

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

2SA970

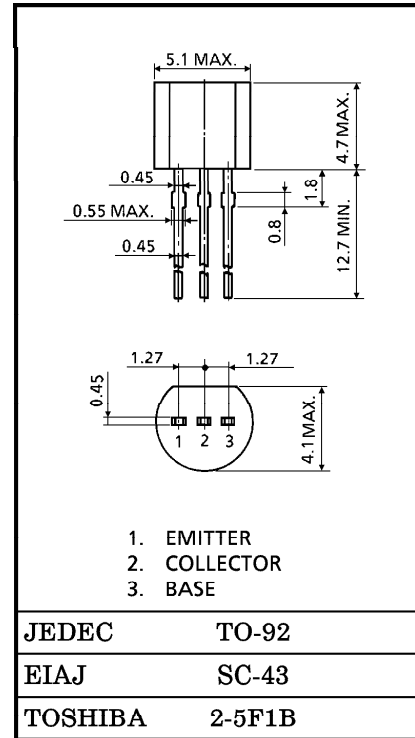
LOW NOISE AUDIO AMPLIFIER APPLICATIONS

Unit in mm

- Low Noise
: NF=3dB (Typ.) $R_G=100\Omega$, $V_{CE}=-6V$, $I_C=-100\mu A$, $f=1kHz$
: NF=0.5dB (Typ.) $R_G=1k\Omega$, $V_{CE}=-6V$, $I_C=-100\mu A$, $f=1kHz$
- High DC Current Gain : $h_{FE}=200\sim 700$
- High Breakdown Voltage : $V_{CEO}=-120V$
- Low Pulse Noise. Low 1/f Noise

MAXIMUM RATINGS ($T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-120	V
Collector-Emitter Voltage	V_{CEO}	-120	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-100	mA
Base Current	I_B	-20	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	125	$^\circ C$
Storage Temperature Range	T_{stg}	-55~125	$^\circ C$



Weight : 0.21g

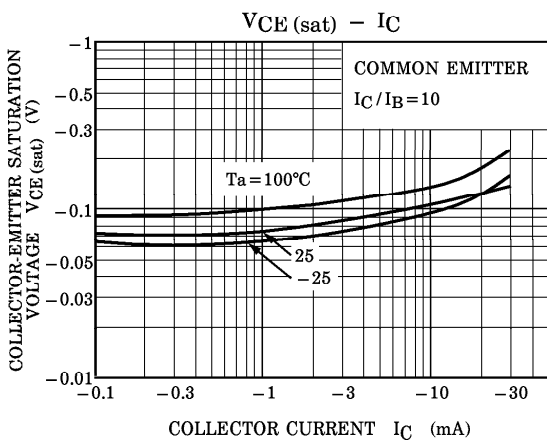
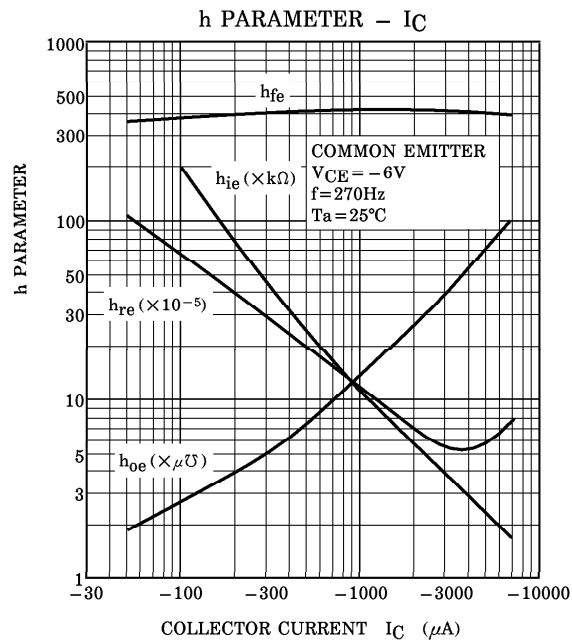
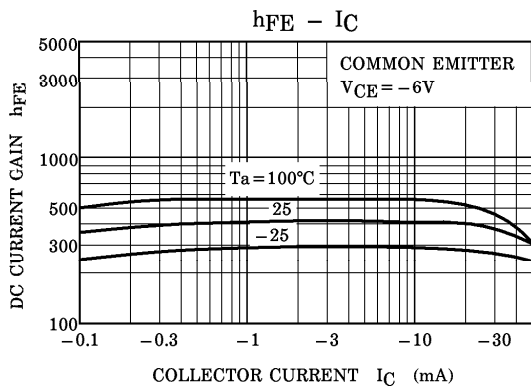
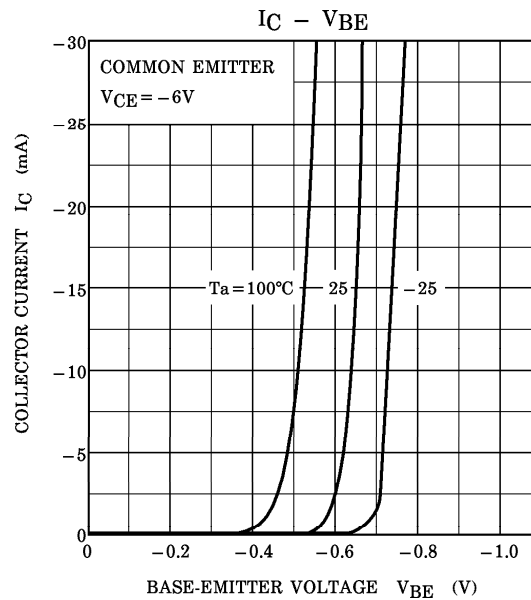
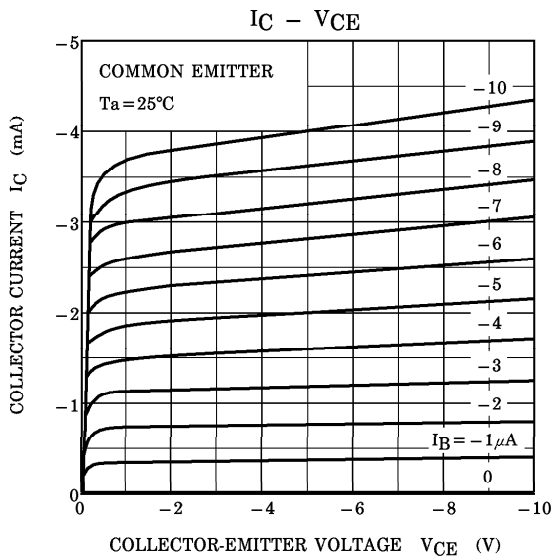
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=-120V$, $I_E=0$	—	—	-0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=-5V$, $I_C=0$	—	—	-0.1	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA$, $I_B=0$	-120	—	—	V
DC Current Gain	h_{FE} (Note)	$V_{CE}=-6V$, $I_C=-2mA$	200	—	700	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-10mA$, $I_B=-1mA$	—	—	-0.3	V
Base-Emitter Voltage	V_{BE}	$V_{CE}=-6V$, $I_C=-2mA$	—	0.65	—	V
Transition Frequency	f_T	$V_{CE}=-6V$, $I_C=-1mA$	—	100	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=-10V$, $I_E=0$, $f=1MHz$	—	4.0	—	pF
Noise Figure	NF	$V_{CE}=-6V$, $I_C=-0.1mA$, $f=10Hz$, $R_G=10k\Omega$	—	—	6	dB
		$V_{CE}=-6V$, $I_C=-0.1mA$, $f=1kHz$, $R_G=10k\Omega$	—	—	2	
		$V_{CE}=-6V$, $I_C=-0.1mA$, $f=1kHz$, $R_G=100\Omega$	—	3	—	

Note : h_{FE} Classification GR : 200~400, BL : 350~700

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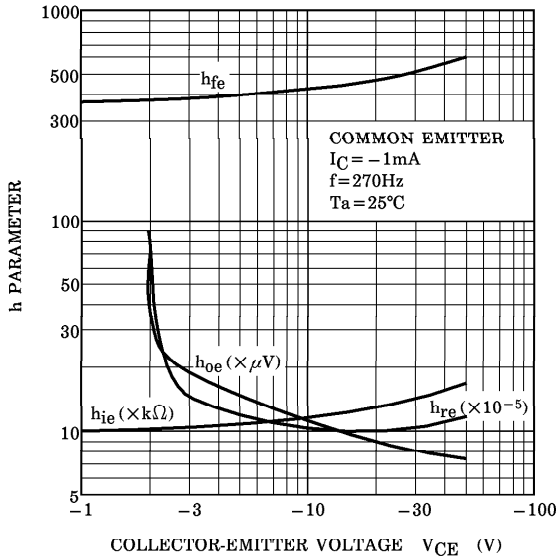
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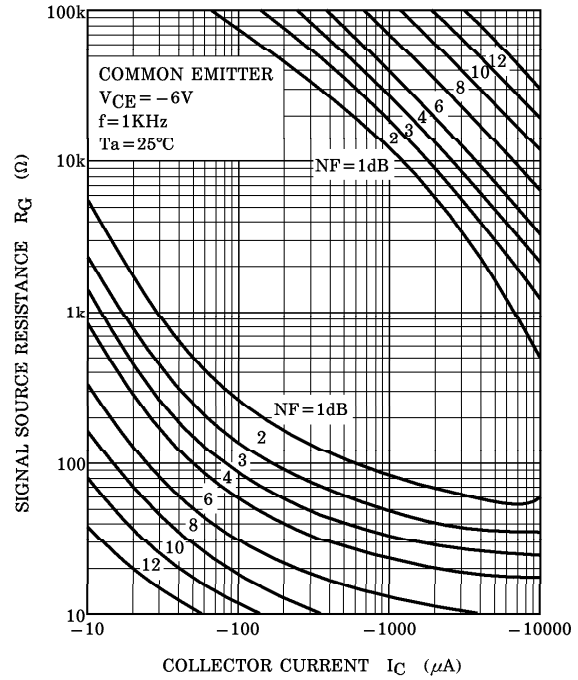
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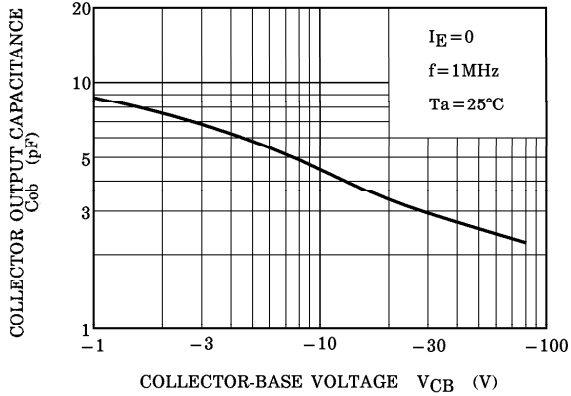
h PARAMETER - V_{CE}



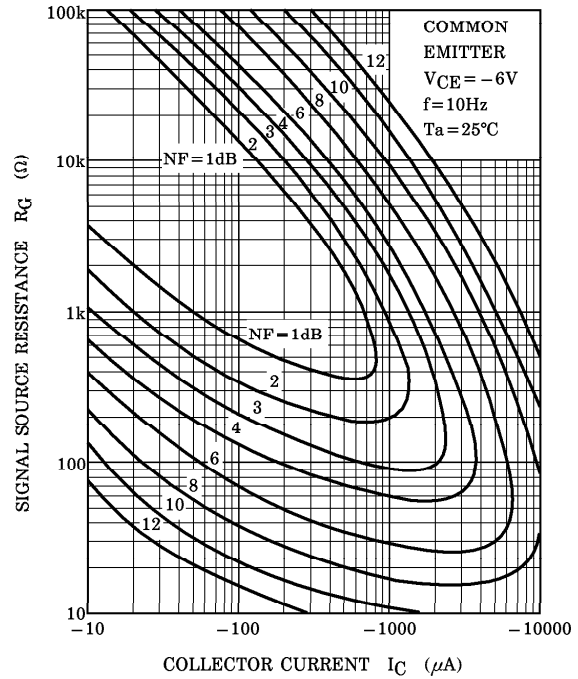
NF - R_G, I_C



C_{ob} - V_{CB}



NF - R_G, I_C



P_C - T_a

