

TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

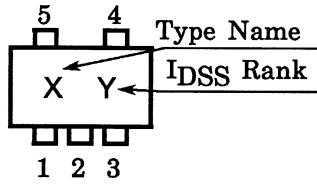
2SK2145

Audio Frequency Low Noise Amplifier Applications

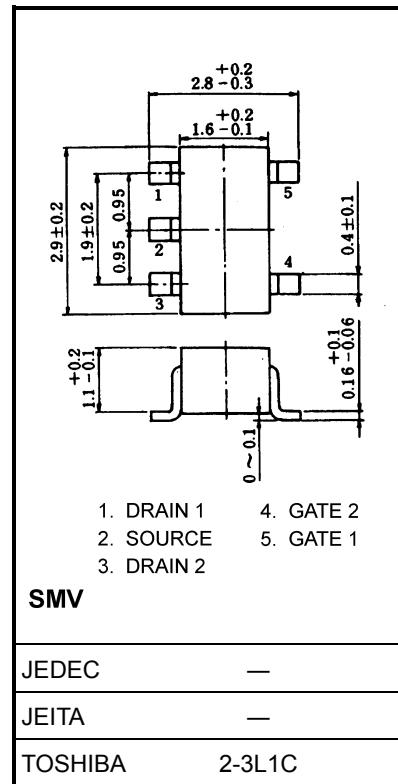
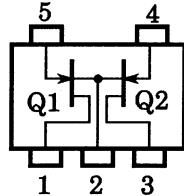
Unit: mm

- Including two devices in SM5 (super mini type with 5 leads.)
- High $|Y_{fs}|$: $|Y_{fs}| = 15 \text{ mS}$ (typ.) at $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$
- High breakdown voltage: $V_{GDS} = -50 \text{ V}$
- Low noise: $NF = 1.0 \text{ dB}$ (typ.)
at $V_{DS} = 10 \text{ V}$, $I_D = 0.5 \text{ mA}$, $f = 1 \text{ kHz}$, $R_g = 1 \text{ k}\Omega$
- High input impedance: $I_{GSS} = -1 \text{ nA}$ (max) at $V_{GS} = -30 \text{ V}$

Marking



Pin Assignment (top view)

Maximum Ratings ($T_a = 25^\circ\text{C}$) (Q1, Q2 common)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V_{GDS}	-50	V
Gate current	I_G	10	mA
Drain power dissipation	P_D (Note 1)	300	mW
Junction temperature	T_j	125	°C
Storage temperature	T_{stg}	-55~125	°C

Note 1: Total rating

SMV

JEDEC

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JEITA

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TOSHIBA 2-3L1C

Weight: 0.016 g (typ.)

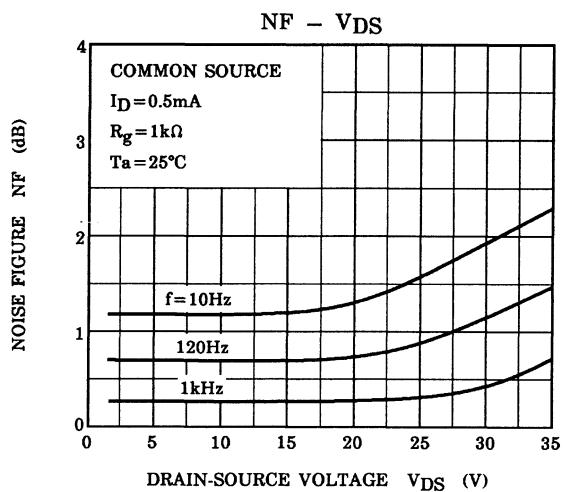
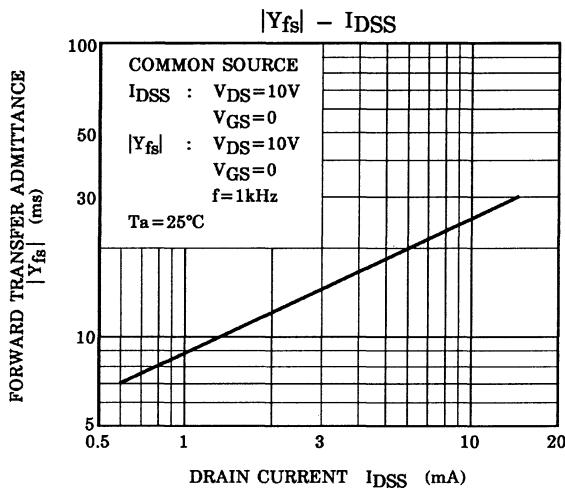
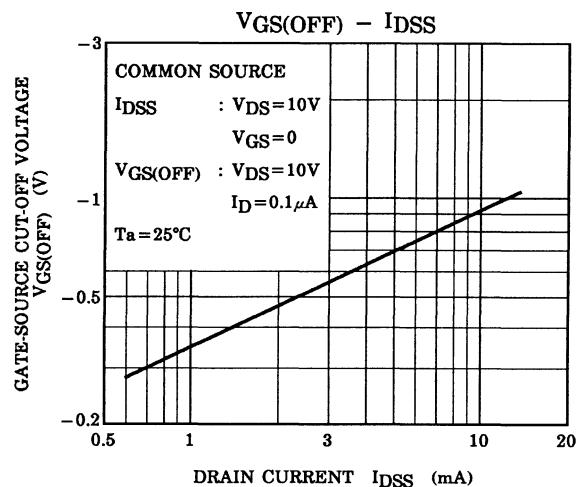
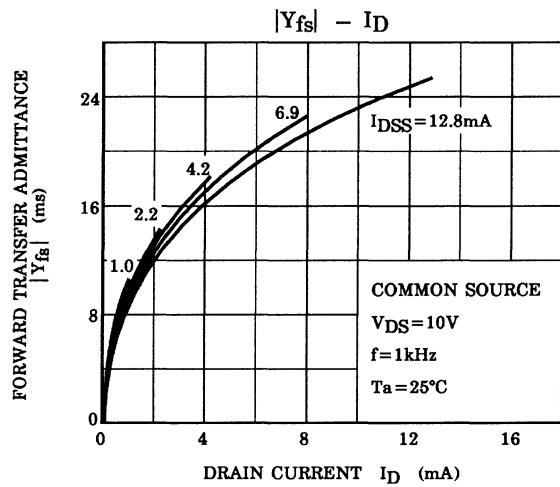
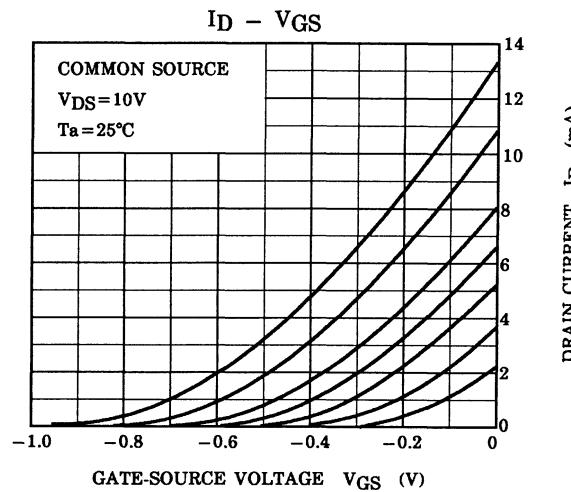
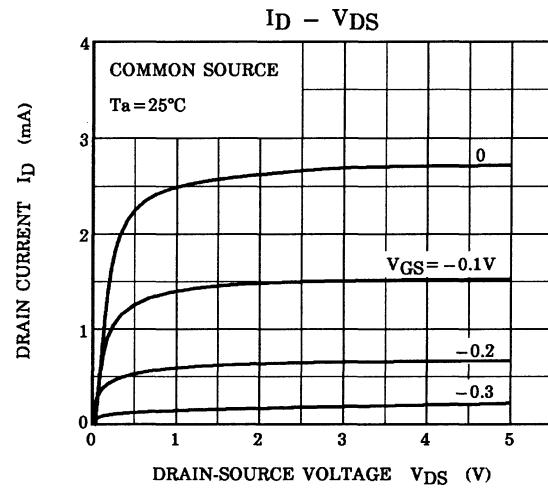
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

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

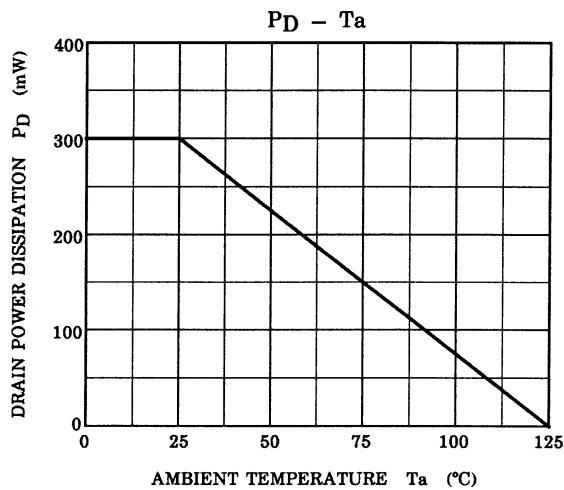
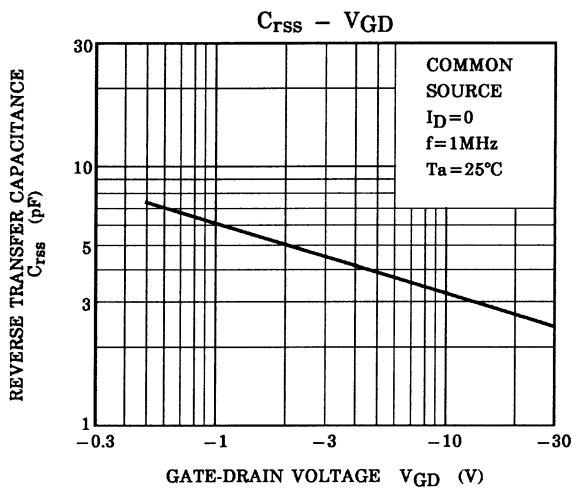
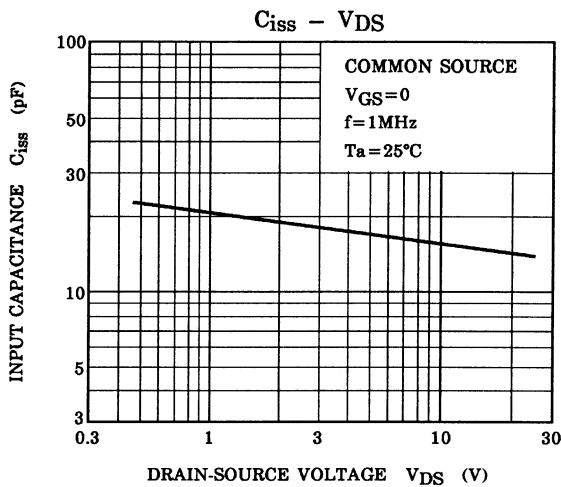
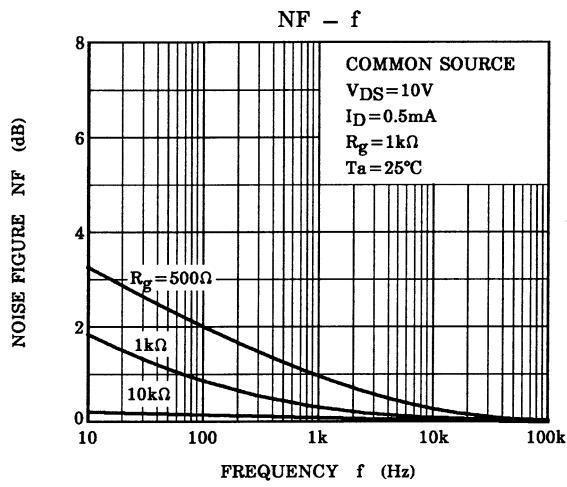
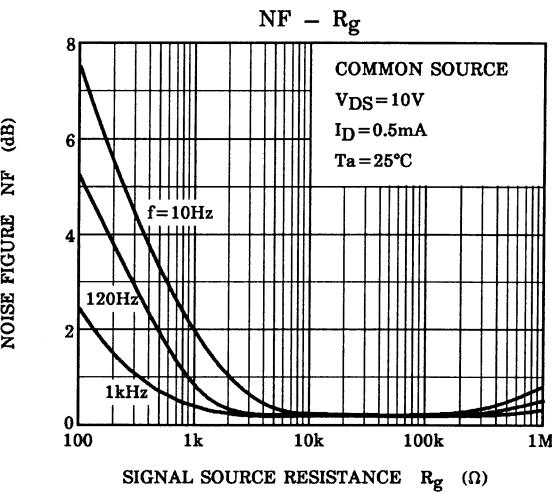
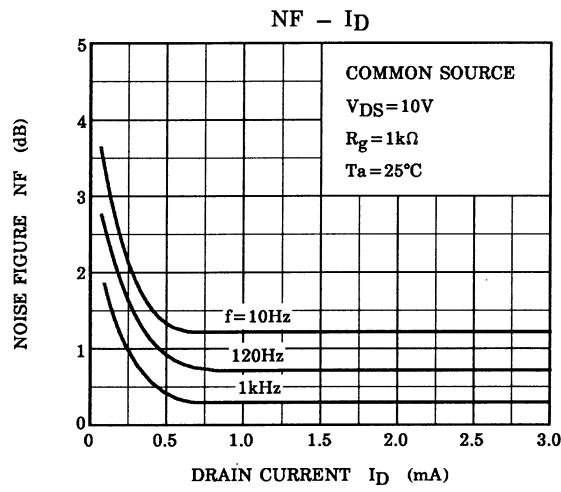
Note 2: I_{DSS} classification Y (Y): 1.2~3.0 mA, GR (G): 2.6~6.5 mA, BL (L): 6.0~14.0 mA

() Marking symbol

(Q1, Q2 common)



(Q1, Q2 common)



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