

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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2SC1906

Silicon NPN Epitaxial Planar

RENESAS

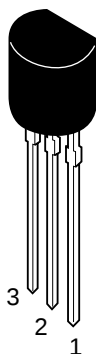
ADE-208-1058 (Z)
1st. Edition
Mar. 2001

Application

- VHF amplifier
- Mixer, Local oscillator

Outline

TO-92 (2)



1. Emitter
2. Collector
3. Base

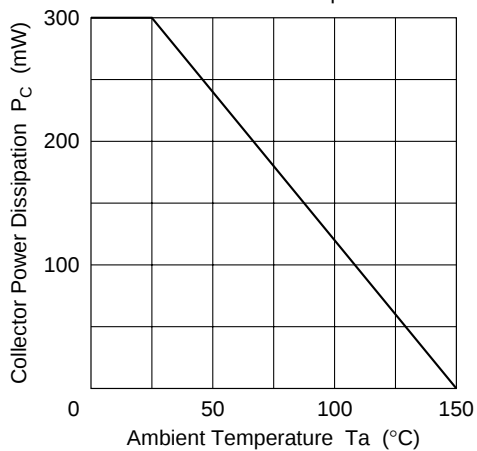
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	19	V
Emitter to base voltage	V_{EBO}	2	V
Collector current	I_C	50	mA
Emitter current	I_E	−50	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

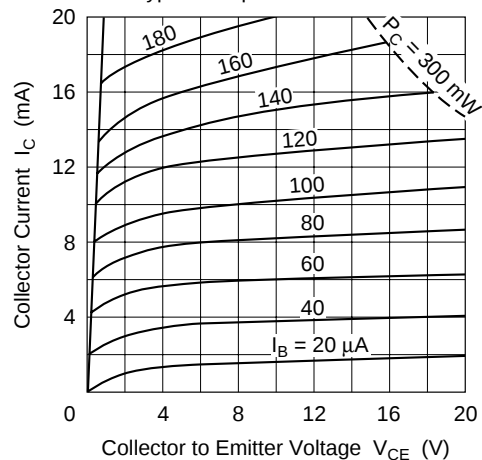
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10\ \mu A$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	19	—	—	V	$I_C = 3\ mA$, $R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	2	—	—	V	$I_E = 10\ \mu A$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10\ V$, $I_E = 0$
DC current transfer ratio	h_{FE}	40	—	—		$V_{CE} = 10\ V$, $I_C = 10\ mA$
Gain bandwidth product	f_T	600	1000	—	MHz	$V_{CE} = 10\ V$, $I_C = 10\ mA$
Collector output capacitance	C_{ob}	—	1.0	2.0	pF	$V_{CB} = 10\ V$, $I_E = 0$, $f = 1\ MHz$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.2	1.0	V	$I_C = 20\ mA$, $I_B = 4\ mA$
Base time constant	$r_{bb'} \cdot C_C$	—	10	25	ps	$V_{CB} = 10\ V$, $I_C = 10\ mA$, $f = 31.8\ MHz$
Power gain	PG	—	33	—	dB	$V_{CE} = 10\ V$, $f = 45\ MHz$ $I_C = 5\ mA$
		—	18	—	dB	$V_{CE} = 10\ V$, $f = 200\ MHz$ $I_C = 5\ mA$

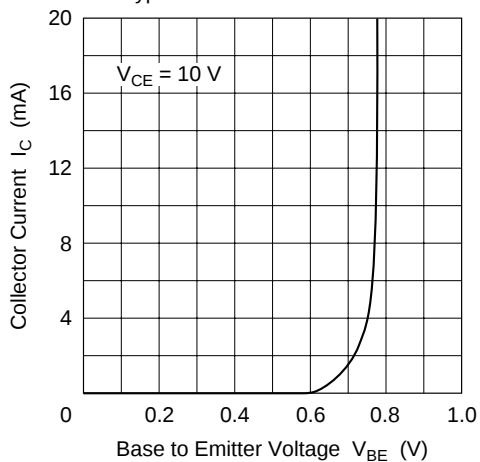
Maximum Collector Dissipation Curve



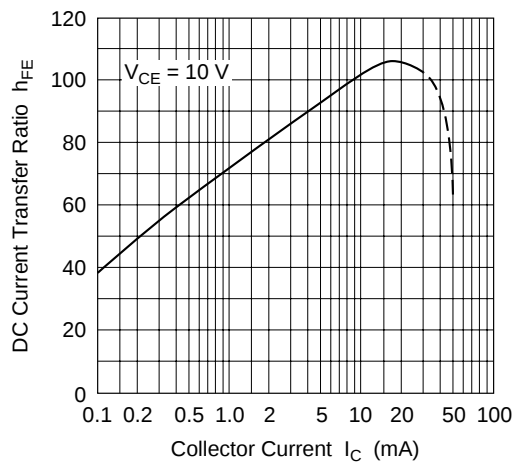
Typical Output Characteristics

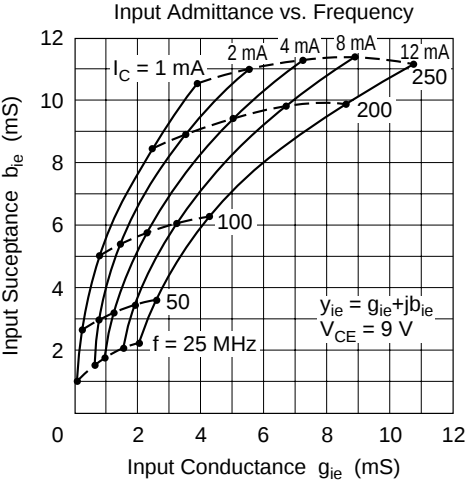
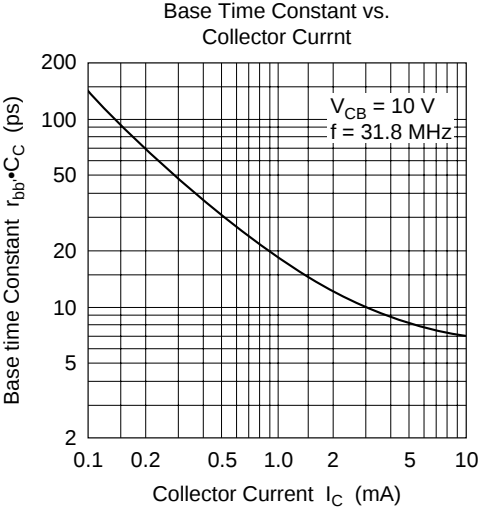
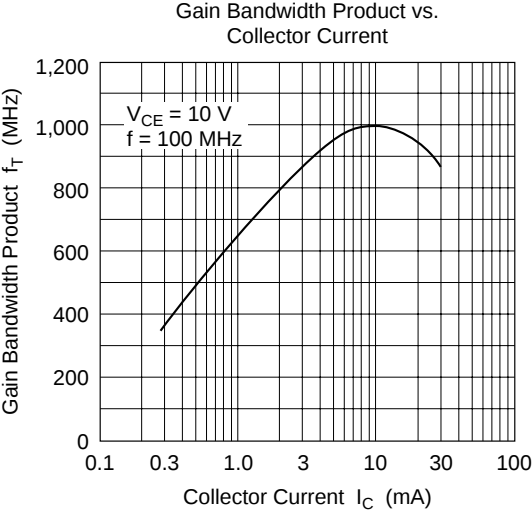
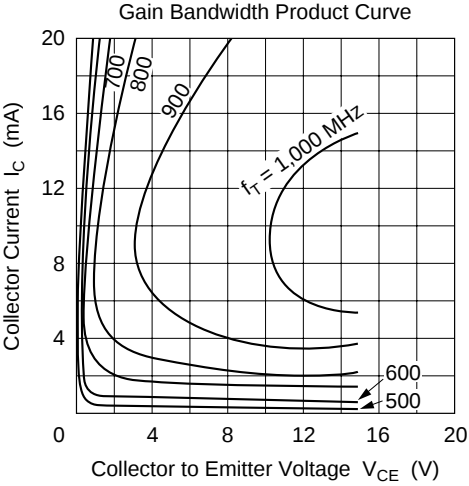


Typical Transfer Characteristics

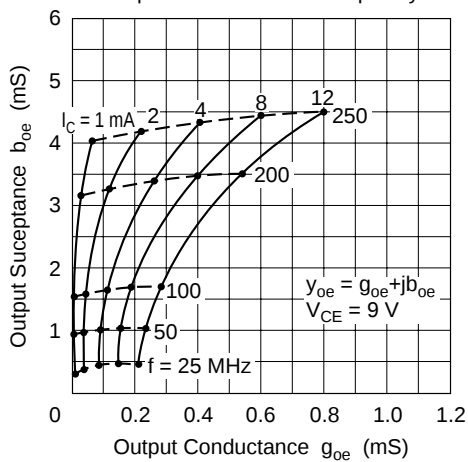


DC Current Transfer Ratio vs. Collector Current

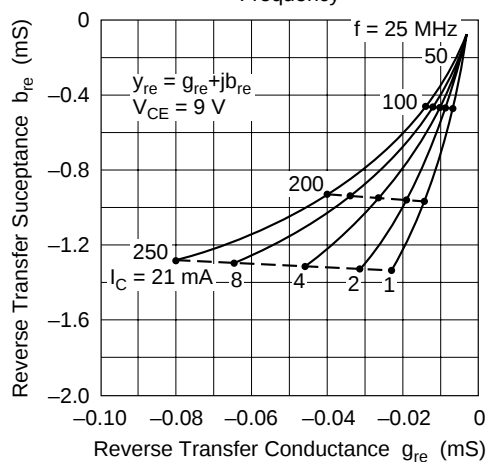




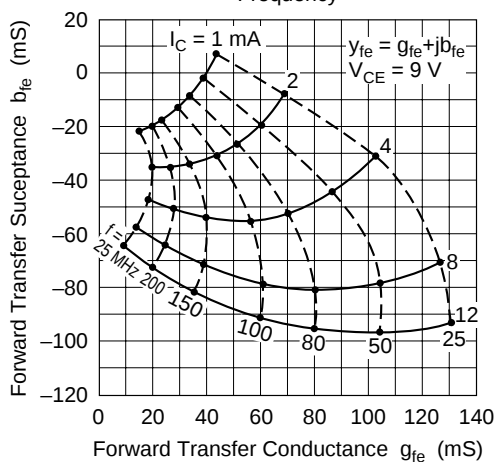
Output Admittance vs. Frequency



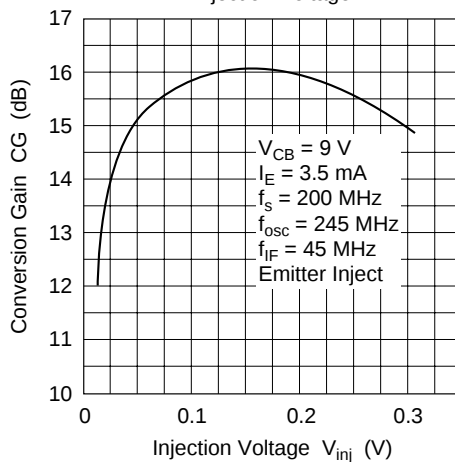
Reverse Transfer Admittance vs. Frequency

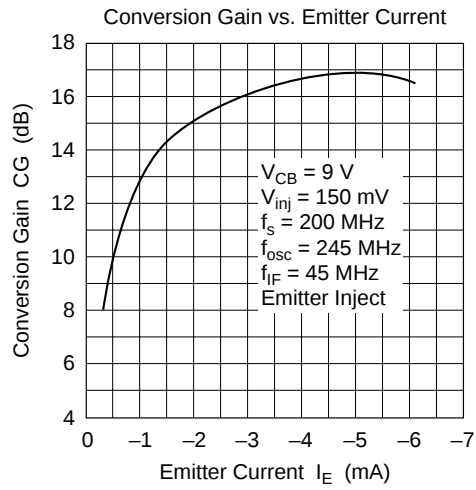


Forward Transfer Admittance vs. Frequency



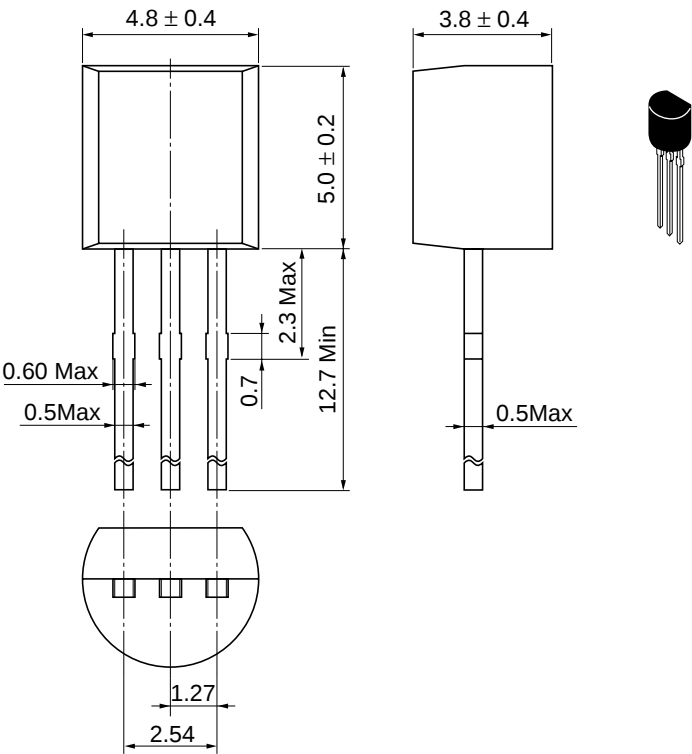
Conversion Gain vs. Local Oscillating Injection Voltage





Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	TO-92 (2)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

Cautions

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