

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

# 2SK209

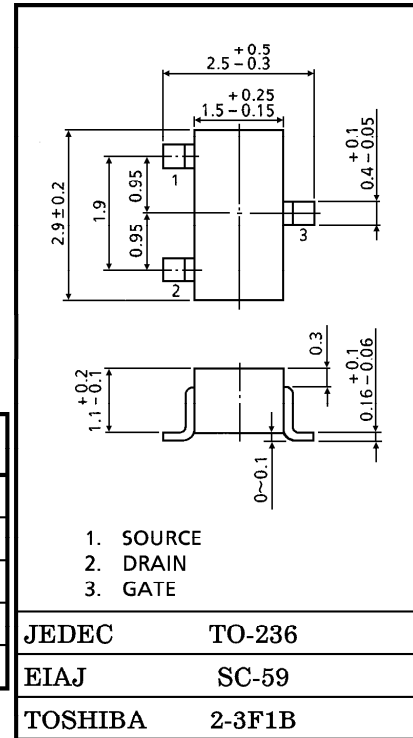
AUDIO FREQUENCY LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

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

**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)**

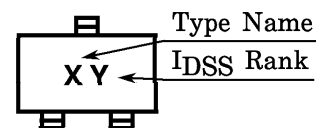
Weight : 0.012g

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

Note :  $I_{DSS}$  Classification

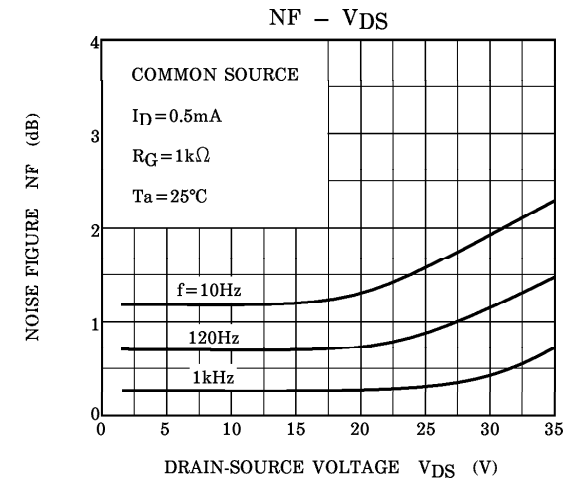
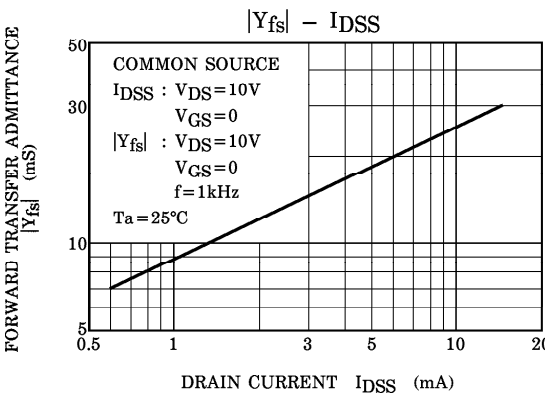
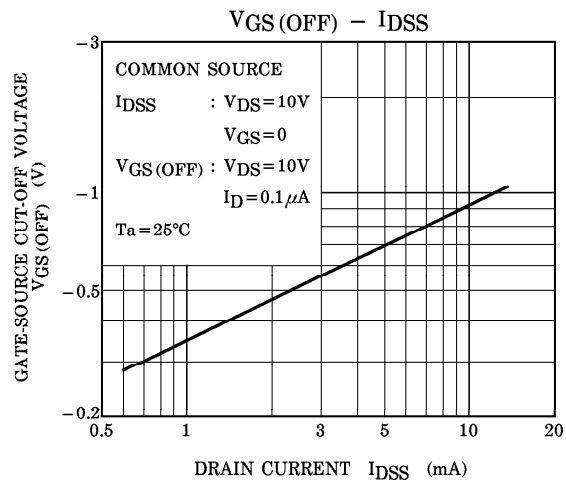
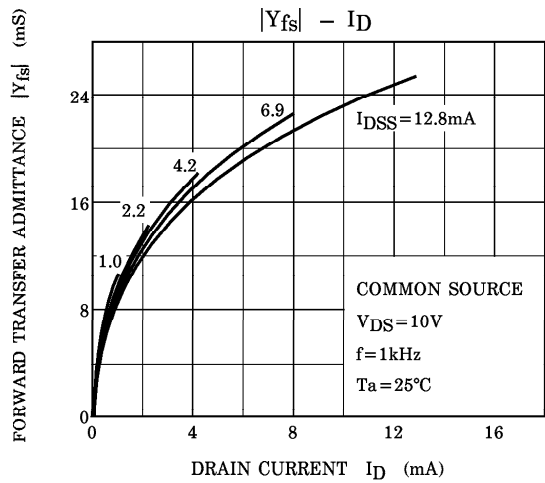
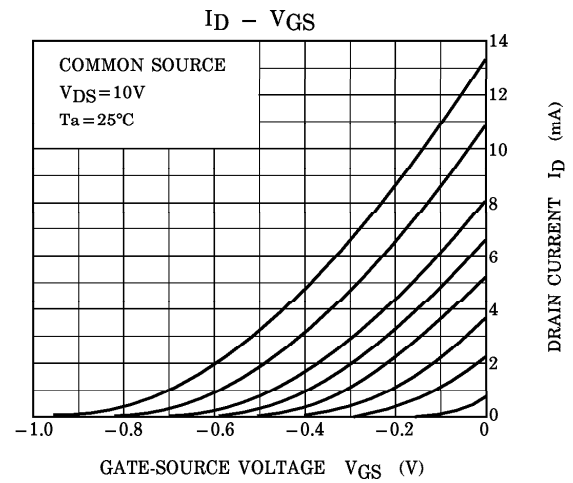
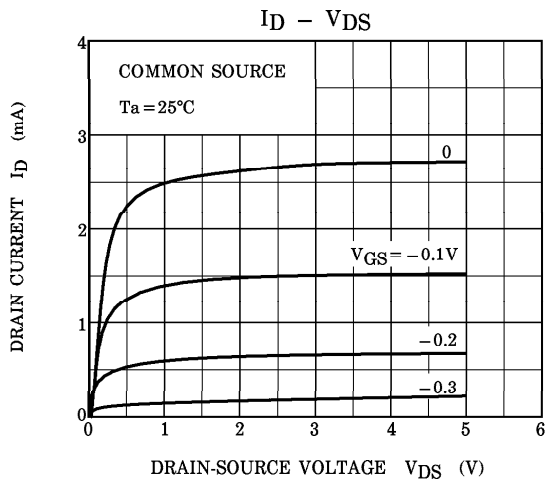
Y : 1.2~3.0mA, GR : 2.6~6.5mA, BL : 6.0~14mA

Marking



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