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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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2SC2512

Silicon NPN Triple Diffused

RENESAS

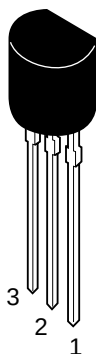
ADE-208-1066 (Z)
1st. Edition
Mar. 2001

Application

- VHF Amplifier
- VHF TV Tuner, Mixer

Outline

TO-92 (2)



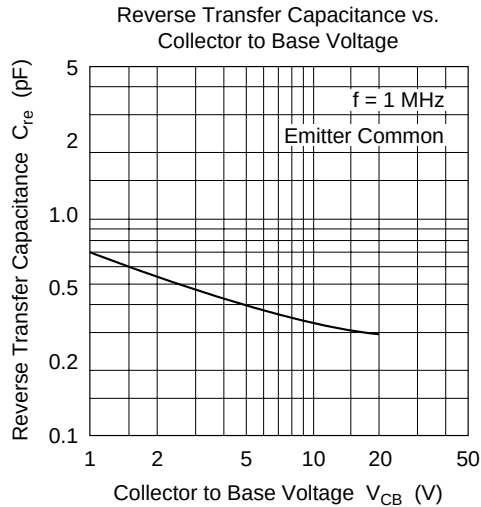
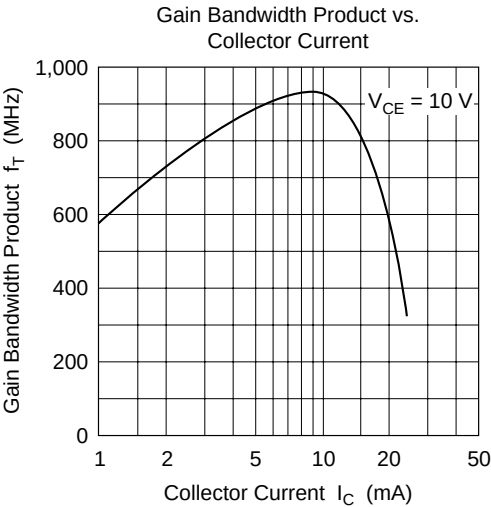
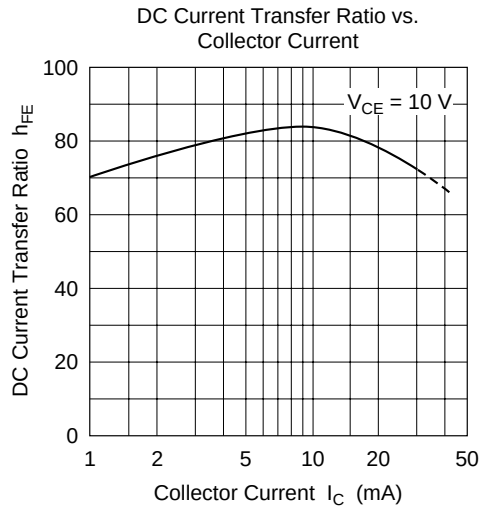
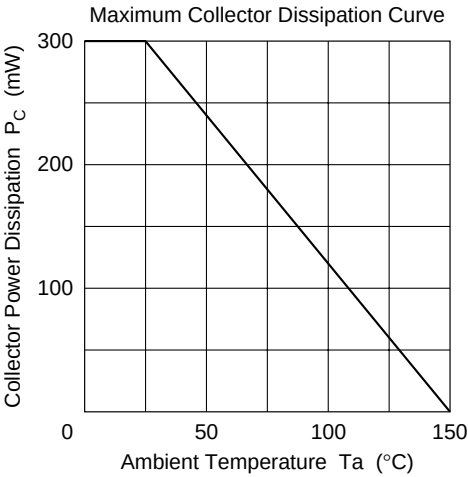
1. Base
2. Emitter
3. Collector

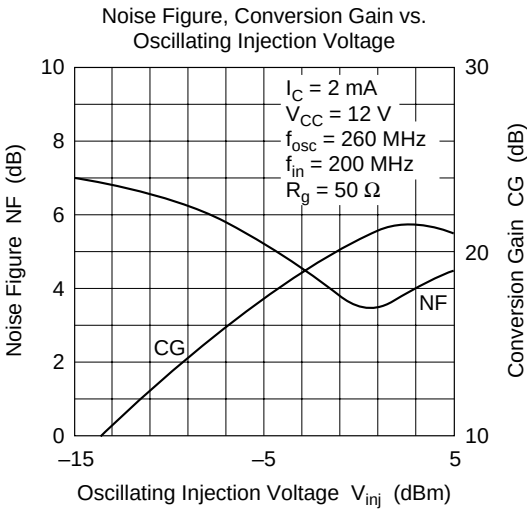
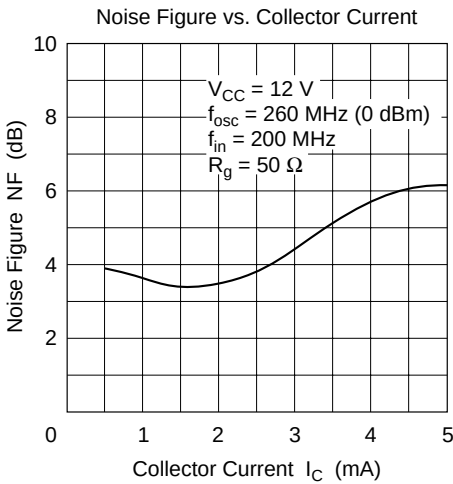
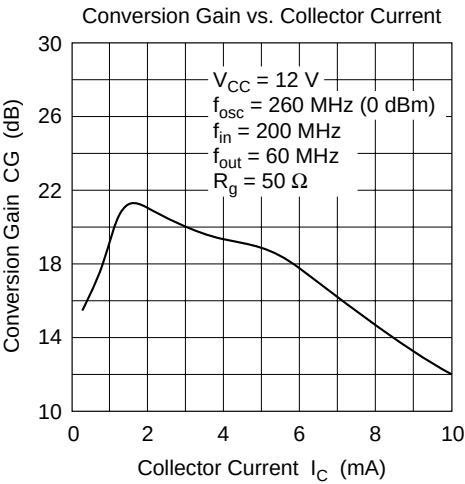
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

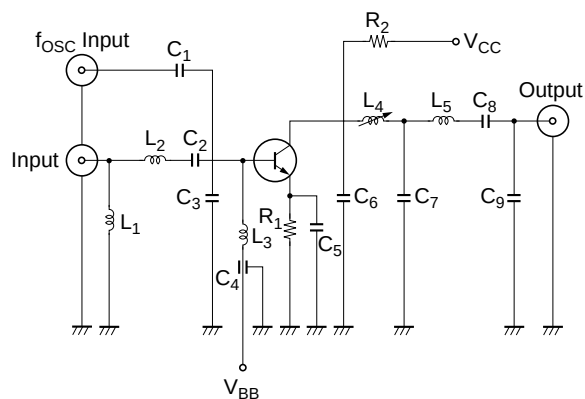
Electrical Characteristics (Ta = 25°C)

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	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1 \text{ mA}$, $R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	$I_E = 10 \mu A$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}$, $I_E = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1	V	$I_C = 20 \text{ mA}$, $I_B = 4 \text{ mA}$
DC current transfer ratio	h_{FE}	30	—	—		$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$
Reverse transfer capacitance	C_{re}	—	0.35	0.45	pF	$V_{CB} = 10 \text{ V}$, Emitter common, $f = 1 \text{ MHz}$
Gain bandwidth product	f_T	600	900	—	MHz	$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$
Base time constant	$r_{bb'} \cdot C_C$	—	—	20	ps	$V_{CB} = 10 \text{ V}$, $I_C = 5 \text{ mA}$, $f = 31.8 \text{ MHz}$
Conversion gain	CG	16	20	—	dB	$V_{CC} = 12 \text{ V}$, $I_C = 2 \text{ mA}$, $f_{in} = 200 \text{ MHz}$, $f_{OSC} = 260 \text{ MHz}$, $f_{out} = 60 \text{ MHz}$
Noise figure	NF	—	3.8	5.5	dB	$V_{CC} = 12 \text{ V}$, $I_C = 2 \text{ mA}$, $f_{OSC} = 260 \text{ MHz}$, $R_g = 50 \Omega$, $f_{in} = 200 \text{ MHz}$





Conversion Gain, Noise Figure Test Circuit



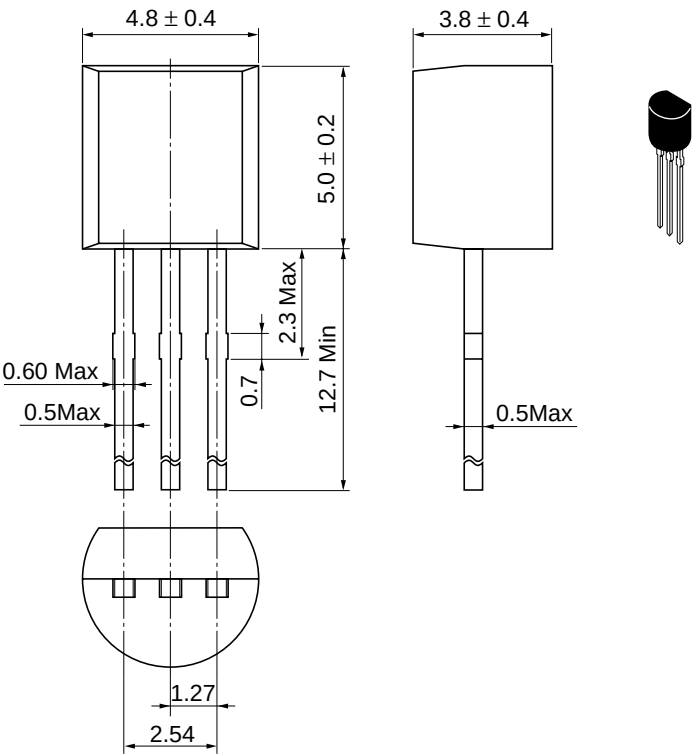
- R_1 : 330 Ω (1/4 W)
 R_2 : 560 Ω (1/4 W)
 L_1 : $\phi 0.8$ mm Copper wire with Enamel 8 Turns
 inside dia $\phi 3$ mm
 L_2 : $\phi 0.8$ mm Copper wire with Enamel 5 Turns
 inside dia $\phi 3$ mm
 L_3 : $\phi 0.5$ mm Copper wire with Enamel 3.5 Turns
 inside dia $\phi 3$ mm
 L_4 : Outside dia $\phi 5$ mm used Ferrite Core, $\phi 0.2$ mm
 Copper wire with Enamel 6.5 Turns
 L_5 : $\phi 0.2$ mm Copper wire with Enamel 13 Turns
 inside dia $\phi 5$ mm

Parts Specification

- C_1 : 1.5 pF
 C_2 : 57 pF
 C_3 : 17 pF
 C_4 : 1000 pF
 C_5 : 2200 pF
 C_6 : 22 pF
 C_7 : 80 pF
 C_8 : 18 pF
 C_9 : 20 pF

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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