

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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2SC3867

Silicon NPN Epitaxial

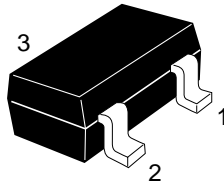
RENESAS

Application

- UHF frequency converter
- Wide band amplifier

Outline

MPAK



1. Base
2. Emitter
3. Collector

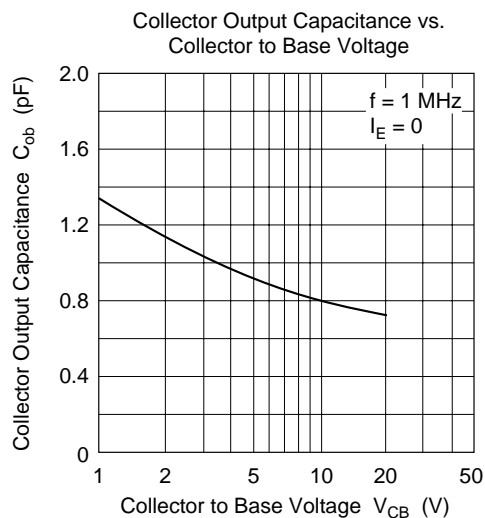
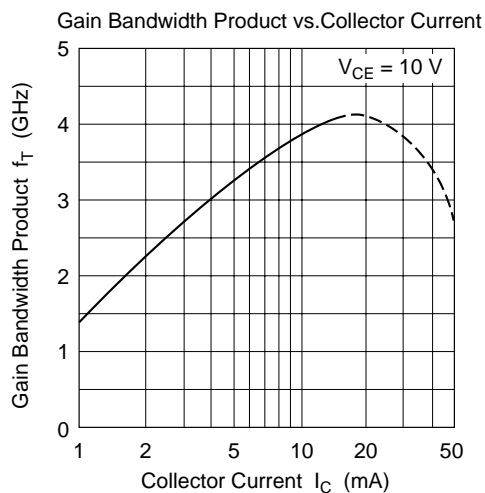
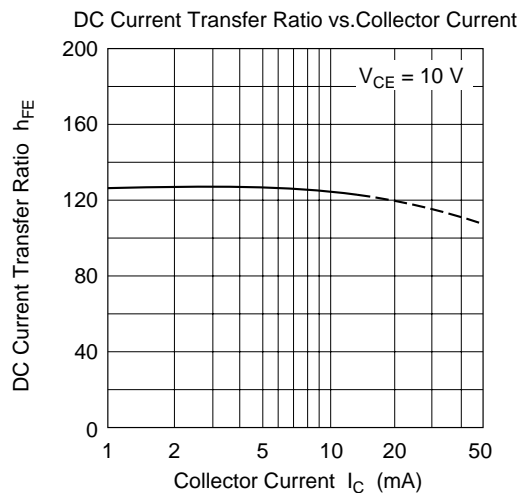
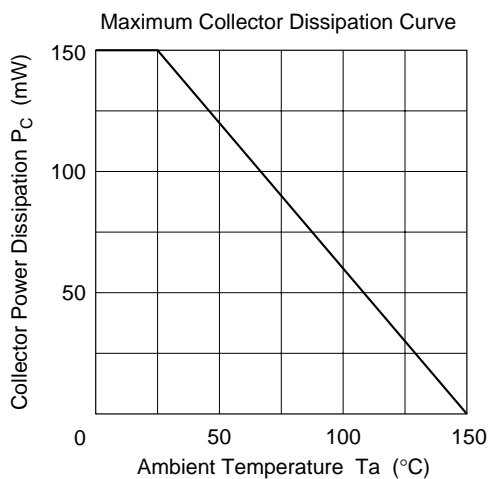
Absolute Maximum Ratings (Ta = 25°C)

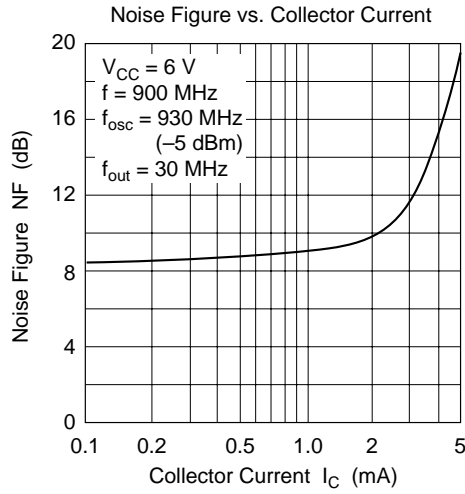
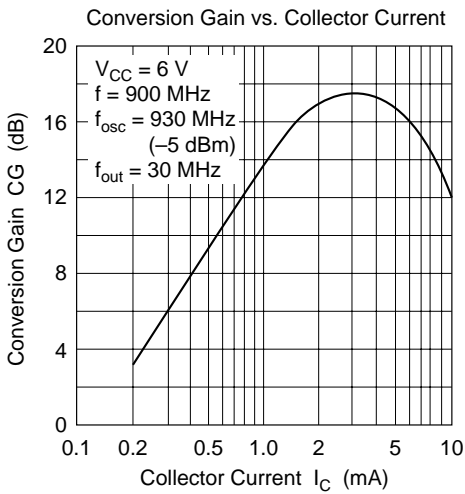
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	20	V
Collector to emitter voltage	V_{CEO}	11	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	20	—	—	V	$I_C = 10\text{ }\mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	11	—	—	V	$I_C = 1\text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	$I_E = 10\text{ }\mu\text{A}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 15\text{ V}$, $I_E = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.7	V	$I_C = 10\text{ mA}$, $I_B = 5\text{ mA}$
DC current transfer ratio	h_{FE}	45	—	200		$V_{CE} = 10\text{ V}$, $I_C = 5\text{ mA}$
Gain bandwidth product	f_T	2.5	3.8	—	GHz	$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$
Collector output capacitance	C_{ob}	—	0.8	1.5	pF	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$
Conversion gain	CG	10	14	—	dB	$V_{CC} = 10\text{ V}$, $I_C = 1\text{ mA}$, $f = 900\text{ MHz}$,
Noise figure	NF	—	10	14	dB	$f_{osc} = 930\text{ MHz}$, (-5dBm), $f_{out} = 30\text{ MHz}$

Note: Marking is "DI—"





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