

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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2SB738, 2SB739

Silicon PNP Epitaxial

RENESAS

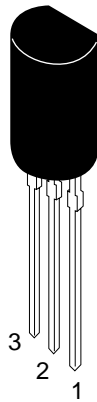
ADE-208-1030 (Z)
1st. Edition
Mar. 2001

Application

- Low frequency power amplifier
- Complementary pair with 2SD787 and 2SD788

Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

2SB738, 2SB739

Absolute Maximum Ratings (Ta = 25°C)

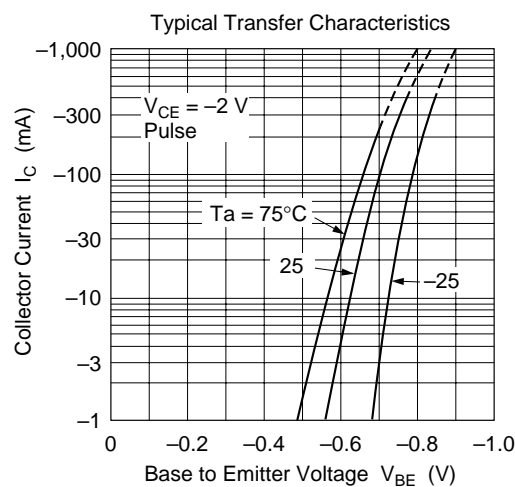
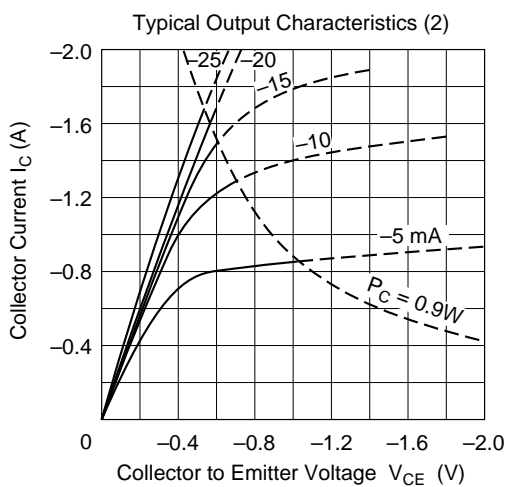
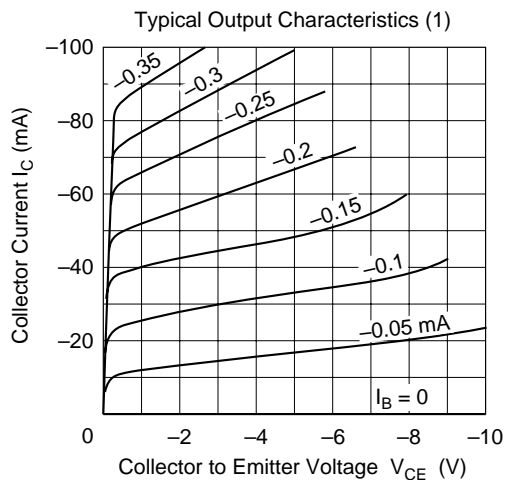
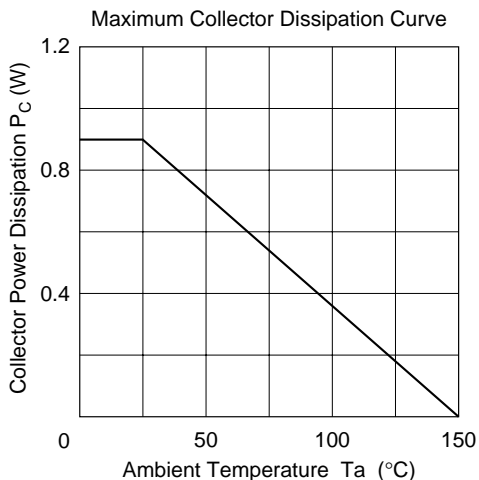
Item	Symbol	2SB738	2SB739	Unit
Collector to base voltage	V_{CBO}	-20	-20	V
Collector to emitter voltage	V_{CEO}	-16	-20	V
Emitter to base voltage	V_{EBO}	-6	-6	V
Collector current	I_C	-2	-2	A
Collector power dissipation	P_C	0.9	0.9	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

Electrical Characteristics (Ta = 25°C)

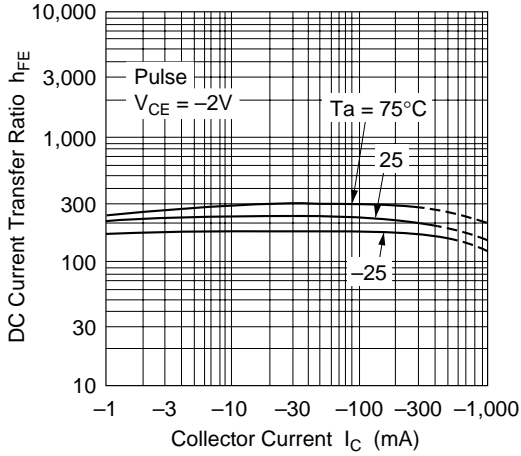
Item	Symbol	2SB738			2SB739			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-20	—	—	-20	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-16	—	—	-20	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-6	—	—	-6	—	—	V	$I_E = -10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	-2	—	—	-2	μA	$V_{CB} = -16 \text{ V}, I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	-0.2	—	—	-0.2	μA	$V_{EB} = -6 \text{ V}, I_C = 0$
DC current transfer ratio	h_{FE}^{*1}	100	—	320	100	—	320		$V_{CE} = -2 \text{ V}, I_C = -0.1 \text{ A}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-0.3	—	—	-0.3	V	$I_C = -1 \text{ A}, I_B = -0.1 \text{ A}$
Gain bandwidth product	f_T	—	150	—	—	150	—	MHz	$V_{CE} = -2 \text{ V}, I_C = -10 \text{ mA}$
Collector output capacitance	C_{ob}	—	50	—	—	50	—	pF	$V_{CB} = -10 \text{ V}, I_E = 0,$ $f = 1 \text{ MHz}$

Note: 1. The 2SB738 and 2SB739 are grouped by h_{FE} as follows.

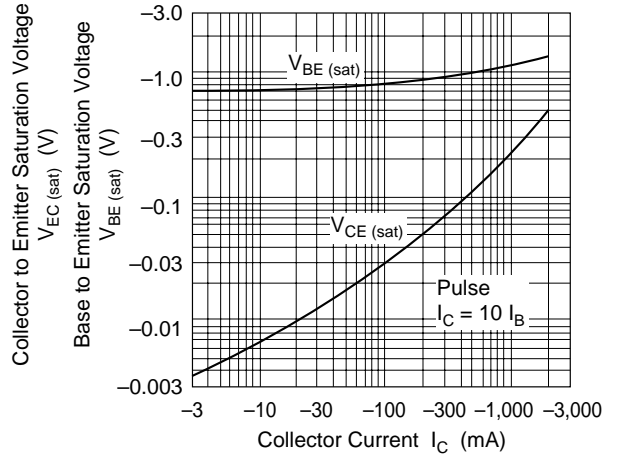
B	C
100 to 200	160 to 320



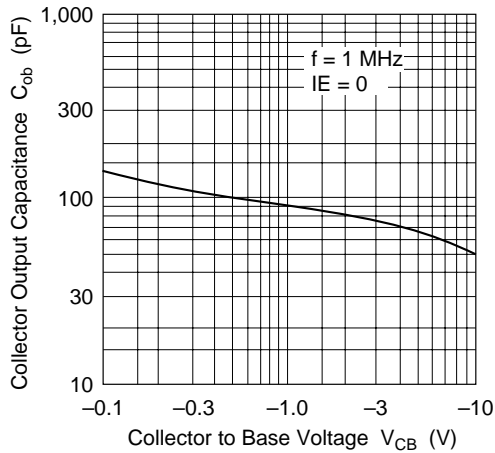
DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current

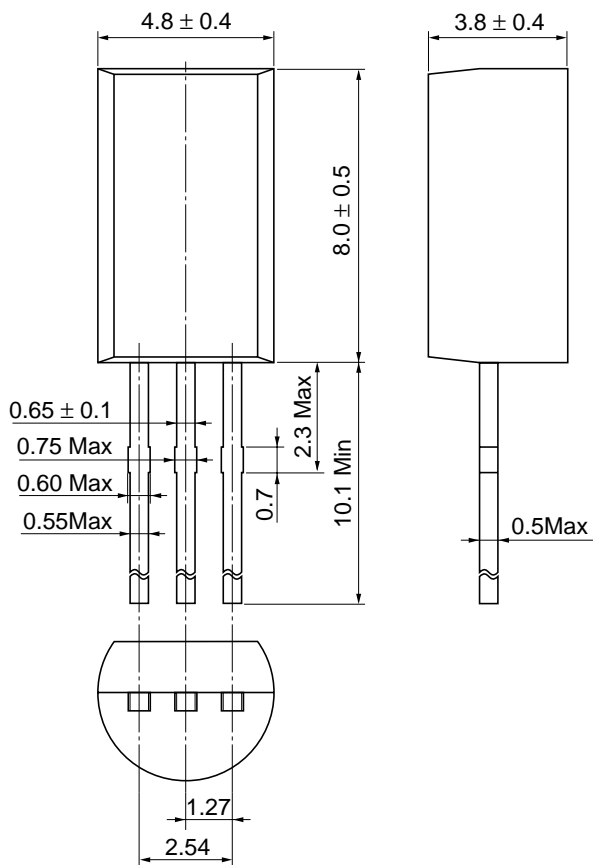


Collector Output Capacitance vs. Collector to Base Voltage



Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.35 g

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