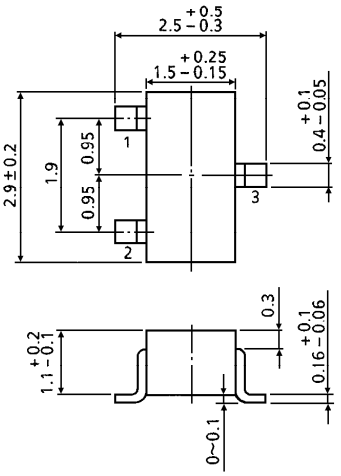
TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

2SK209

AUDIO FREQUENCY LOW NOISE AMPLIFIER APPLICATIONS

- High $|Y_{fs}|$
  : $|Y_{fs}|$ = 15mS (Typ.) at V_{DS} = 10V, V_{GS} = 0
- High Breakdown Voltage : V_{GDS} = −50V
- Low Noise
  : NF = 1.0dB (Typ.) at V_{DS} = 10V, I_D = 0.5mA, f = 1kHz, R_G = 1kΩ
- High Input Impedance : I_{GSS} = −1nA (Max.) at V_{GS} = −30V
- Small Package

Unit in mm



JEDEC	TO-236
EIAJ	SC-59
TOSHIBA	2-3F1B

Weight : 0.012g

MAXIMUM RATINGS (Ta = 25°C)

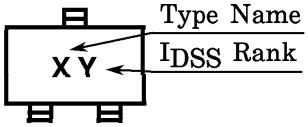
CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V_{GDS}	−50	V
Gate Current	I_G	10	mA
Drain Power Dissipation	P_D	150	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Cut-off Current	I_{GSS}	V_{GS} = −30V, V_{DS} = 0	—	—	−1.0	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDS}$	V_{DS} = 0, I_G = −100μA	−50	—	—	V
Drain Current	I_{DSS} (Note)	V_{DS} = 10V, V_{GS} = 0	1.2	—	14.0	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	V_{DS} = 10V, I_D = 0.1μA	−0.2	—	−1.5	V
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{DS} = 10V, V_{GS} = 0, f = 1kHz	4.0	15	—	mS
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0, f = 1MHz	—	13	—	pF
Reverse Transfer Capacitance	C_{rss}	V_{DG} = 10V, I_D = 0, f = 1MHz	—	3	—	pF
Noise Figure	NF (1)	V_{DS} = 10V, R_G = 1kΩ I_D = 0.5mA, f = 10Hz	—	5	—	dB
Noise Figure	NF (2)	V_{DS} = 10V, R_G = 1kΩ I_D = 0.5mA, f = 1kHz	—	1	—	dB

Note : I_{DSS} Classification
Y : 1.2~3.0mA, GR : 2.6~6.5mA, BL : 6.0~14mA

Marking



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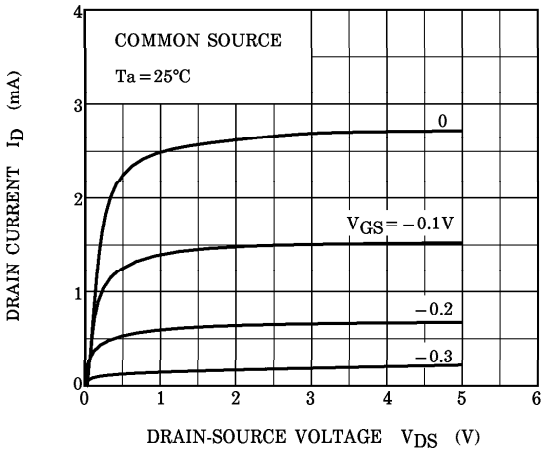
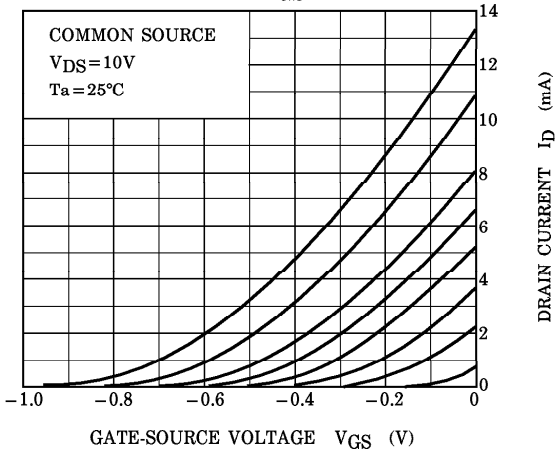
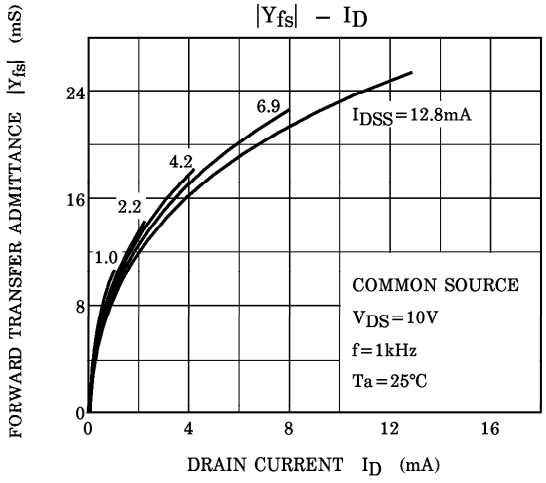
$I_D - V_{DS}$



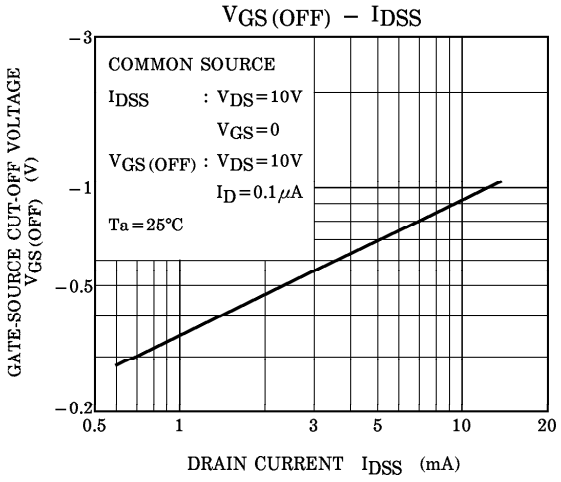
$I_D - V_{GS}$



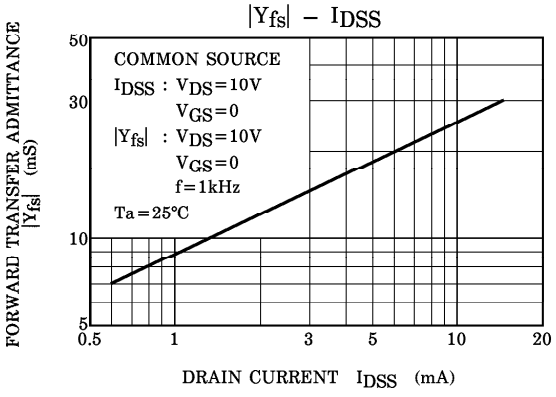
$|Y_{fs}| - I_D$



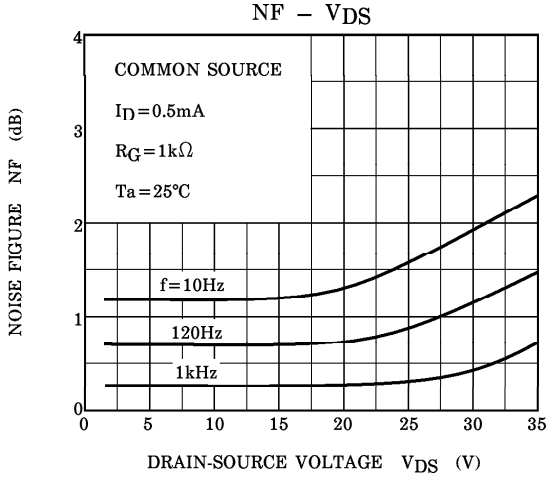
$V_{GS(OFF)} - I_{DSS}$



$|Y_{fs}| - I_{DSS}$



NF − V_{DS}



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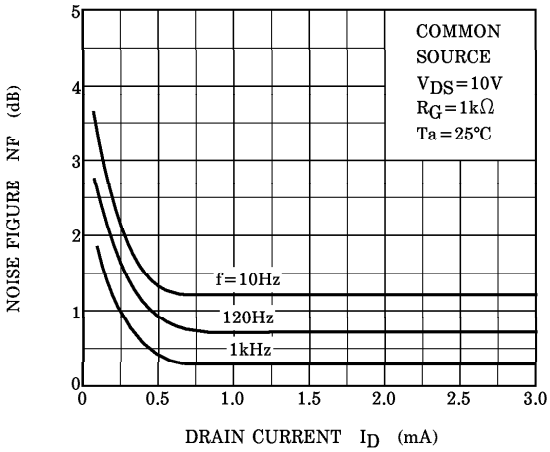
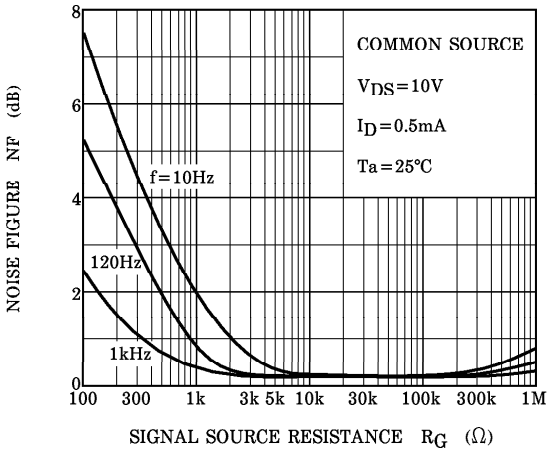
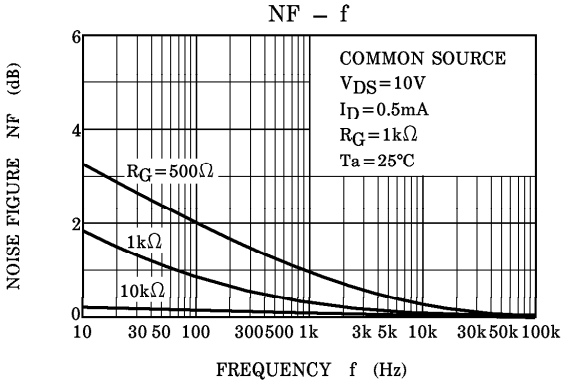
NF – I_D



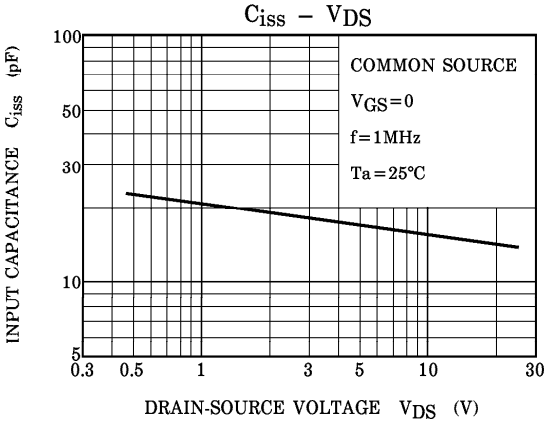
NF – R_G



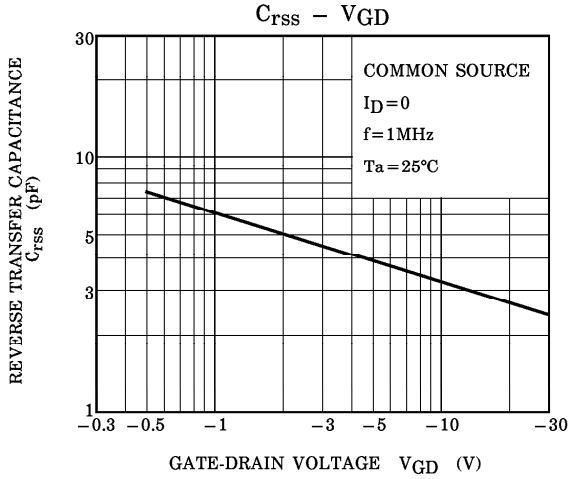
NF – f



C_{iss} – V_{DS}



C_{rss} – V_{GD}



P_D – Ta