

To all our customers

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

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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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# 2SB857, 2SB858

Silicon PNP Triple Diffused

## RENESAS

ADE-208-859 (Z)  
1st. Edition  
September 2000

### Application

Low frequency power amplifier complementary pair with 2SD1133 and 2SD1134

### Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter

### Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

Item	Symbol	Ratings		Unit
		2SB857	2SB858	
Collector to base voltage	V <sub>CBO</sub>	-70	-70	V
Collector to emitter voltage	V <sub>CEO</sub>	-50	-60	V
Emitter to base voltage	V <sub>EBO</sub>	-5	-5	V
Collector current	I <sub>C</sub>	-4	-4	A
Collector peak current	I <sub>C(peak)</sub>	-8	-8	A
Collector power dissipation	P <sub>C</sub> *1	40	40	W
Junction temperature	T <sub>j</sub>	150	150	°C
Storage temperature	T <sub>stg</sub>	-45 to +150	-45 to +150	°C

Note: 1. Value at T<sub>c</sub> = 25°C

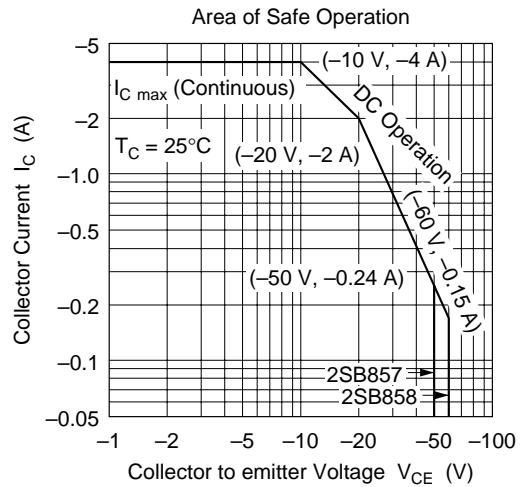
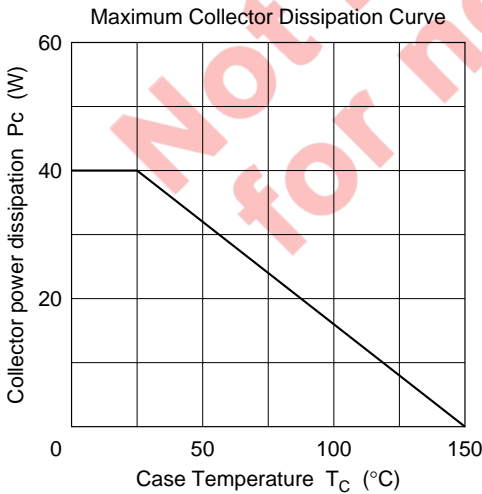
# 2SB857, 2SB858

## Electrical Characteristics (Ta = 25°C)

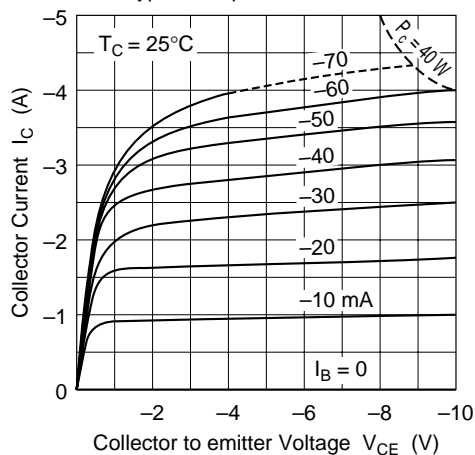
Item	Symbol	2SB857			2SB858			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-70	—	—	-70	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-50	—	—	-60	—	—	V	$I_C = -50 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	-5	—	—	V	$I_E = -10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	-1	—	—	-1	$\mu A$	$V_{CB} = -50 \text{ V}, I_E = 0$
DC current transfer ratio	$h_{FE1}^{*1}$	60	—	320	60	—	320		$V_{CE} = I_C = -1 \text{ A}^{*2}$
	$h_{FE2}$	35	—	—	35	—	—		$-4 \text{ V}, I_C = -0.1 \text{ A}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-1	—	—	-1	V	$I_C = -2 \text{ A}, I_B = -0.2 \text{ A}^{*2}$
Base to emitter voltage	$V_{BE}$	—	—	-1	—	—	-1	V	$V_{CE} = -4 \text{ V}, I_C = -1 \text{ A}^{*2}$
Gain bandwidth product	$f_T$	—	15	—	—	15	—	MHz	$V_{CE} = -4 \text{ V}, I_C = -0.5 \text{ A}^{*2}$

Notes: 1. The 2SB857 and 2SB858 are grouped by  $h_{FE1}$  as follows.  
2. Pulse test

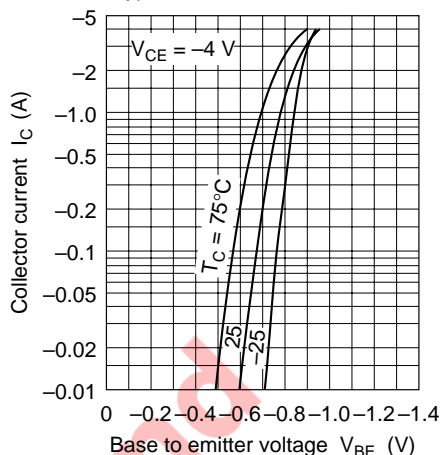
B	C	D
60 to 120	100 to 200	160 to 320



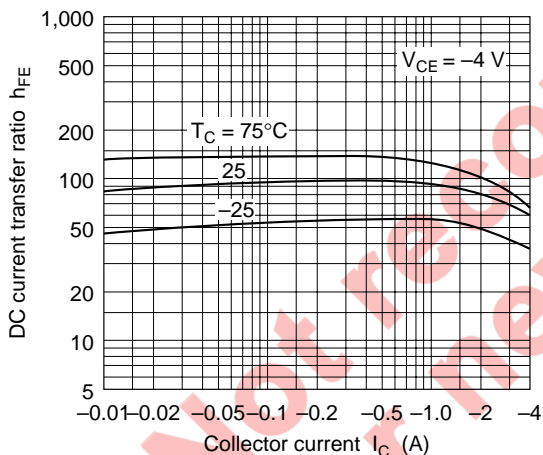
Typical Output Characteristics



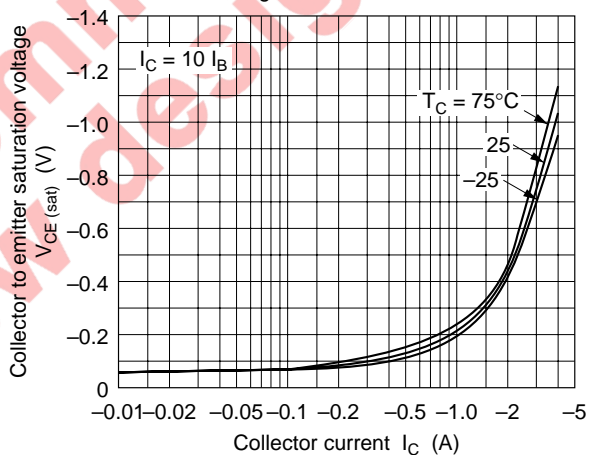
Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



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