

To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Cautions

Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SA872, 2SA872A

Silicon PNP Epitaxial

RENESAS

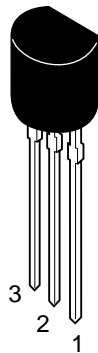
ADE-208-1001 (Z)
1st. Edition
Mar. 2001

Application

- Low frequency low noise amplifier
- Complementary pair with 2SC1775/A

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

2SA872, 2SA872A

Absolute Maximum Ratings (Ta = 25°C)

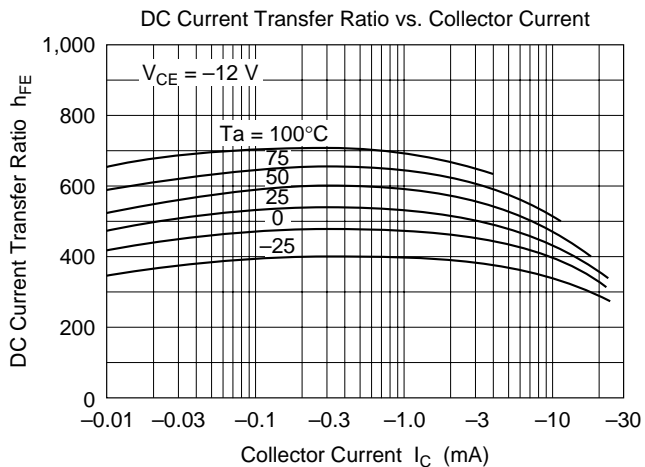
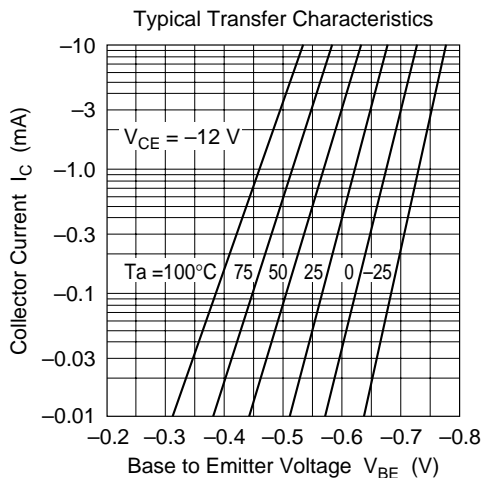
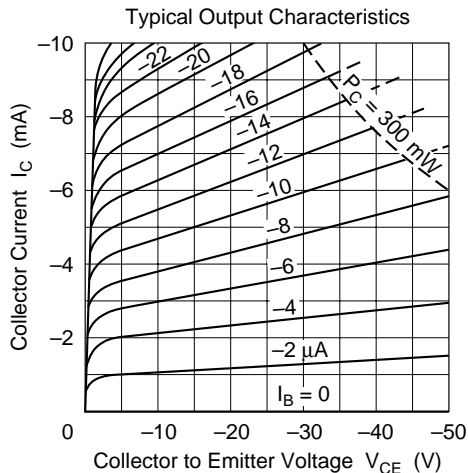
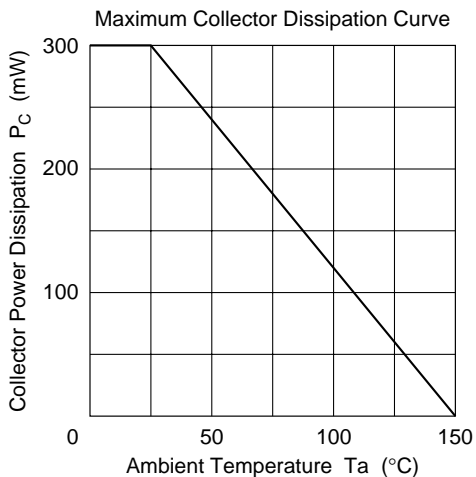
Item	Symbol	2SA872	2SA872A	Unit
Collector to base voltage	V_{CBO}	-90	-120	V
Collector to emitter voltage	V_{CEO}	-90	-120	V
Emitter to base voltage	V_{EBO}	-5	-5	V
Collector current	I_C	-50	-50	mA
Collector power dissipation	P_C	300	300	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-50 to +150	°C

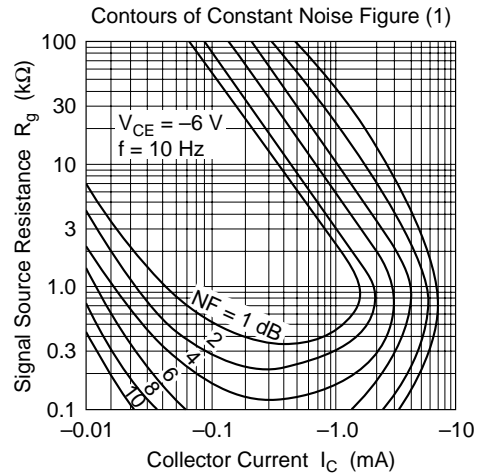
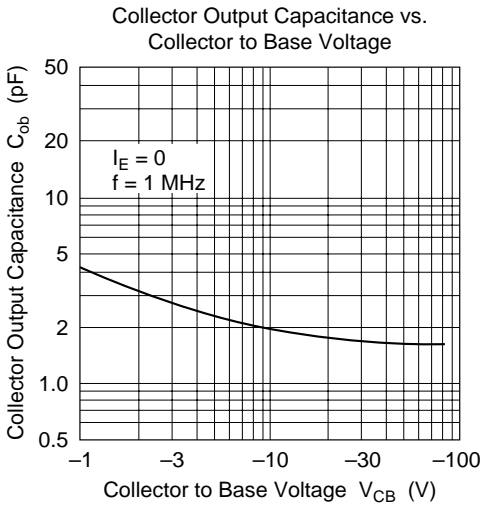
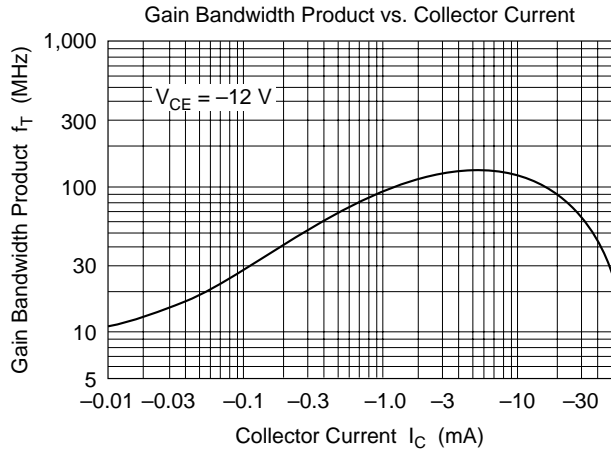
Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SA872			2SA872A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-90	—	—	-120	—	—	V	$I_C = -1 \text{ mA}$, $R_{BE} = \infty$
Collector cutoff current	I_{CBO}	—	—	-0.5	—	—	—	μA	$V_{CB} = -75 \text{ V}$, $I_E = 0$
		—	—	—	—	—	-0.5	μA	$V_{CE} = -100 \text{ V}$, $I_E = 0$
DC current transfer ratio	h_{FE1}^{*1}	250	—	800	250	—	800		$V_{CE} = -12 \text{ V}$, $I_C = -2 \text{ mA}$
	h_{FE2}	160	—	—	160	—	—		$V_{CE} = -12 \text{ V}$, $I_C = -0.1 \text{ mA}$
Base to emitter voltage	V_{BE}	—	—	-0.75	—	—	-0.75	V	$V_{CE} = -12 \text{ V}$, $I_C = -2 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-0.5	—	—	-0.5	V	$I_C = -10 \text{ mA}$, $I_B = -1 \text{ mA}$
Gain bandwidth product	f_T	—	120	—	—	120	—	MHz	$V_{CE} = -12 \text{ V}$, $I_C = -2 \text{ mA}$
Collector output capacitance	C_{ob}	—	1.8	—	—	1.8	—	pF	$V_{CB} = -25 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$
Noise figure	NF	—	—	5.0	—	—	5.0	dB	$V_{CE} = -6 \text{ V}$, $f = 10 \text{ Hz}$ $I_C = -50 \mu\text{A}$ $R_g = 50 \text{ k}\Omega$
		—	—	1.5	—	—	1.5	dB	$f = 1 \text{ kHz}$

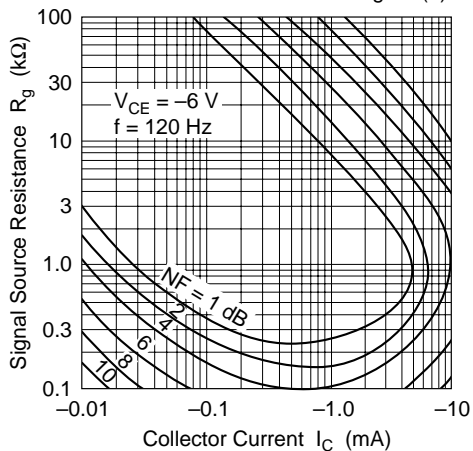
Note: 1. The 2SA872/A is grouped by h_{FE1} as follows.

D	E
250 to 500	400 to 800

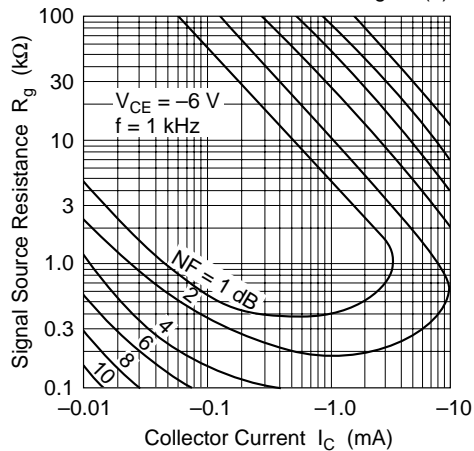




Contours of Constant Noise Figure (2)



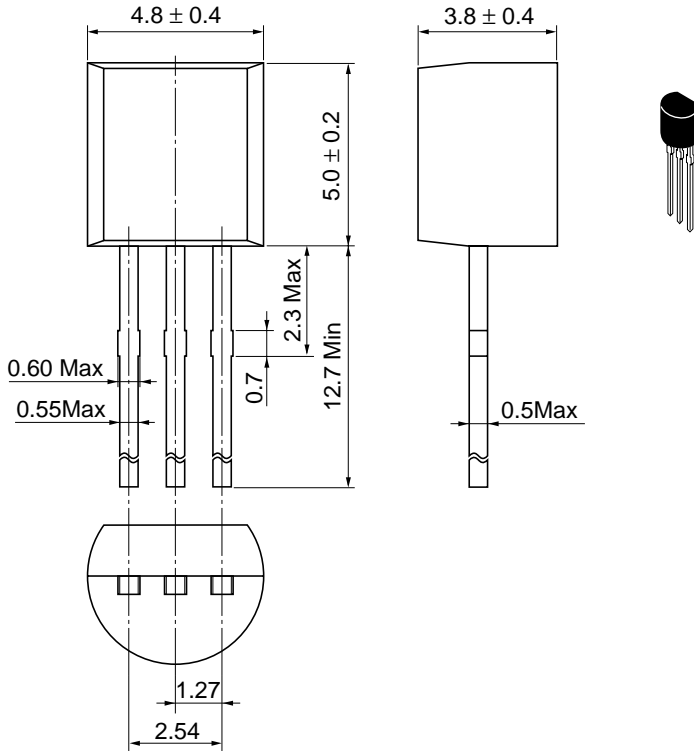
Contours of Constant Noise Figure (3)



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

Cautions

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