

To all our customers

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Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

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# 2SA1083, 2SA1084, 2SA1085

Silicon PNP Epitaxial

**RENESAS**

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## Application

- Low frequency low noise amplifier
- Complementary pair with 2SC2545, 2SC2546 and 2SC2547

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

## 2SA1083, 2SA1084, 2SA1085

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA1083	2SA1084	2SA1085	Unit
Collector to base voltage	$V_{CBO}$	−60	−90	−120	V
Collector to emitter voltage	$V_{CEO}$	−60	−90	−120	V
Emitter to base voltage	$V_{EBO}$	−5	−5	−5	V
Collector current	$I_C$	−100	−100	−100	mA
Emitter current	$I_E$	100	100	100	mA
Collector power dissipation	$P_C$	400	400	400	mW
Junction temperature	$T_J$	150	150	150	°C
Storage temperature	$T_{stg}$	−55 to +150	−55 to +150	−55 to +150	°C

## 2SA1083, 2SA1084, 2SA1085

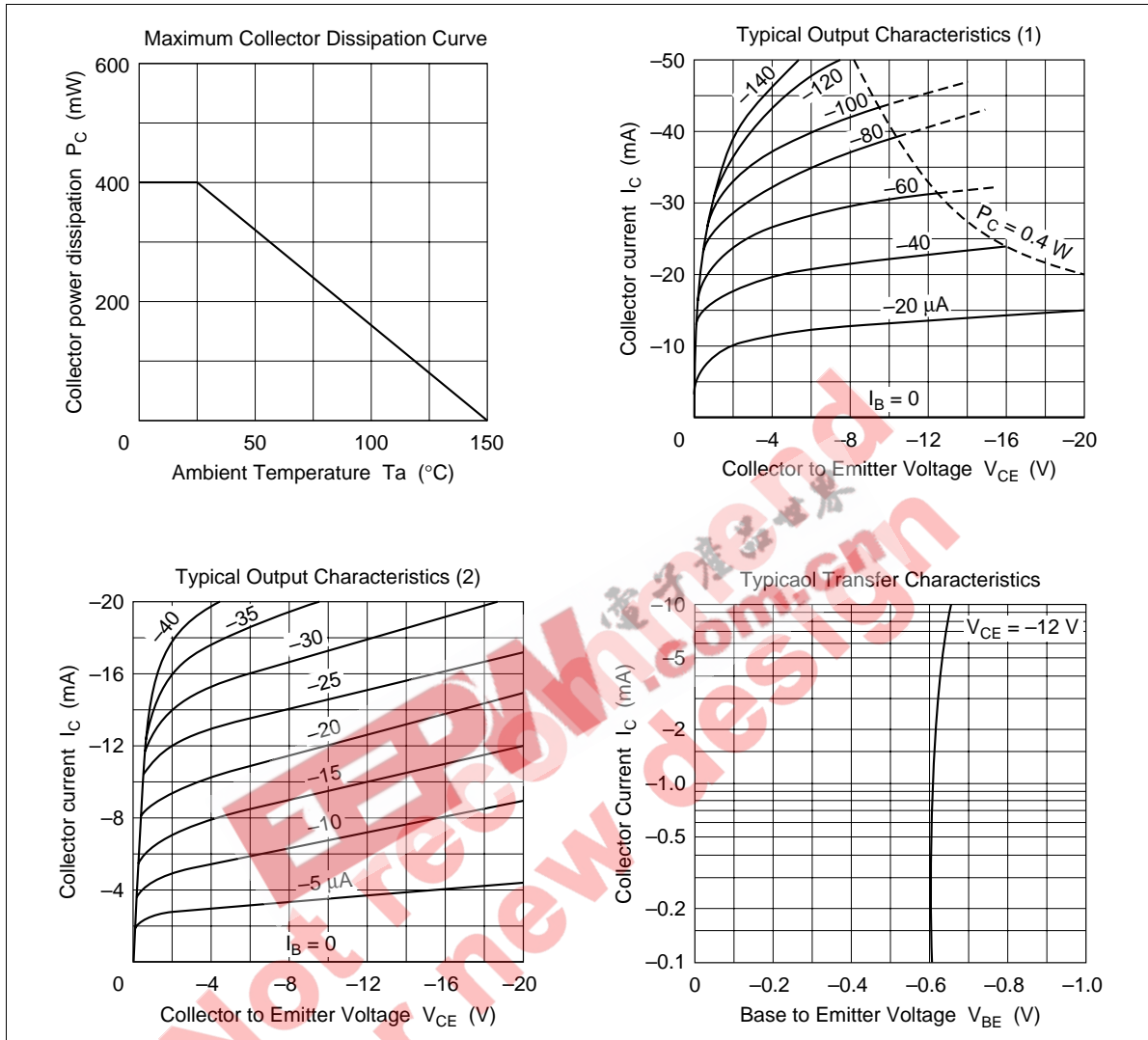
### Electrical Characteristics (T<sub>a</sub> = 25°C)

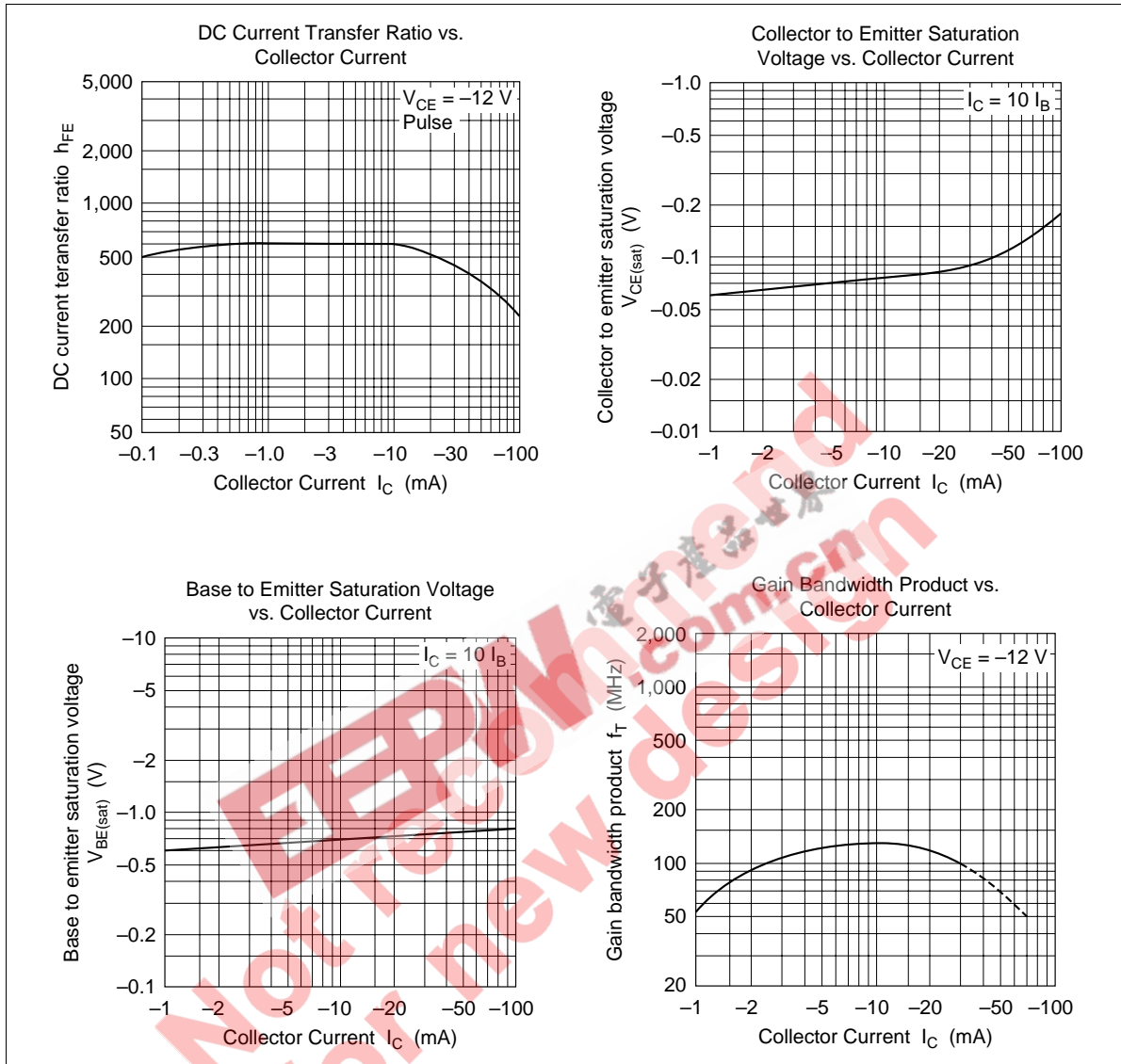
Item	Symbol	2SA1083			2SA1084			2SA1085			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	V <sub>(BR)CBO</sub>	-60	—	—	-90	—	—	-120	—	—	V	I <sub>C</sub> = -10 μA, I <sub>E</sub> = 0
Collector to emitter breakdown voltage	V <sub>(BR)CEO</sub>	-60	—	—	-90	—	—	-120	—	—	V	I <sub>C</sub> = -1 mA, R <sub>BE</sub> = ∞
Emitter to base breakdown voltage	V <sub>(BR)EBO</sub>	-5	—	—	-5	—	—	-5	—	—	V	I <sub>E</sub> = -10 μA, I <sub>C</sub> = 0
Collector cutoff current	I <sub>CBO</sub>	—	—	-0.1	—	—	-0.1	—	—	-0.1	μA	V <sub>CB</sub> = -50 V, I <sub>E</sub> = 0
Emitter cutoff current	I <sub>EBO</sub>	—	—	-0.1	—	—	-0.1	—	—	-0.1	μA	V <sub>EB</sub> = -2 V, I <sub>C</sub> = 0
DC current transfer ratio	h <sub>FE</sub> *1	250	—	800	250	—	800	250	—	800		V <sub>CE</sub> = -12 V, I <sub>C</sub> = -2 mA
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	-0.2	—	—	-0.2	—	—	-0.2	V	I <sub>C</sub> = -10 mA, I <sub>B</sub> = -1 mA
Base to emitter voltage	V <sub>BE</sub>	—	-0.6	—	—	-0.6	—	—	-0.6	—	V	V <sub>CE</sub> = -12 V, I <sub>C</sub> = -2 mA
Gain bandwidth product	f <sub>T</sub>	—	90	—	—	90	—	—	90	—	MHz	V <sub>CE</sub> = -12 V, I <sub>C</sub> = -2 mA
Collector output capacitance	C <sub>ob</sub>	—	3.5	—	—	3.5	—	—	3.5	—	pF	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0, f = 1 MHz
Noise voltage reffered to input	e <sub>n</sub>	—	0.5	—	—	0.5	—	—	0.5	—	nV/ √Hz	V <sub>CE</sub> = -6V, I <sub>C</sub> = -10 mA, f = 1 kHz, R <sub>g</sub> = 0, Δf = 1Hz

Note: 1. The 2SA1083, 2SA1084 and 2SA1085 are grouped by h<sub>FE</sub> as follows.

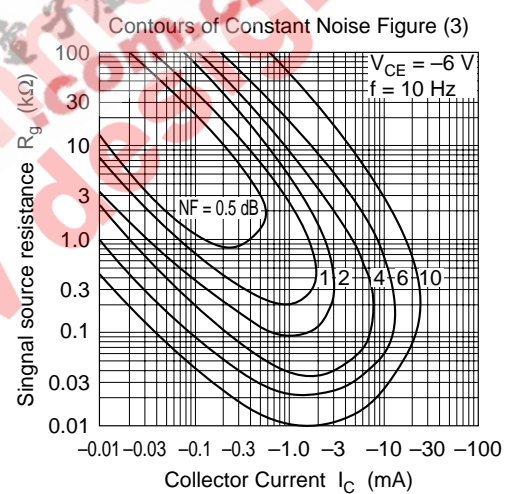
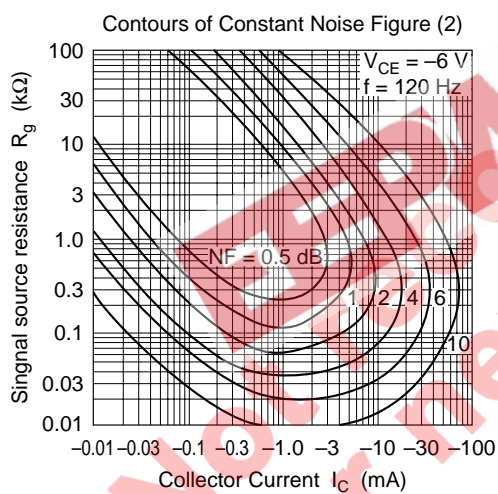
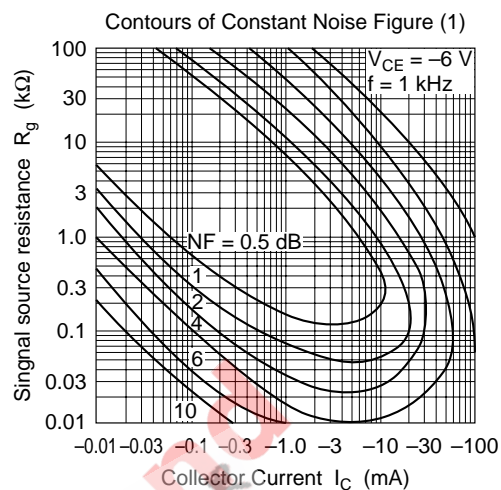
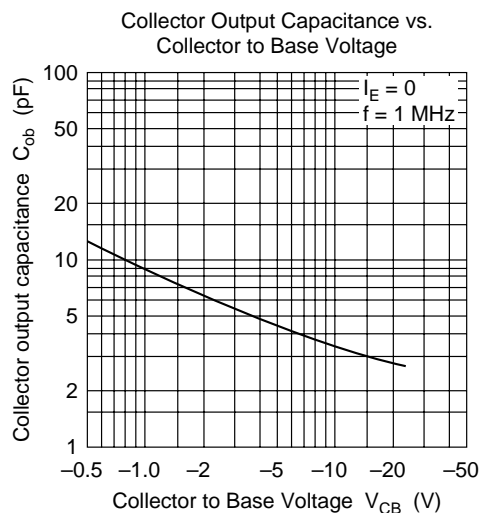
D	E
250 to 500	400 to 800

## 2SA1083, 2SA1084, 2SA1085





## 2SA1083, 2SA1084, 2SA1085





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