Silicon P Channel Junction FET

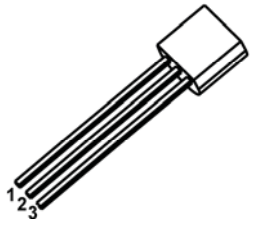
RoHS COMPLIANT

2SJ74

Low Noise Audio Amplifier Applications

- Recommended for first stages of EQ amplifiers and M.C. head amplifiers.
- High |Yfs|: |Yfs| = 20 mS (typ.)
  (VDS = −10 V, VGS = 0, IDSS = −3 mA)
- Low noise: E_n = 0.95 nV/Hz$^{1/2}$ (typ.)
  (VDS = −10 V, ID = −1 mA, f = 1 kHz)
- High input impedance: IGSS = 1.0 nA (max) (VGS = 25 V)
- Complimentary to 2SK170

TO-92



1. Drain
2. Gate
3. Source

Maximum Ratings (Ta = 25°C)

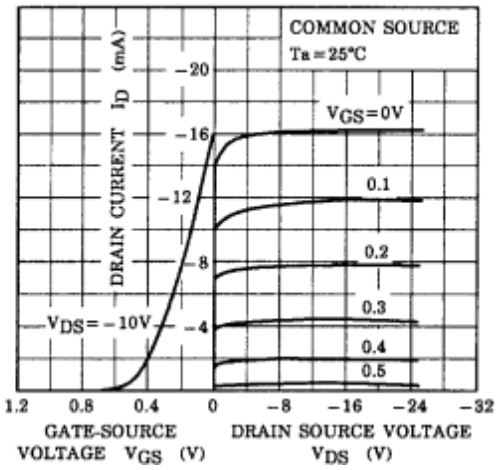
Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V_{GDS}	25	V
Gate current	I_G	-10	mA
Drain power dissipation	P_D	400	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55~125	°C

Electrical Characteristics (Ta = 25°C)

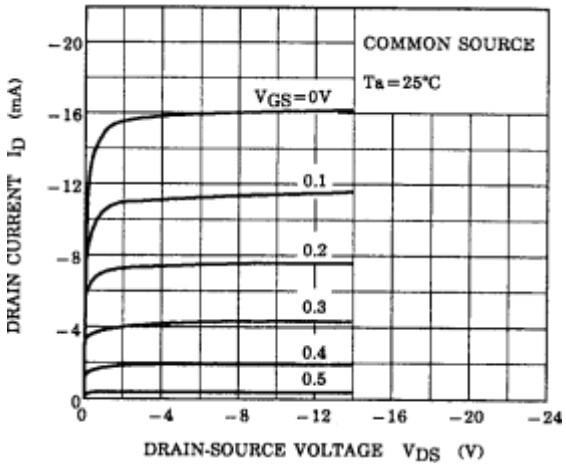
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate cut-off current	I_{GSS}	V_{GS} = 25 V, V_{DS} = 0	—	—	1.0	nA
Gate-drain breakdown voltage	$V_{(BR)\ GDS}$	V_{DS} = 0, I_G = 100 μA	25	—	—	V
Drain current	I_{DSS} (Note)	V_{DS} = -10 V, V_{GS} = 0	-2.6	—	-20	mA
Gate-source cut-off voltage	$V_{GS\ (OFF)}$	V_{DS} = -10 V, I_D = -0.1 μA	0.15	—	2.0	V
Forward transfer admittance	|Y_{fs}|	V_{DS} = -10 V, V_{GS} = 0, f = 1 kHz	8	22	—	mS
Input capacitance	C_{iss}	V_{DS} = -10 V, V_{GS} = 0, f = 1 MHz	—	105	—	pF
Reverse transfer capacitance	C_{rss}	V_{DG} = -10 V, I_D = 0, f = 1 MHz	—	32	—	pF
Noise figure	NF (1)	V_{DS} = -10 V, I_D = -1 mA, R_G = 1 kΩ, f = 10 Hz	—	1.0	10	dB
	NG (2)	V_{DS} = -10 V, I_D = -1 mA, R_G = 1 kΩ, f = 1 kHz	—	0.5	2	

Note: I_{DSS} classification GR: 2.6~6.5 mA, BL: 6.0~12 mA, V: 10~20 mA

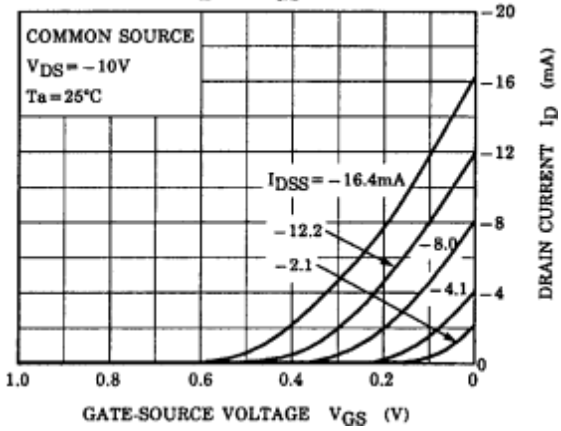
STATIC CHARACTERISTICS



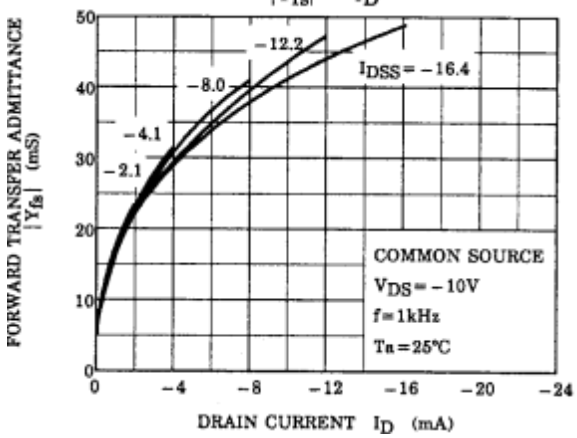
I_D – V_{DS} (LOW VOLTAGE REGION)



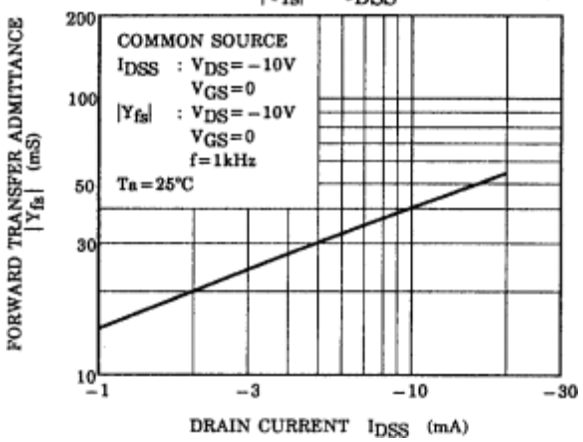
I_D – V_{GS}



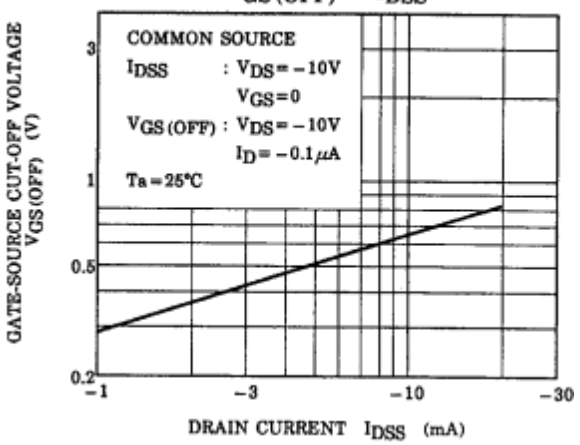
$|Y_{fs}|$ – I_D



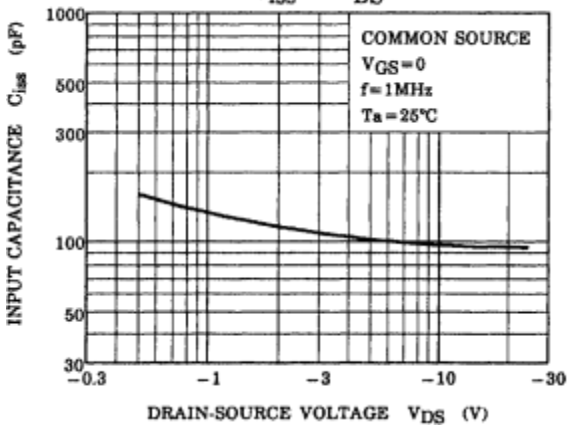
$|Y_{fs}|$ – I_{DSS}



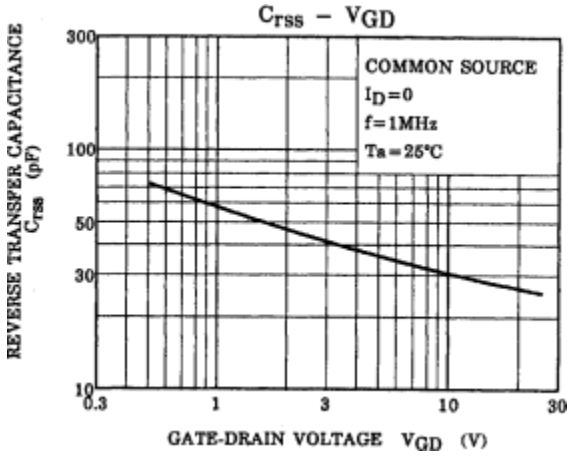
$V_{GS(OFF)}$ – I_{DSS}



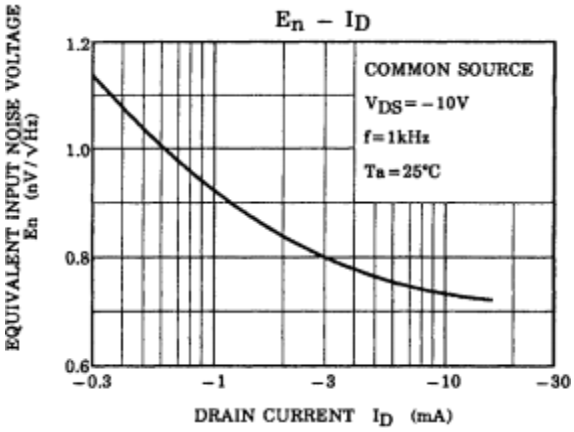
C_{iss} – V_{DS}



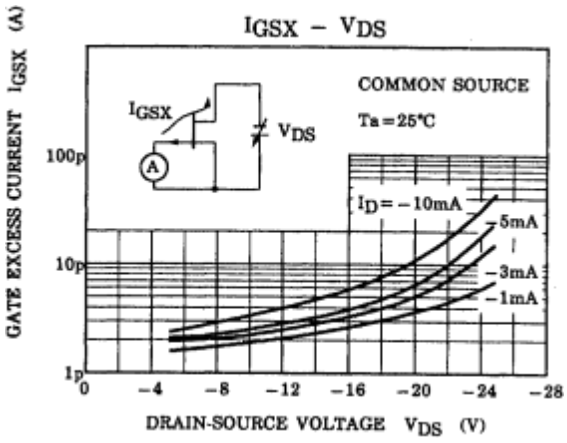
C_{rss} – V_{GD}



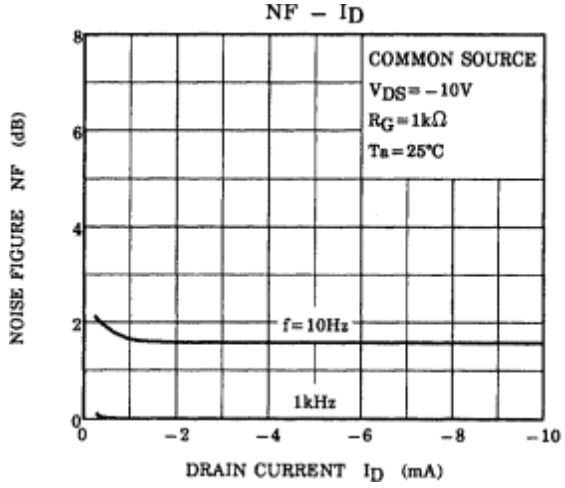
E_n – I_D



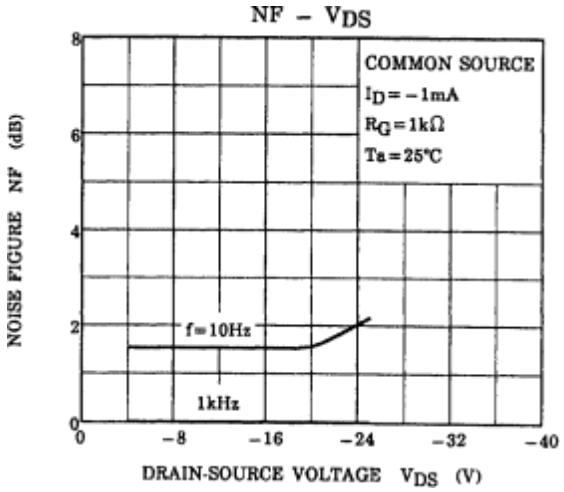
I_{GSX} – V_{DS}



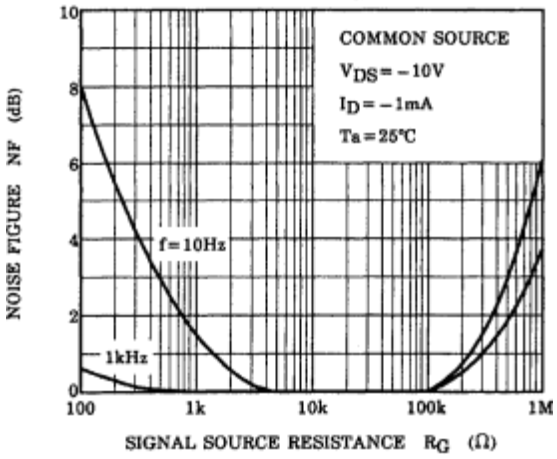
NF – I_D



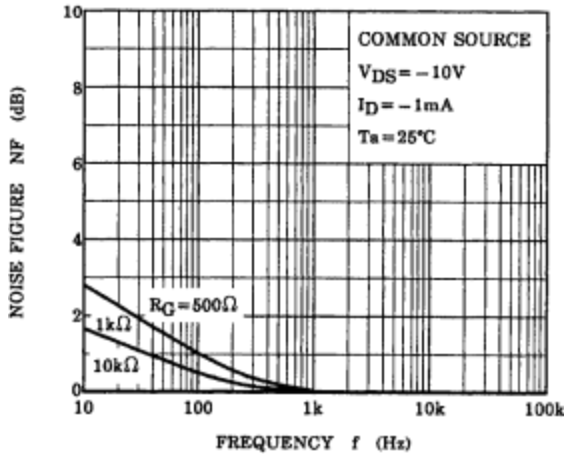
NF – V_{DS}



NF – R_G


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

NF – f


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