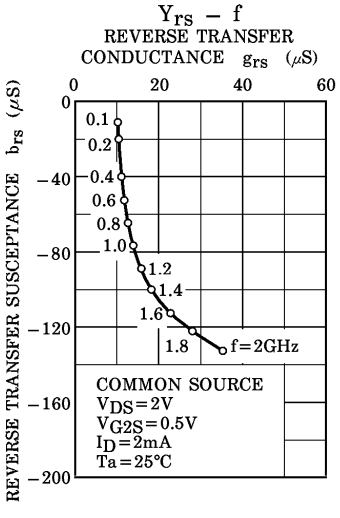
Y_{is} – f



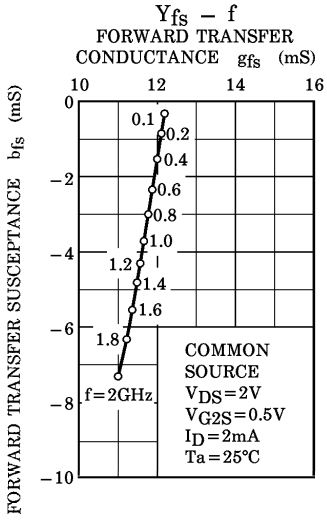
P_D – Ta



Y_{rs} – f



Y_{fs} – f



Y_{os} – f