

To all our customers

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

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Keep safety first in your circuit designs!

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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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# 2SA1029, 2SA1030

Silicon PNP Epitaxial

**RENESAS**

ADE-208-1004A (Z)  
2nd. Edition  
Mar. 2001

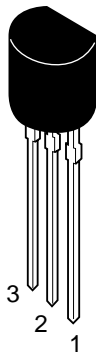
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## Application

- Low frequency amplifier
- Complementary pair with 2SC458 and 2SC2308

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

# 2SA1029, 2SA1030

## Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA1029	2SA1030	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

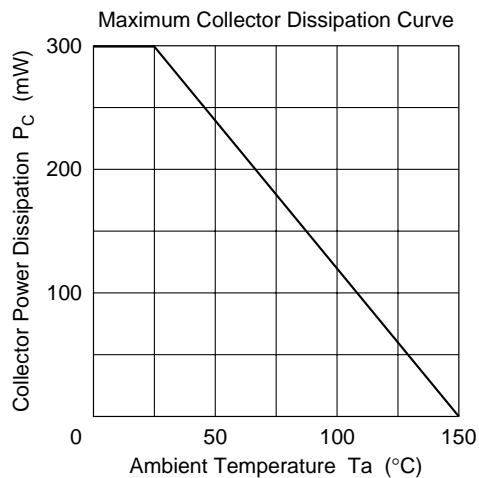
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SA1029			2SA1030			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	$\mu A$	$V_{CB} = -18 \text{ V}, I_E = 0$
Emitter cutoff current	$I_{EBO}$	—	—	-0.5	—	—	-0.5	$\mu A$	$V_{EB} = -2 \text{ V}, I_C = 0$
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	$V_{CB} = -12 \text{ V}, I_C = -2 \text{ mA}$
Collector output capacitance	$C_{ob}$	—	3.3	4.0	—	3.3	4.0	pF	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$

Note: 1. The 2SA1029 and 2SA1030 are grouped by  $h_{FE}$  as follows.

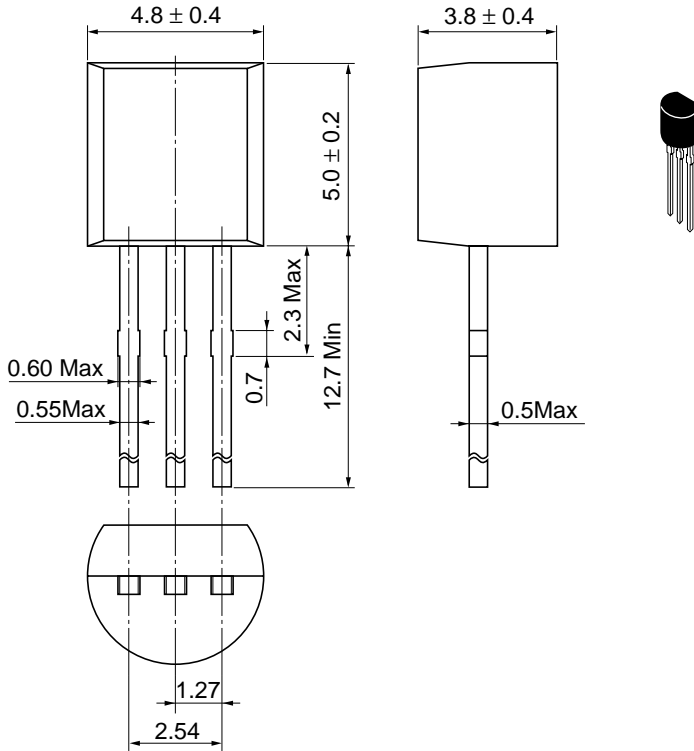
	B	C	D
2SA1029	100 to 200	160 to 320	250 to 500
2SA1030	100 to 200	160 to 320	—

See characteristic curves of 2SA1052.



Package Dimensions

As of January, 2001  
Unit: mm



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

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