Unit: mm

TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

2SK170

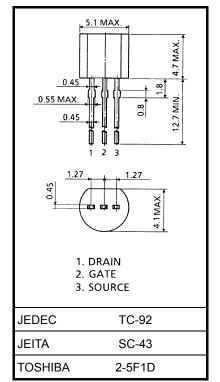
Low Noise Audio Amplifier Applications

- Recommended for first stages of EQ and M.C. head amplifiers.
- High $|Y_{fs}|$: $|Y_{fs}| = 22 \text{ mS}$ (typ.) (V_{DS} = 10 V, V_{GS} = 0, I_{DSS} = 3 mA)
- High breakdown voltage: $V_{GDS} = -40 V$
- Low noise: $E_n = 0.95 \text{ nV/Hz}^{1/2}$ (typ.)
 - $(V_{DS} = 10 \text{ V}, \text{ I}_{D} = 1 \text{ mA}, \text{ f} = 1 \text{ kHz})$
- High input impedance: $I_{GSS} = -1 nA (max) (V_{GS} = -30 V)$

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V _{GDS}	-40	V
Gate current	lG	10	mA
Drain power dissipation	PD	400	mW
Junction temperature	Tj	125	°C
Storage temperature range	T _{stg}	-55~125	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.



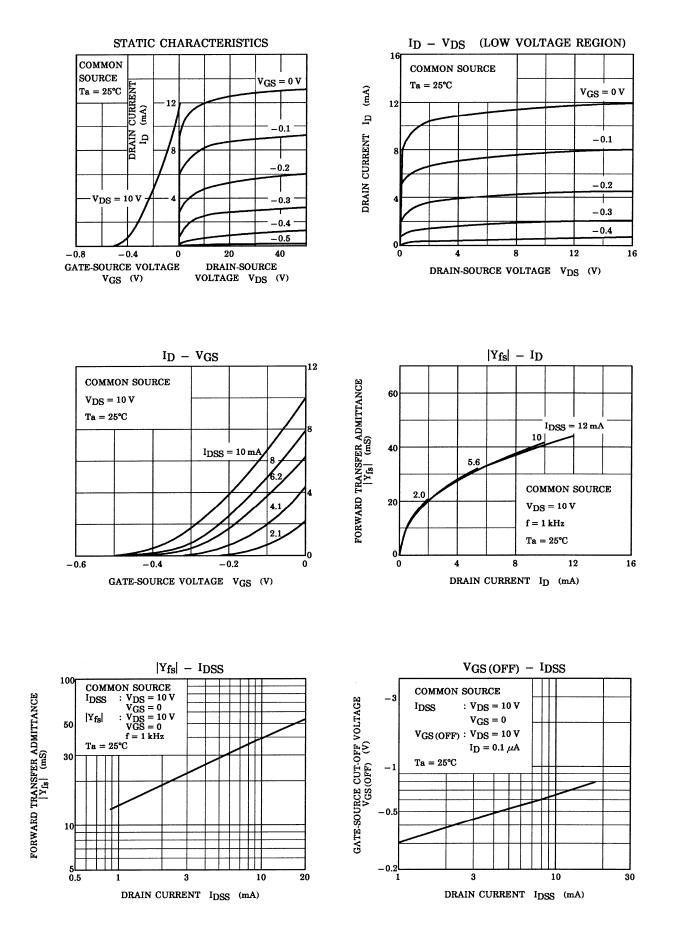
Weight: 0.21 g (typ.)

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

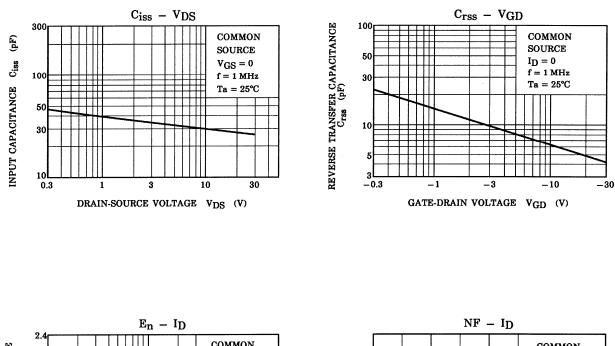
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate cut-off current	I _{GSS}	$V_{GS} = -30 \text{ V}, \text{ V}_{DS} = 0$		_	-1.0	nA
Gate-drain breakdown voltage	V (BR) GDS	$V_{DS} = 0, I_G = -100 \ \mu A$	-40	_	_	V
Drain current	I _{DSS} (Note)	$V_{DS} = 10 V, V_{GS} = 0$	2.6	_	20	mA
Gate-source cut-off voltage	V _{GS (OFF)}	$V_{DS} = 10 \text{ V}, \text{ I}_{D} = 0.1 \mu\text{A}$	-0.2	_	-1.5	V
Forward transfer admittance	Y _{fs}	$V_{DS} = 10 \text{ V}, \text{ V}_{GS} = 0, \text{ f} = 1 \text{ kHz}$	_	22	_	mS
Input capacitance	C _{iss}	$V_{DS} = 10 \text{ V}, \text{ V}_{GS} = 0, \text{ f} = 1 \text{ MHz}$	_	30	_	pF
Reverse transfer capacitance	C _{rss}	$V_{DG} = 10 \text{ V}, \text{ I}_{D} = 0, \text{ f} = 1 \text{ MHz}$	_	6	_	pF
Noise figure	NF (1)	V_{DS} = 10 V, I_{D} = 1.0 mA, R_{G} = 1 k $\Omega,$ f = 1 kHz	_	1.0	10	dB
	NF (2)	V_{DS} = 10 V, I_{D} = 1.0 mA, R_{G} = 1 k $\Omega,$ f = 1 kHz	—	0.5	2	

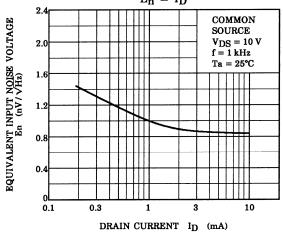
Electrical Characteristics (Ta = 25°C)

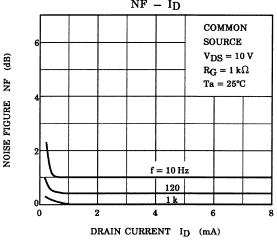
Note: I_{DSS} classification GR: 2.6~6.5 mA, BL: 6.0~12 mA, V: 10~20 mA

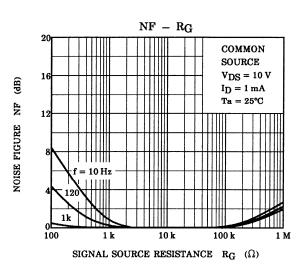


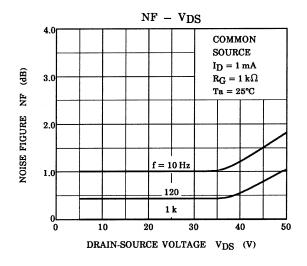
TOSHIBA

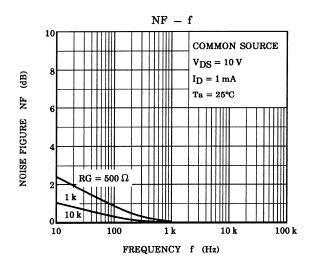


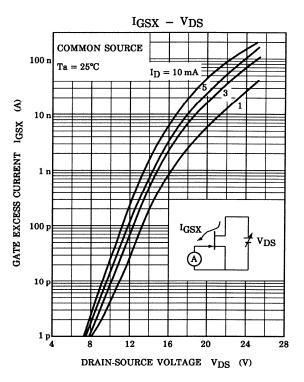












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