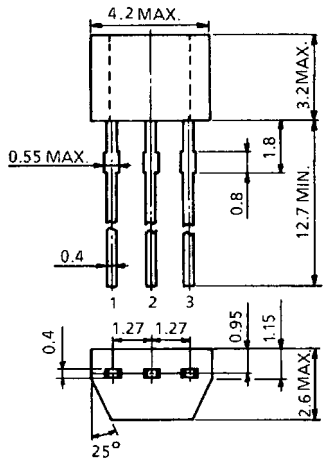
TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

2SK184

Low Noise Audio Amplifier Applications

- High $|Y_{fs}|$: $|Y_{fs}|$ = 15 mS (typ.) (V_{DS} = 10 V, V_{GS} = 0)
- High breakdown voltage: V_{GDS} = −50 V
- Low noise: NF = 1.0dB (typ.)
  (V_{DS} = 10 V, I_D = 0.5 mA, f = 1 kHz, R_G = 1 kΩ)
- High input impedance: I_{GSS} = −1 nA (max) (V_{GS} = −30 V)
- Small package

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-4E1C

Weight: 0.13 g (typ.)

Maximum Ratings (Ta = 25°C)

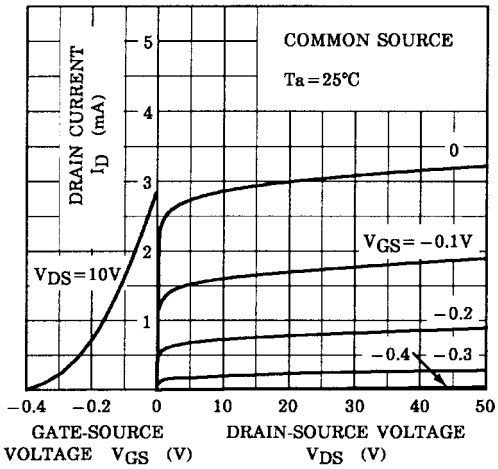
Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V_{GDS}	−50	V
Gate current	I_G	10	mA
Drain power dissipation	P_D	200	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

Electrical Characteristics (Ta = 25°C)

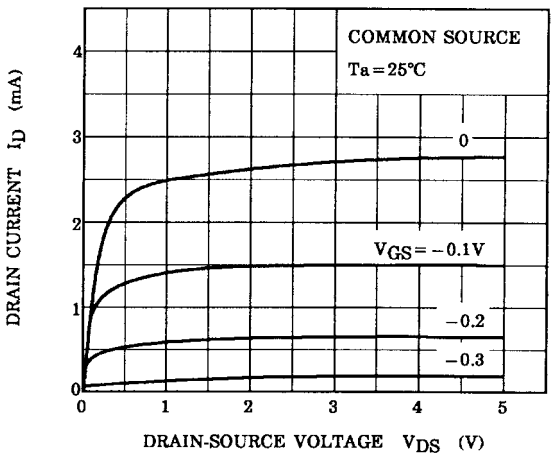
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate cut-off current	I_{GSS}	V_{GS} = −30 V, V_{DS} = 0	—	—	−1.0	nA
Gate-drain breakdown voltage	$V_{(BR)\ GDS}$	V_{DS} = 0, I_G = −100 μA	−50	—	—	V
Drain current	I_{DSS} (Note)	V_{DS} = 10 V, V_{GS} = 0	1.2	—	14.0	mA
Gate-source cut-off voltage	$V_{GS\ (OFF)}$	V_{DS} = 10 V, I_D = 0.1 μA	−0.2	—	−1.5	V
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 10 V, V_{GS} = 0, f = 1 kHz	4.0	15	—	mS
Input capacitance	C_{iss}	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz	—	13	—	pF
Reverse transfer capacitance	C_{rss}	V_{DG} = 10 V, I_D = 0, f = 1 MHz	—	3	—	pF
Noise figure	NF (1)	V_{DS} = 10 V, R_G = 1 kΩ, I_D = 0.5 mA, f = 10 Hz	—	5	10	dB
	NF (2)	V_{DS} = 10 V, R_G = 1 kΩ, I_D = 0.5 mA, f = 1 kHz	—	1	2	

Note: I_{DSS} classification Y: 1.2~3.0 mA, GR: 2.6~6.5 mA, BL: 6.0~14.0 mA

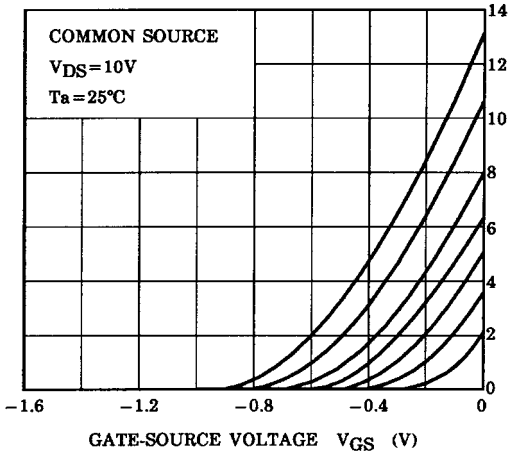
STATIC CHARACTERISTICS



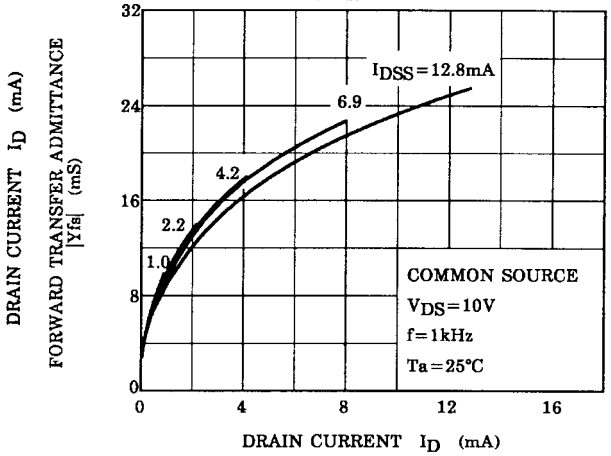
I_D – V_{DS} (LOW VOLTAGE REGION)



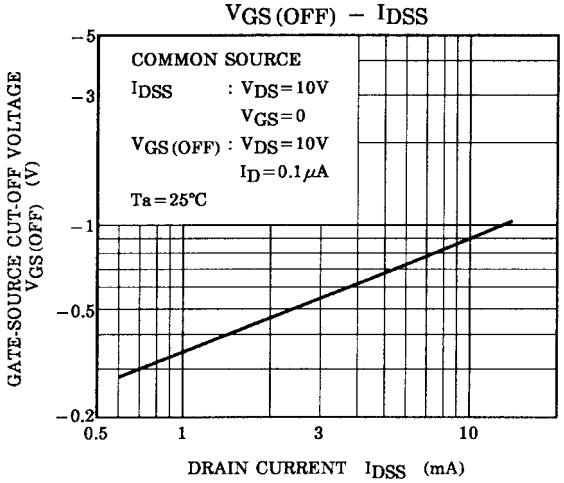
I_D – V_{GS}



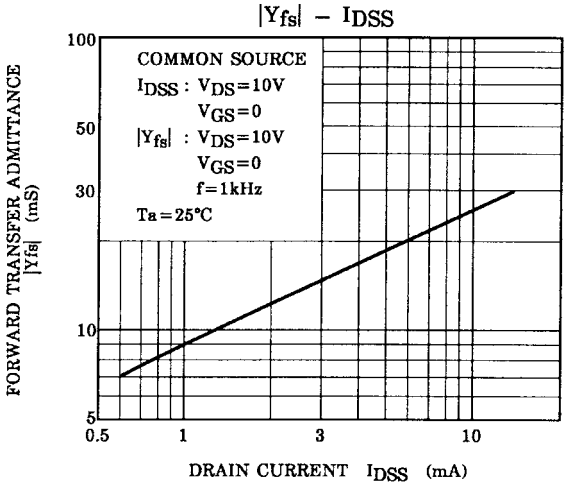
$|Y_{fs}|$ – I_D



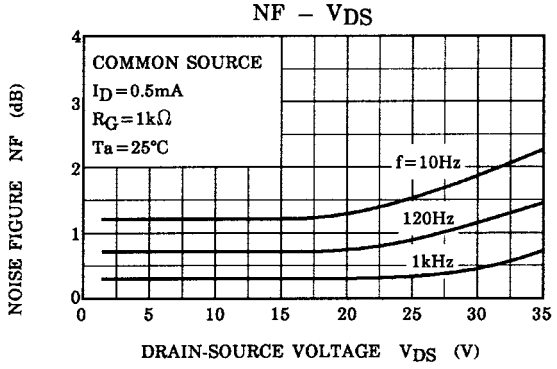
$V_{GS(OFF)}$ – I_{DSS}



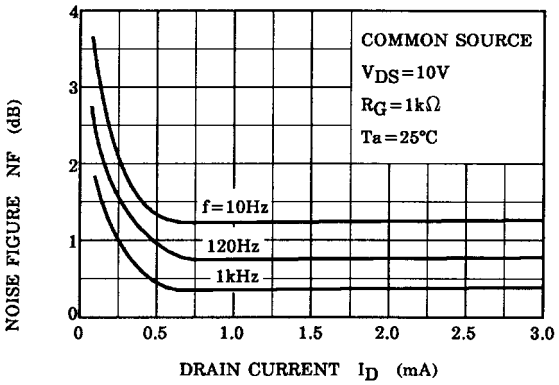
$|Y_{fs}|$ – I_{DSS}



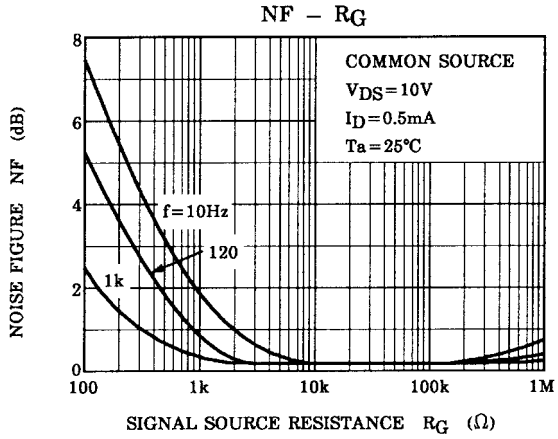
NF – V_{DS}



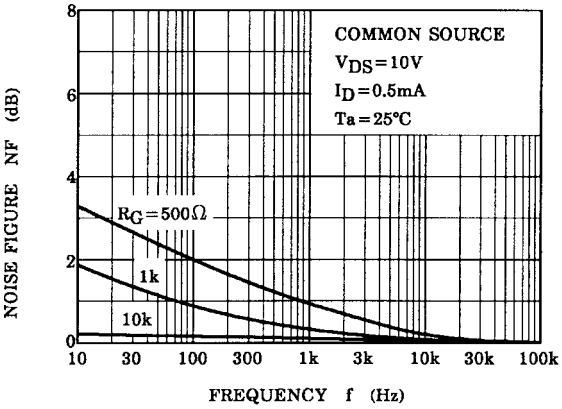
NF – I_D



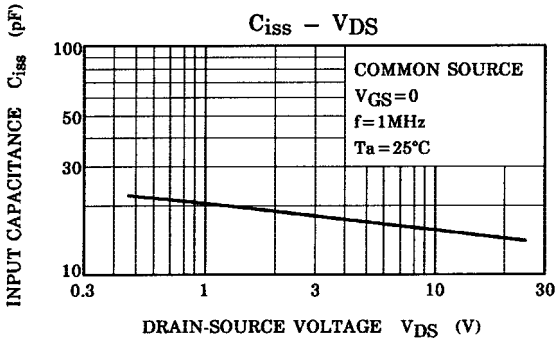
NF – R_G



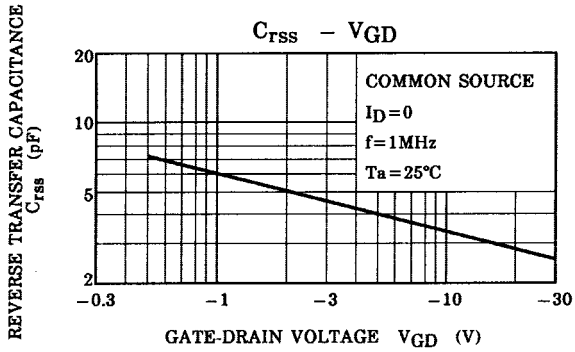
NF – f



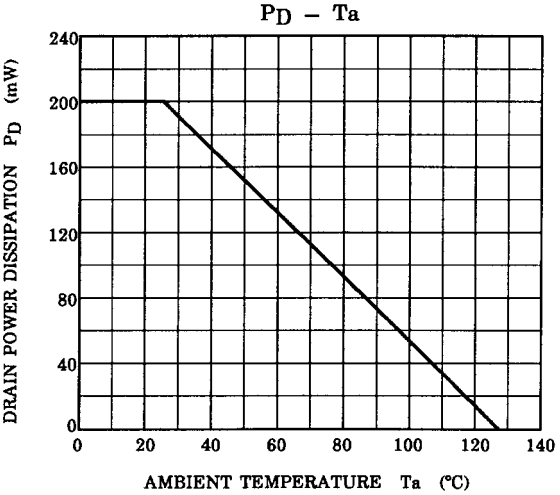
C_{iss} – V_{DS}



C_{rss} – V_{GD}



P_D – Ta



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