

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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2SD2030, 2SD2031

Silicon NPN Epitaxial

RENESAS

ADE-208-1163 (Z)

1st. Edition

Mar. 2001

Application

Low frequency high voltage amplifier

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

2SD2030, 2SD2031

Absolute Maximum Ratings (Ta = 25°C)

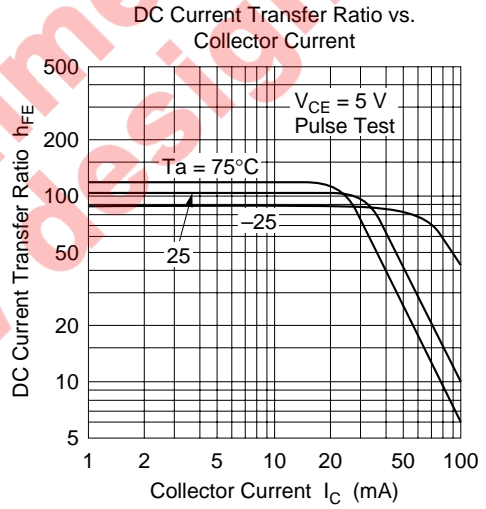
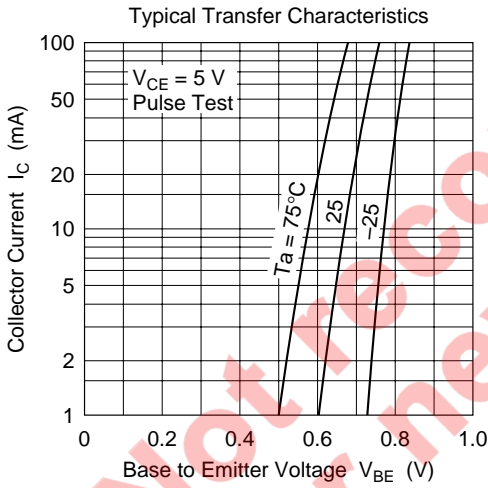
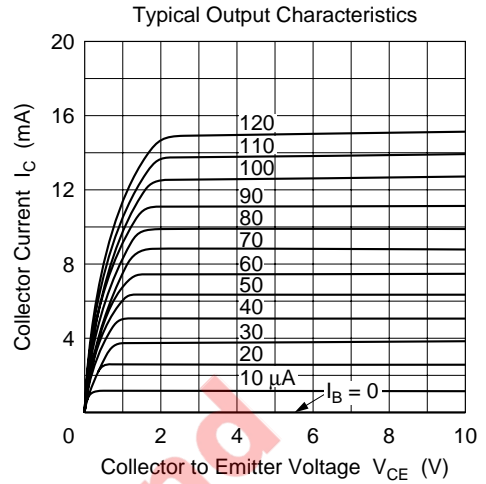
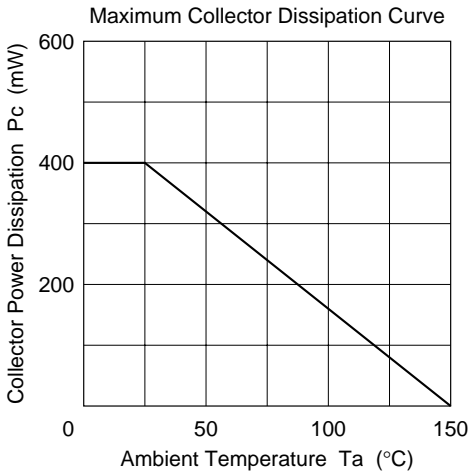
Item	Symbol	2SD2030	2SD2031	Unit
Collector to base voltage	V_{CBO}	160	200	V
Collector to emitter voltage	V_{CEO}	160	200	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	100	100	mA
Collector power dissipation	P_C	400	400	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

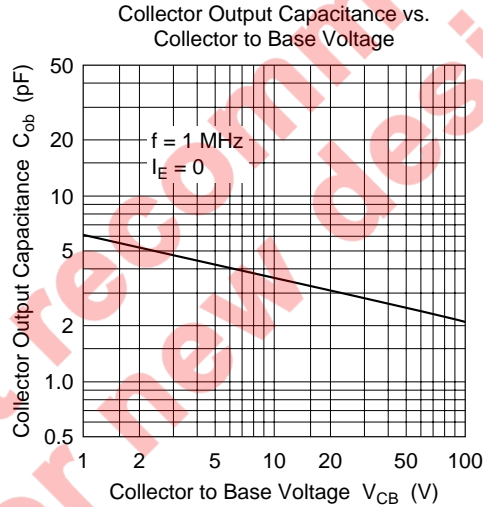
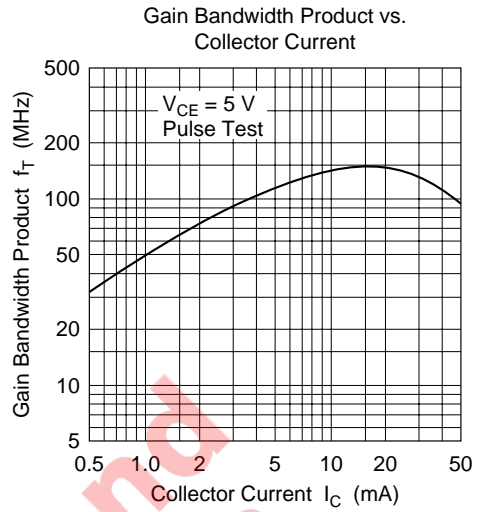
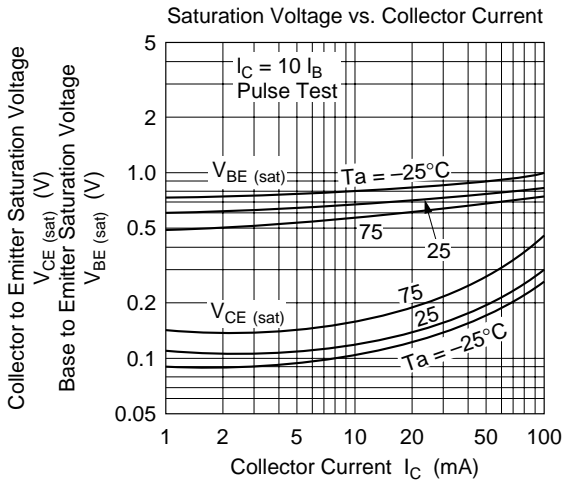
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	2SD2030 $V_{(BR)CBO}$	160	—	—	V	$I_C = 10 \mu A, I_E = 0$
	2SD2031	200	—	—	—	—
Collector to emitter breakdown voltage	2SD2030 $V_{(BR)CEO}$	160	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
	2SD2031	200	—	—	—	—
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	2SD2030 I_{CBO}	—	—	10	μA	$V_{CB} = 140 \text{ V}, I_E = 0$
	2SD2031	—	—	—	—	$V_{CB} = 160 \text{ V}, I_E = 0$
DC current transfer ratio	h_{FE1}^{*1}	60	—	200	—	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
	h_{FE2}	30	—	—	—	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$
Base to emitter voltage	V_{BE}	—	—	1.5	V	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$
Gain bandwidth product	f_T	—	140	—	MHz	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	3.8	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$

Note: 1. The 2SD2030 and 2SD2031 are grouped by h_{FE1} as follows.

Grade	B	C
h_{FE1}	60 to 120	100 to 200

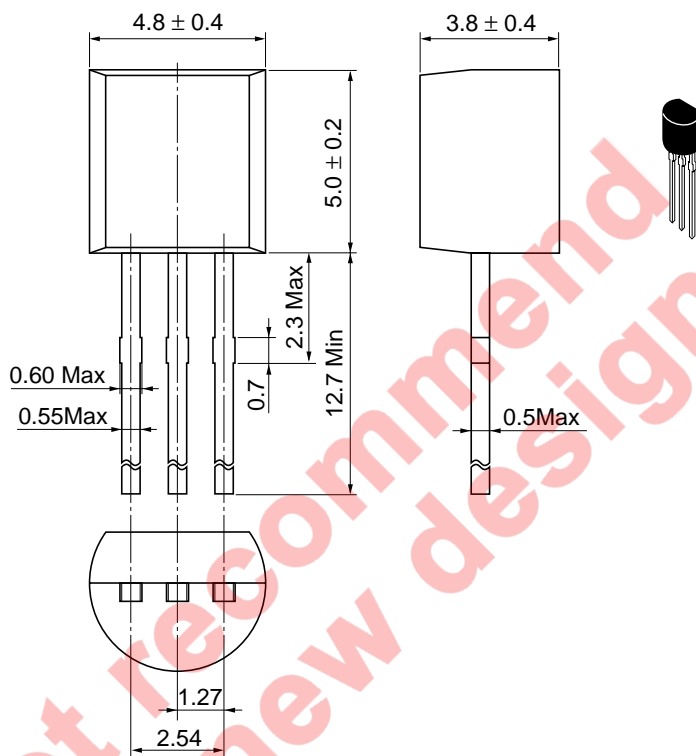




Package Dimensions

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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