2SK270

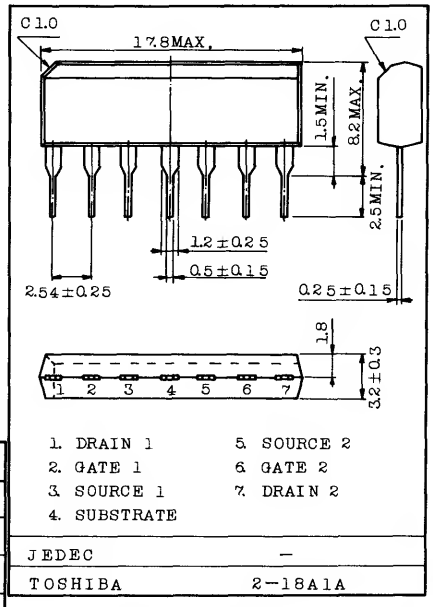
SILICON MONOLITHIC N CHANNEL JUNCTION TYPE

LOW NOISE AUDIO AND DIFFERENTIAL AMPLIFIER APPLICATIONS.

FEATURES:

- 1 Chip Dual Type.
- Recommended for First Differential Stages of DC Amplifiers.
- Very High $|Y_{fs}|$: $|Y_{fs}|$ =20mS(Typ.) (V_{DS}=10V, V_{GS}=0, f=1kHz, I_{DSS}=3mA)
- Good Pair Characteristics : $|V_{GS1}-V_{GS2}|$=30mV(Max.)(V_{DS}=10V, I_D=1mA)
- High Breakdown Voltage : V_{GDS}=-40(Min.)
- Very Low Noise : NF=0.5dB(Typ.) (V_{DS}=10V, I_D=1mA, R_g=1kΩ, f=1kHz)
- High Input Impedance : I_{GSS}=-10nA(Max.)(V_{GS}=-30V)
- Complementary to 2SJ90.

Unit in mm



Weight : 0.7g

MAXIMUM RATINGS (Ta=25°C)

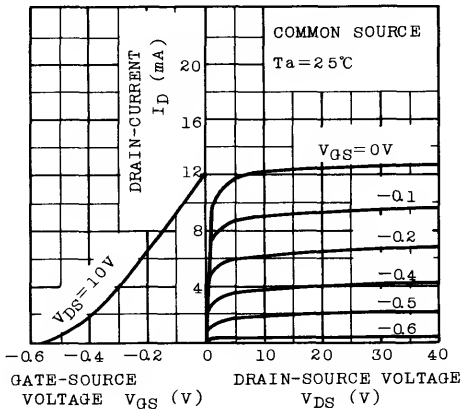
CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V_{GDS}	-40	V
Gate Current	I_G	10	mA
Drain Power Dissipation	P_D	300	mW/UNIT
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	-55~125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

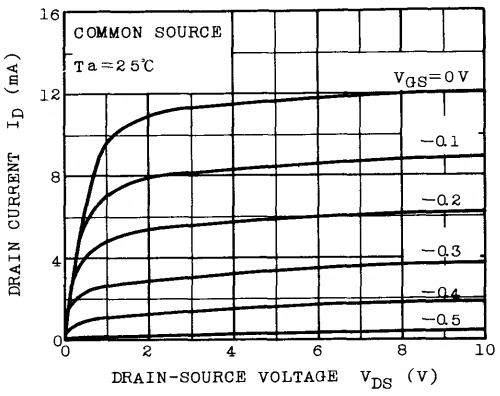
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	V_{GS}=-30V, V_{DS}=0	-	-	-10	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDS}$	V_{DS}=0, I_G=-100μA	-40	-	-	V
Drain Current	I_{DSS} (Note)	V_{DS}=10V, V_{GS}=0	1	-	20	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	V_{DS}=10V, I_D=0.1μA	-0.2	-	-2.0	V
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{DS}=10V, V_{GS}=0, f=1kHz, I_{DSS}=3mA	8	20	-	mS
Forward Transfer Admittance Ratio	$\|Y_{fs(小)}\|/\|Y_{fs(大)}\|$	V_{DS}=10V, V_{GS}=0, f=1kHz	0.9	-	-	-
Differential Gate Voltage	$\|V_{GS1}-V_{GS2}\|$	V_{DS}=10V, I_D=1mA	-	-	30	mV
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0, f=1MHz	-	25	-	pF
Reverse Transfer Capacitance	C_{rss}	V_{DG}=10V, I_D=0, f=1MHz	-	5.5	-	pF
Noise Figure	NF(1)	V_{DS}=10V, R_g=1kΩ, I_D=1mA f=10Hz	-	-	11	dB
	NF(2)	V_{DS}=10V, R_g=1kΩ, I_D=1mA f=1kHz	-	-	2	

Note : I_{DSS} Classification Y:1.0~3.0mA, GR:2.6~6.5mA, BL:6~12mA, V:10~20mA

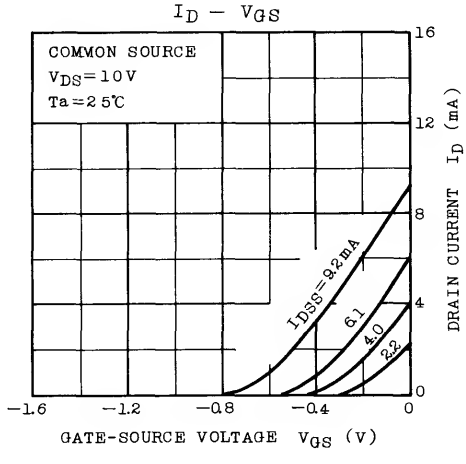
STATIC CHARACTERISTICS



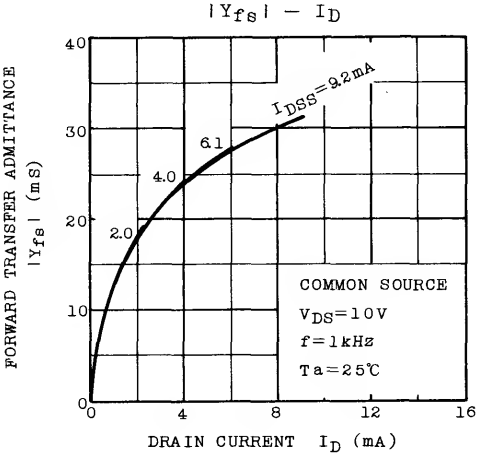
$I_D - V_{DS}$ (LOW VOLTAGE REGION)



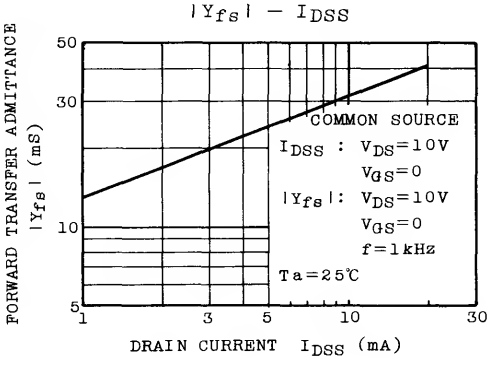
$I_D - V_{GS}$



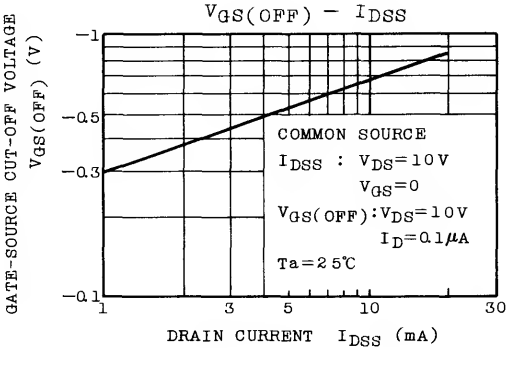
$|Y_{fs}| - I_D$



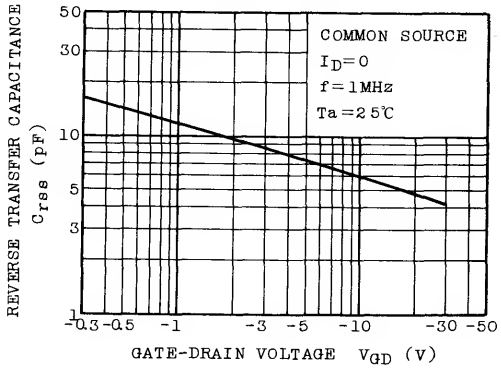
$|Y_{fs}| - I_{DSS}$



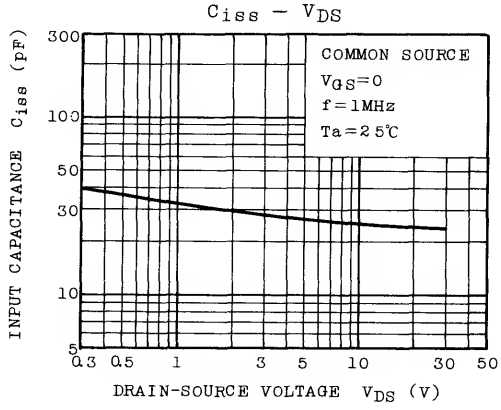
$V_{GS(OFF)} - I_{DSS}$



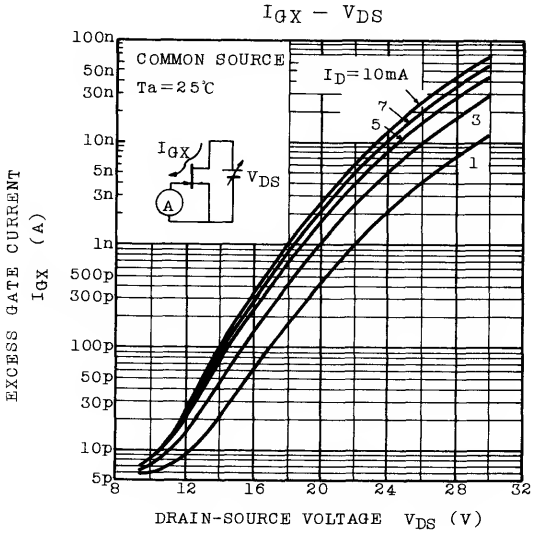
C_{rss} – V_{GD}



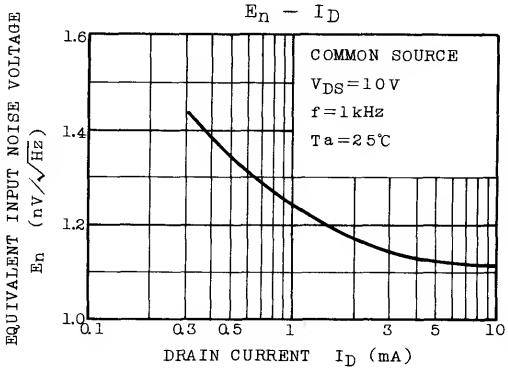
C_{iss} – V_{DS}



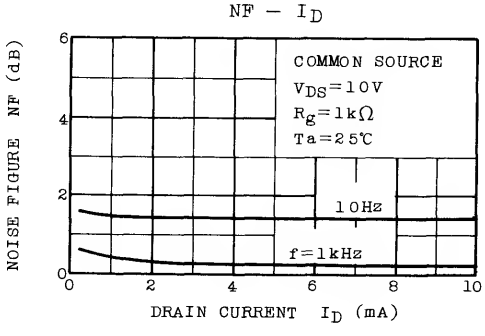
I_{GX} – V_{DS}



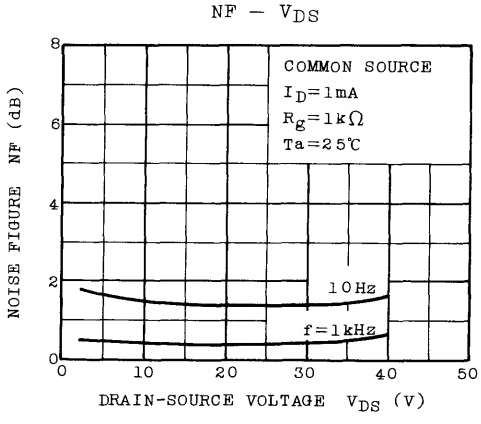
E_n – I_D



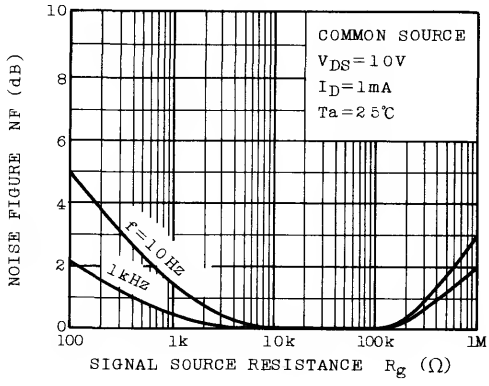
NF – I_D



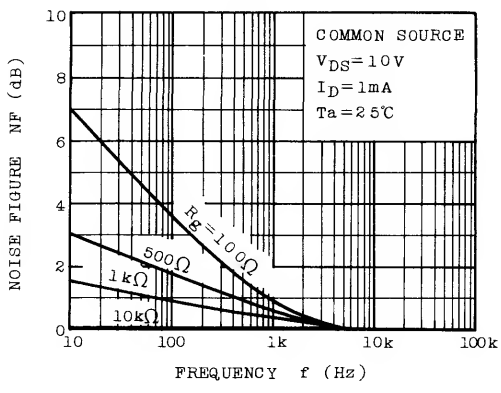
NF – V_{DS}



NF – R_g


COMMON SOURCE
V_{DS}=10V
I_D=1mA
Ta=25℃
f=10Hz
1kHz
NOISE FIGURE NF (dB)
SIGNAL SOURCE RESISTANCE R_g (Ω)
10
8
6
4
2
0
100
1k
10k
100k
1M

NF – f


COMMON SOURCE
V_{DS}=10V
I_D=1mA
Ta=25℃
Rg=100Ω
500Ω
1kΩ
10kΩ
NOISE FIGURE NF (dB)
FREQUENCY f (Hz)
10
8
6
4
2
0
10
100
1k
10k
100k