TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

2SK369

For Low Noise Audio Amplifier Applications

• Suitable for use as first stage for equalizer and MC head amplifiers.

- High $|Y_{fs}|$: $|Y_{fs}| = 40 \text{ mS (typ.) (VDS} = 10 \text{ V, VGS} = 0, IDSS} = 5 \text{ mA)}$
- High breakdown voltage: $V_{GDS} = -40 \text{ V (min)}$
- Super low noise: NF = 1.0dB (typ.)

$$(V_{DS} = 10 \text{ V}, I_{D} = 5 \text{ mA}, f = 1 \text{ kHz}, R_{G} = 100 \Omega)$$

• High input impedance: $I_{GSS} = -1 \text{ nA (max) (V}_{GS} = -30 \text{ V)}$

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V _{GDS}	-40	\checkmark
Gate current	IG	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.

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).

1. DRAIN 2. GATE 3. SOURCE JEDEC TO-92 JEITA SC-43 TOSHIBA 2-5F1D

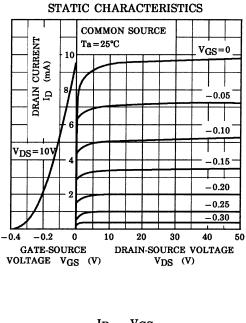
Weight: 0.21 g (typ.)

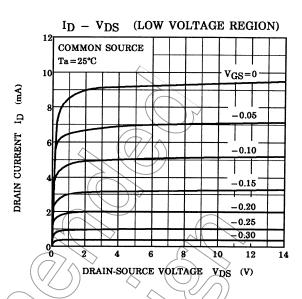
Electrical Characteristics (Ta = 25°C)

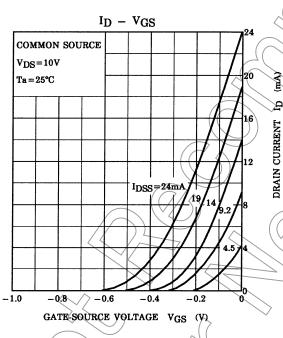
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate cut-off current	I _{GSS}	$V_{GS} = -30 \text{ V}, V_{DS} = 0$	_	_	-1.0	nA
Gate-drain breakdown voltage	V (BR) GDS	$V_{DS} = 0$, $I_G = -100 \mu A$	-40			V
Drain current	(Note 1)	V _{DS} = 10 V, V _{GS} = 0	5.0	ı	30	mA
Gate-source cut-off voltage	VGS (OFF)	$V_{DS} = 10 \text{ V}, I_D = 0.1 \mu A$	-0.3	_	-1.2	V
Forward transfer admittance	Y _{fs}	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ kHz}, \\ (I_{DSS} = 5 \text{ mA})$	25	40	_	mS
Input capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz	_	75	_	pF
Reverse transfer capacitance	C _{rss}	$V_{GD} = -10 \text{ V}, I_D = 0, f = 1 \text{ MHz}$	_	15	_	pF
Noise figure (Note 2) –	NF (1)	$\begin{split} V_{DS} = 10 \text{ V, } R_G = 100 \Omega \text{, } I_D = 5 \text{ mA,} \\ f = 100 \text{ Hz} \end{split}$		5	10	dB
	NF (2)	V_{DS} = 10 V, R_G = 100 Ω , I_D = 5 mA, f = 1 kHz	_	1	2	

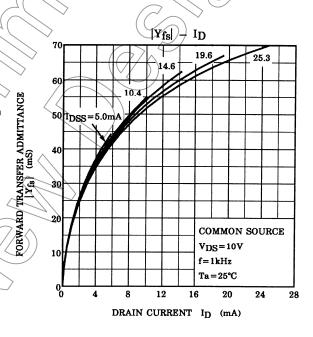
Note 1: I_{DSS} classification GR: 5.0~10.0 mA, BL: 8.0~16.0 mA, V: 14.0~30.0 mA

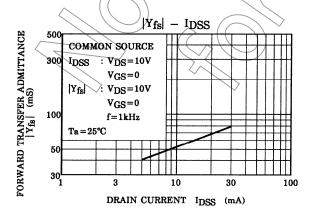
Note 2: Use this in the low voltage region (VDS < 15 V) for low noise applications.

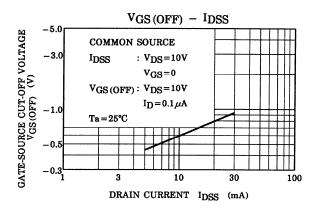


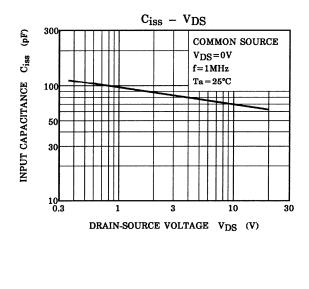


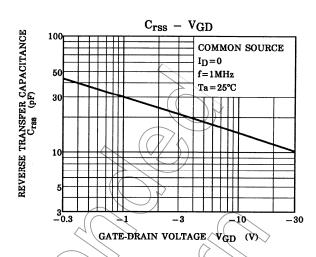


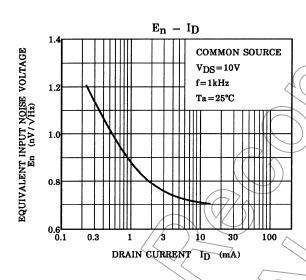


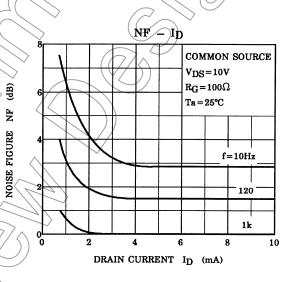


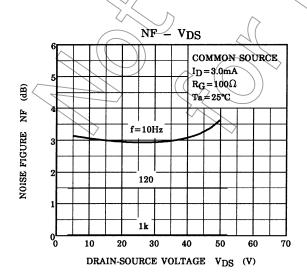


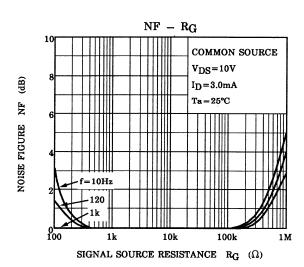




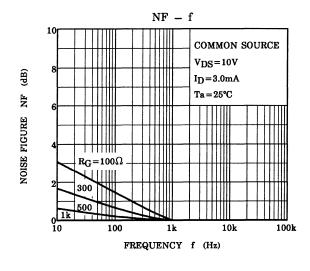


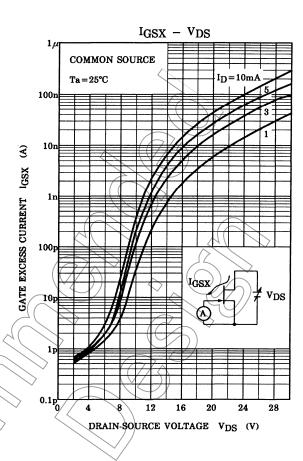


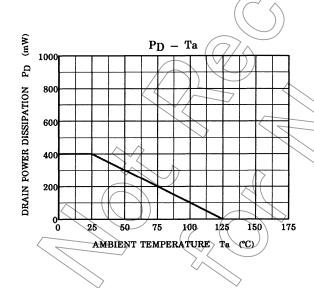




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