

To all our customers

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Renesas Technology Home Page: <http://www.renesas.com>

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

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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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2SA1031, 2SA1032

Silicon PNP Epitaxial

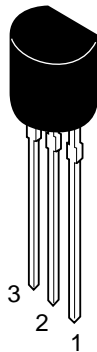
RENESAS

Application

- Low frequency low noise amplifier
- Complementary pair with 2SC458 (LG) and 2SC2310

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

2SA1031, 2SA1032

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA1031	2SA1032	Unit
Collector to base voltage	V_{CBO}	-30	-55	V
Collector to emitter voltage	V_{CEO}	-30	-50	V
Emitter to base voltage	V_{EBO}	-5	-5	V
Collector current	I_C	-100	-100	mA
Emitter current	I_E	100	100	mA
Collector power dissipation	P_C	300	300	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

2SA1031, 2SA1032

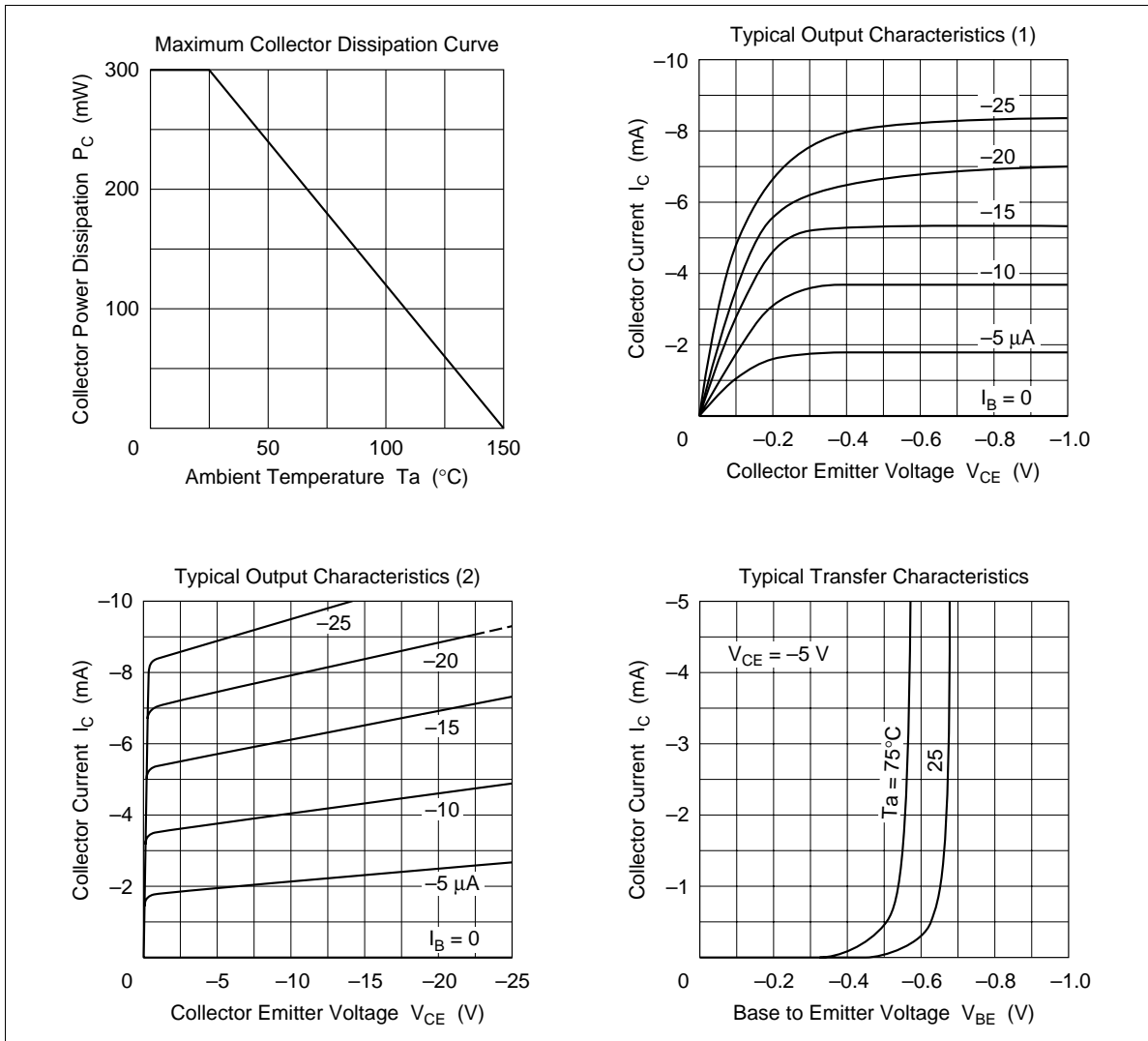
Electrical Characteristics (Ta = 25°C)

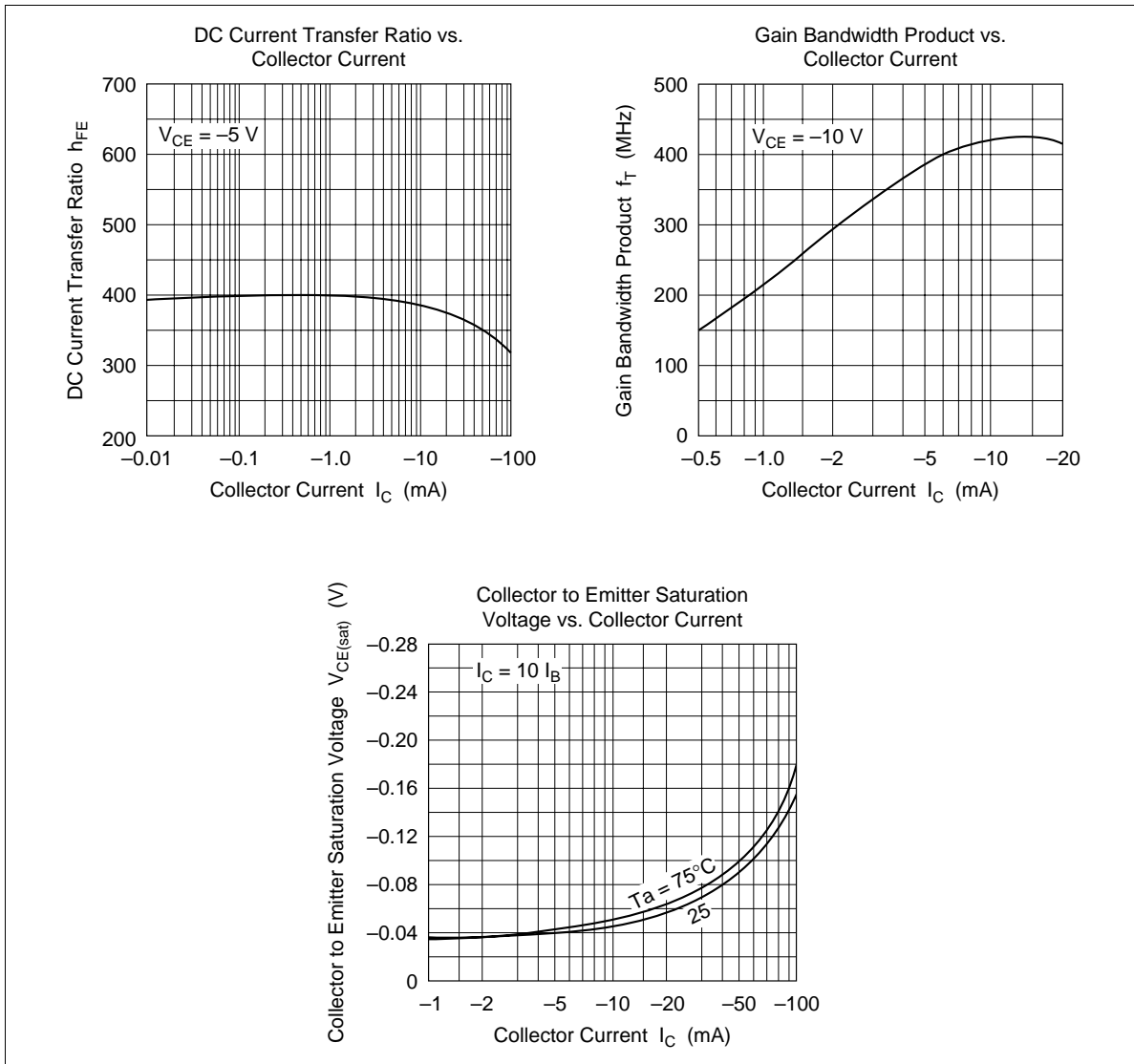
Item	Symbol	2SA1031			2SA1032			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-30	—	—	-55	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-30	—	—	-50	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	-5	—	—	V	$I_E = -10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	-0.5	—	—	-0.5	μA	$V_{CE} = -12 \text{ V}, I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	-0.5	—	—	-0.5	μA	$V_{EB} = -2 \text{ V}, I_C = 0$
DC current transfer ratio	h_{FE}^{*1}	100	—	500	100	—	320		$V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$
Base to emitter voltage	V_{BE}	—	—	-0.8	—	—	-0.8	V	$V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-0.2	—	—	-0.2	V	$I_C = -10 \text{ mA}, I_B = -1 \text{ mA}$
Gain bandwidth product	f_T	200	280	—	200	280	—	MHz	$V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$
Collector output capacitance	C_{ob}	—	3.3	4.0	—	3.3	4.0	pF	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Noise figure	NF	—	—	5	—	—	5	dB	$V_{CE} = -6 \text{ V}, I_C = -0.1 \text{ mA}, R_g = 500 \Omega, f = 120 \text{ Hz}$

Note: 1. The 2SA1031 and 2SA1032 are grouped by h_{FE} as follows.

	B	C	D
2SA1031	100 to 200	160 to 320	250 to 500
2SA1032	100 to 200	160 to 320	—

2SA1031, 2SA1032





2SA1031, 2SA1032

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