

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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2SC2732

Silicon NPN Epitaxial

RENESAS

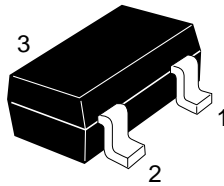
ADE-208-1072 (Z)
1st. Edition
Mar. 2001

Application

UHF frequency converter

Outline

MPAK



1. Emitter
2. Base
3. Collector

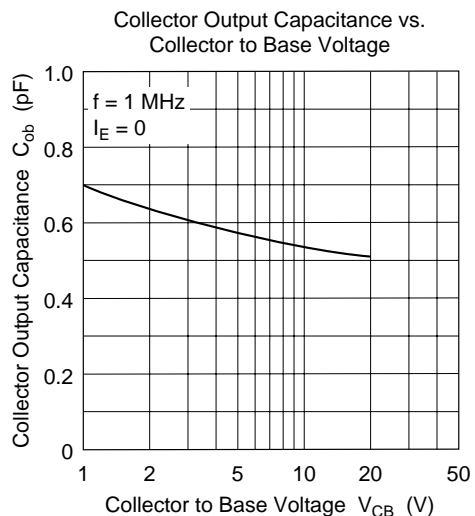
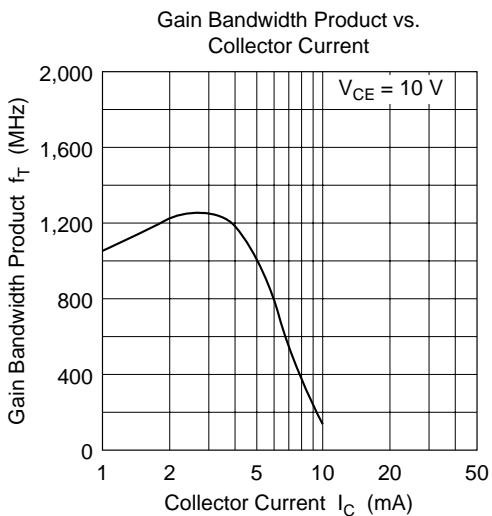
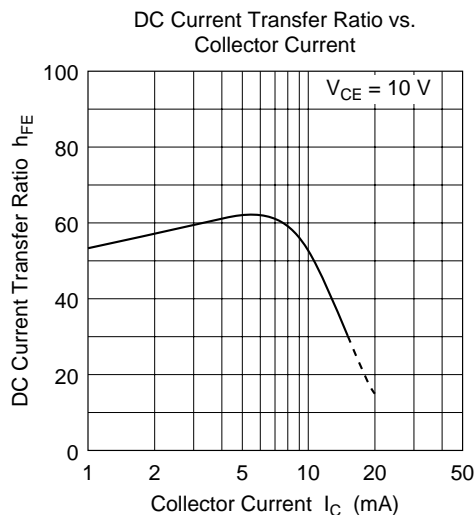
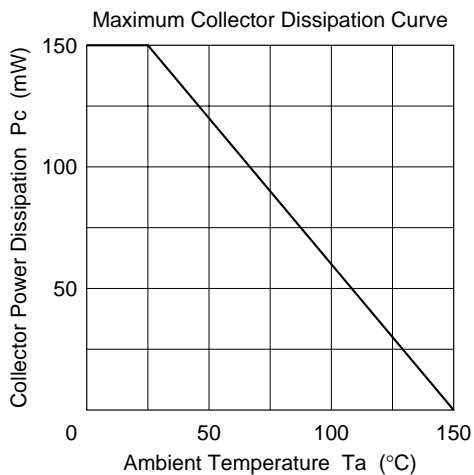
Note: Marking is "EC".

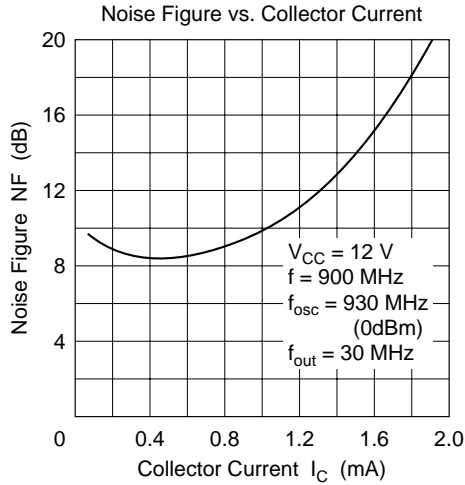
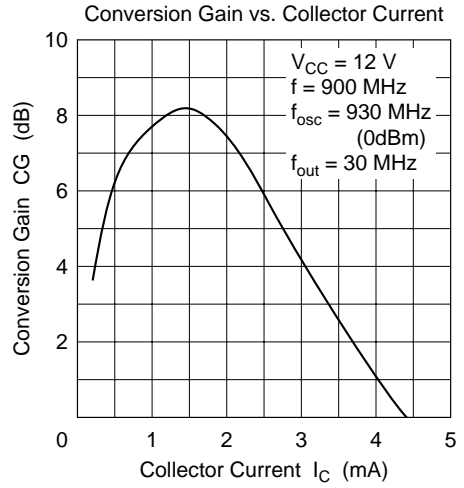
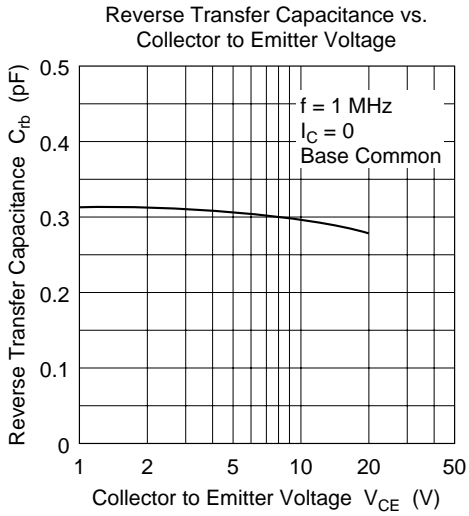
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	25	V
Emitter to base voltage	V_{EBO}	4	V
Collector current	I_C	20	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

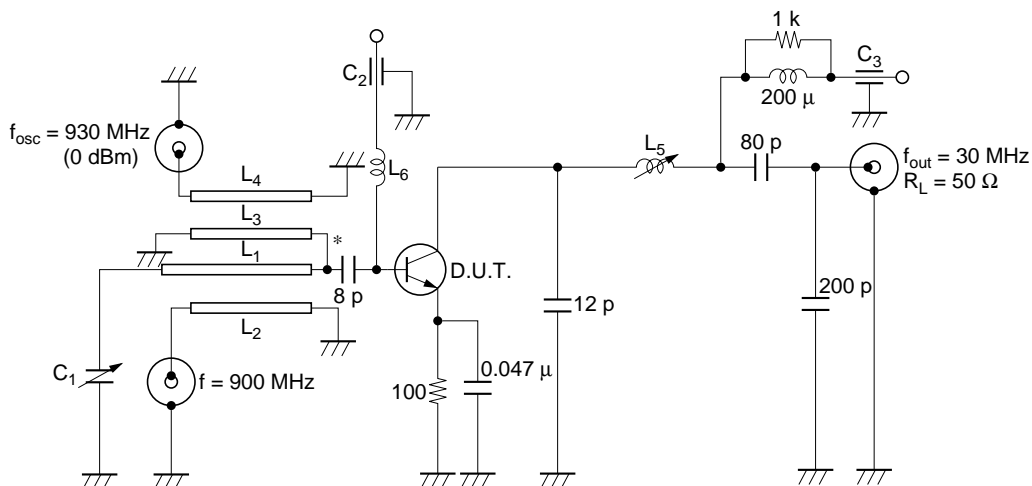
Electrical Characteristics (Ta = 25°C)

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	$V_{(BR)CEO}$	25	—	—	V	$I_C = 1 \text{ mA}, R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	4	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}, I_C = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	5	V	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$
DC current transfer ratio	h_{FE}	30	60	—		$V_{CE} = 10 \text{ V}, I_C = 3 \text{ mA}$
Gain bandwidth product	f_T	700	1000	—	MHz	$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.5	0.8	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Conversion gain	CG	—	7.0	—	dB	$V_{CC} = 12 \text{ V}, I_C = 1 \text{ mA},$ $f = 900 \text{ MHz},$ $f_{OSC} = 930 \text{ MHz (0dBm)},$ $f_{out} = 30 \text{ MHz}$
Noise figure	NF	—	10.0	—	dB	$V_{CC} = 12 \text{ V}, I_C = 1 \text{ mA},$ $f = 900 \text{ MHz},$ $f_{OSC} = 930 \text{ MHz (0dBm)},$ $f_{out} = 30 \text{ MHz}$





Conversion Gain, Noise Figure Test Circuit



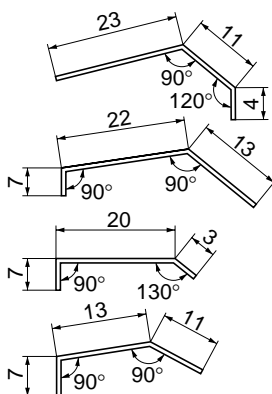
*.....Disk Capacitor
 Unit R : Ω
 C : F
 L : H

L₁ : ϕ 1 mm Enameled Copper wire

L₂ : ϕ 1 mm Enameled Copper wire

L₃ : ϕ 1 mm Enameled Copper wire

L₄ : ϕ 1 mm Enameled Copper wire



Unit : mm

L₅ : Bobbin ϕ 0.5 mm inside dia, ϕ 0.2 mm Enameled Copper wire 20 Turns

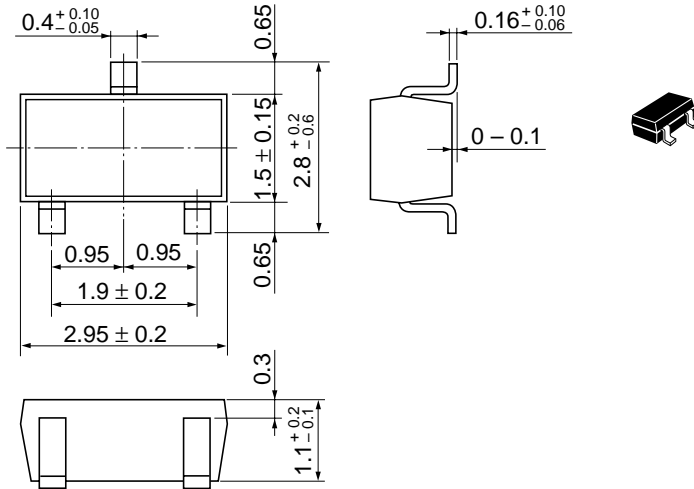
L₆ : ϕ 5 mm Enameled Copper wire 1 Turns inside dia ϕ 6 mm

C₁ : 20 pF max. Air Trimmer Condenser

C₂, C₃ : 1000 pF Air Core Capacitor

Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	MPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.011 g

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