

TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

# 2SK370

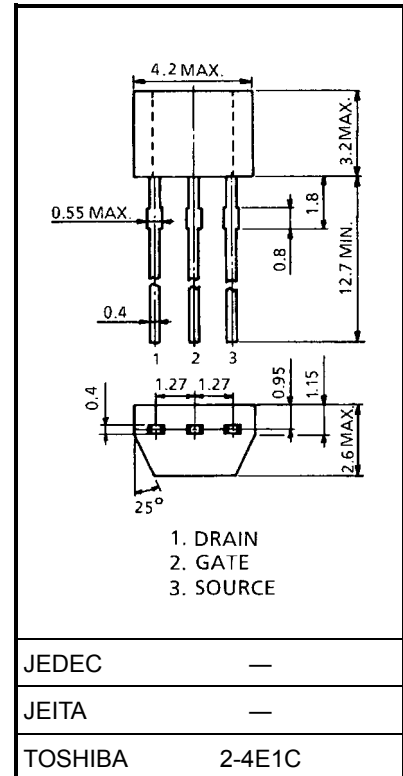
For Low Noise Audio Amplifier Applications

Unit: mm

- Suitable for use as first stage for equalizer and MC head amplifiers.
- High  $|Y_{fs}|$ :  $|Y_{fs}| = 22 \text{ ms (typ.)}$  ( $V_{DS} = 10 \text{ V}$ ,  $V_{GS} = 0$ ,  $I_{DSS} = 3 \text{ mA}$ )
- High breakdown voltage:  $V_{GDS} = -40 \text{ V}$
- High input impedance:  $I_{GSS} = -1 \text{ nA (max)}$  ( $V_{GS} = -30 \text{ V}$ )
- Complementary to 2SJ108
- Small package

### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	$V_{GDS}$	-40	V
Gate current	$I_G$	10	mA
Drain power dissipation	$P_D$	200	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~125	$^\circ\text{C}$



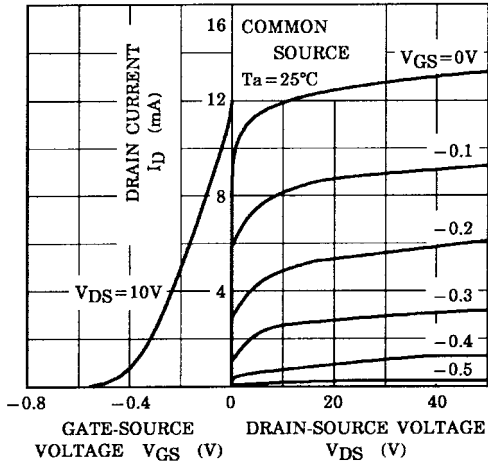
### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Weight: 0.13 g (typ.)

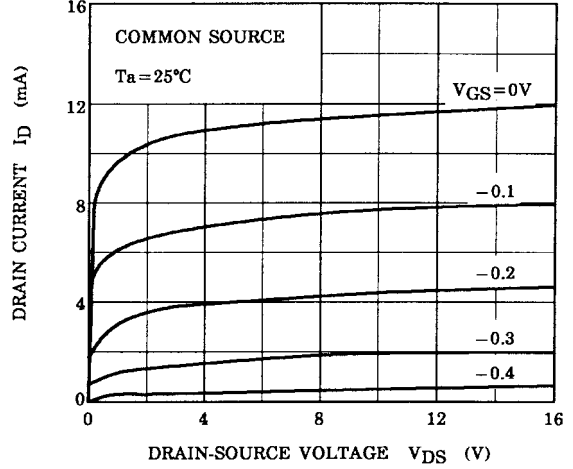
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate cut-off current	$I_{GSS}$	$V_{GS} = -30 \text{ V}$ , $V_{DS} = 0$	—	—	-1.0	nA
Gate-drain breakdown voltage	$V_{(BR)GDS}$	$V_{DS} = 0$ , $I_G = -100 \mu\text{A}$	-40	—	—	V
Drain current	$I_{DSS}$ (Note)	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$	2.6	—	20	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} $	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ kHz}$ , $I_{DSS} = 3 \text{ mA}$	8	22	—	mS
Input capacitance	$C_{iss}$	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$	—	30	—	pF
Reverse transfer capacitance	$C_{rss}$	$V_{DG} = 10 \text{ V}$ , $I_D = 0$ , $f = 1 \text{ MHz}$	—	6	—	pF
Noise figure	NF (1)	$V_{DS} = 10 \text{ V}$ , $I_D = 1.0 \text{ mA}$ , $R_G = 1 \text{ k}\Omega$ , $f = 10 \text{ Hz}$	—	1.0	10	dB
	NF (2)	$V_{DS} = 10 \text{ V}$ , $I_D = 1.0 \text{ mA}$ , $R_G = 1 \text{ k}\Omega$ , $f = 1 \text{ kHz}$	—	0.5	2	

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

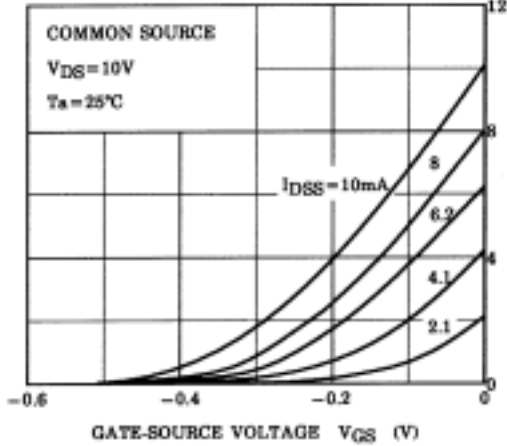
STATIC CHARACTERISTICS



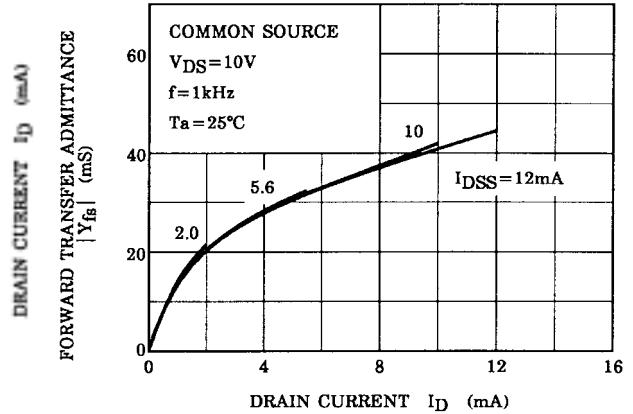
$I_D - V_{DS}$  (LOW VOLTAGE REGION)



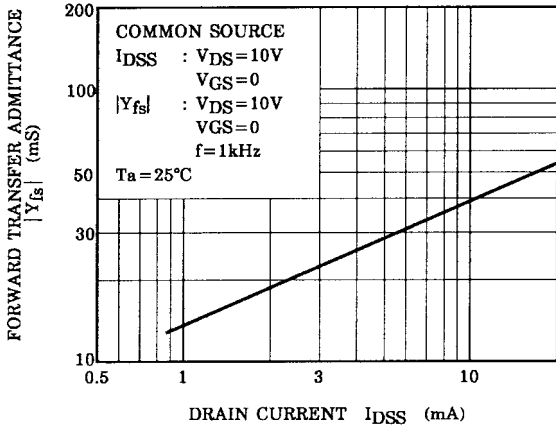
$I_D - V_{GS}$



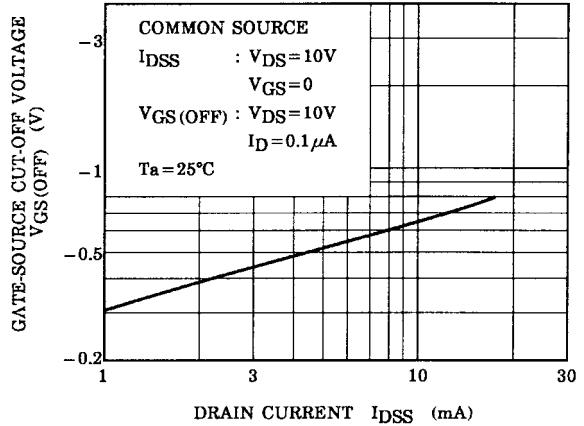
$|Y_{fs}| - I_D$

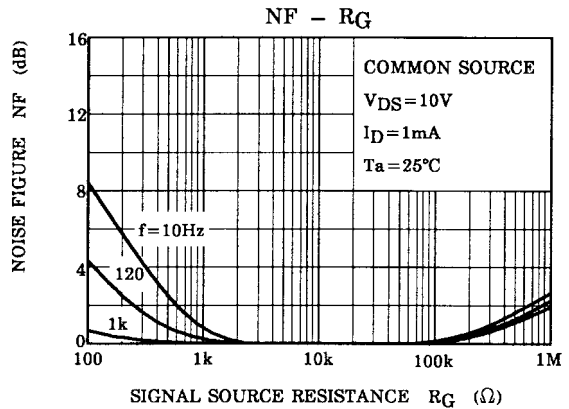
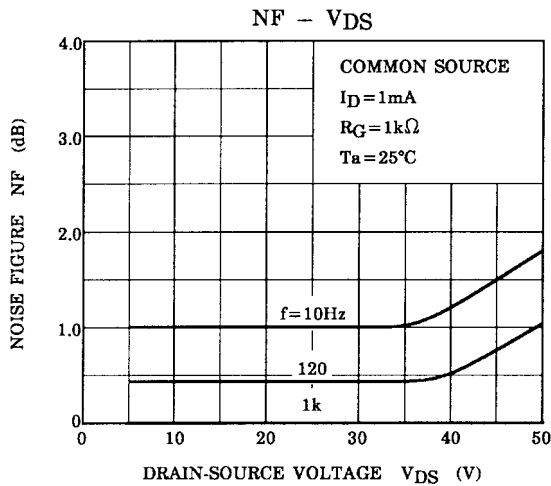
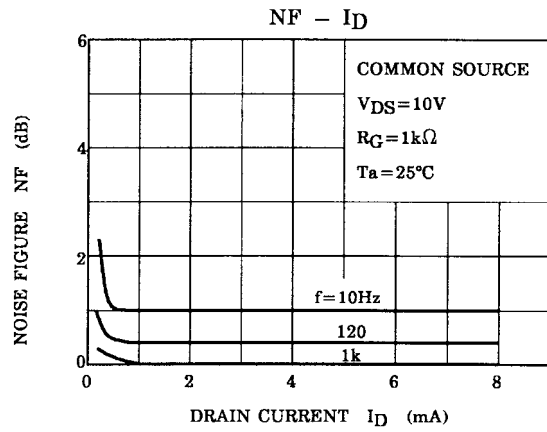
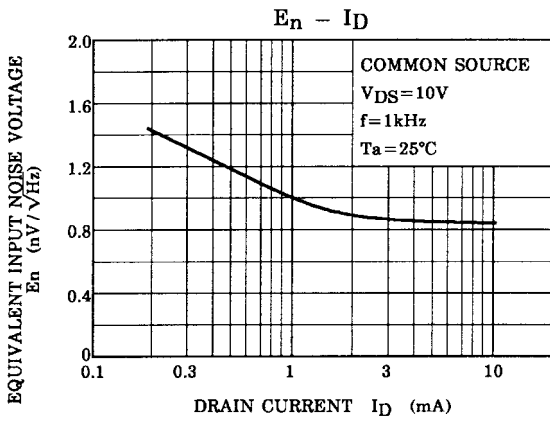
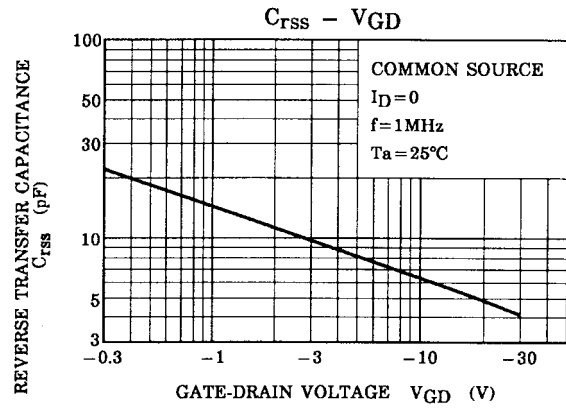
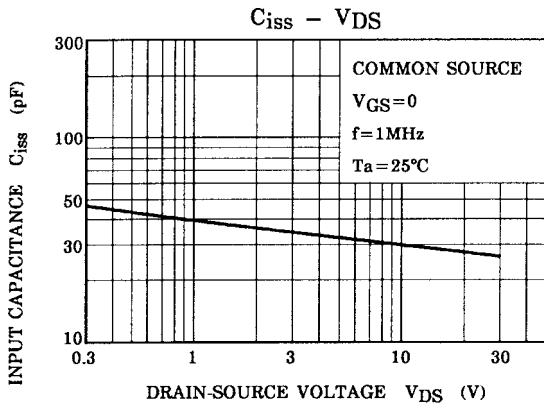


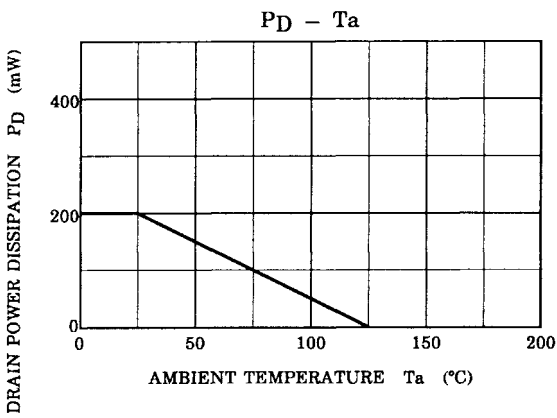
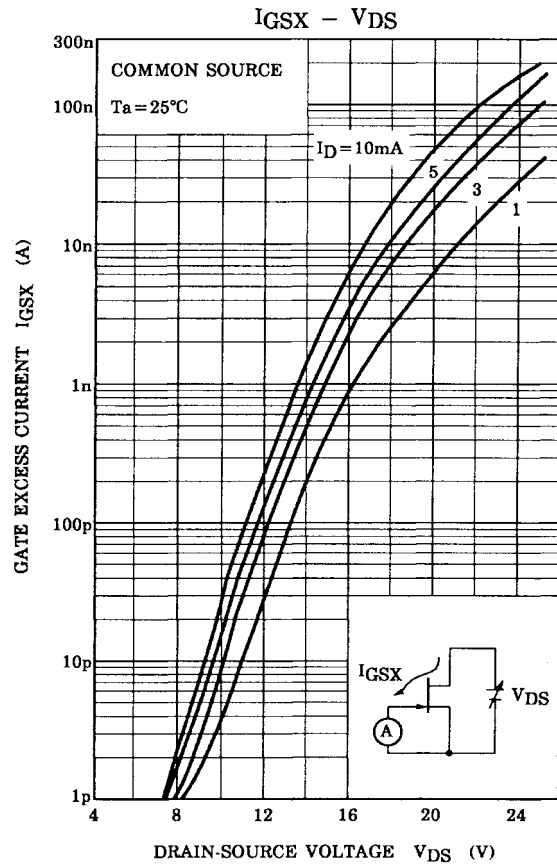
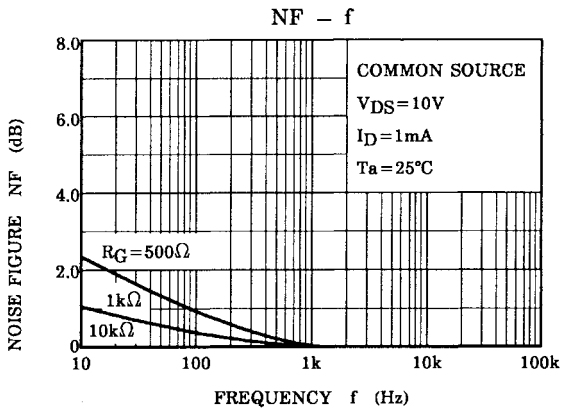
$|Y_{fs}| - I_{DSS}$



VGS(OFF) - IDSS







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