

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!

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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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2SB859

Silicon PNP Triple Diffused

RENESAS

ADE-208-860 (Z)
1st. Edition
September 2000

Application

Low frequency power amplifier complementary pair with 2SD1135

Outline

TO-220AB



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

Absolute Maximum Ratings (T_a = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V _{CBO}	-100	V
Collector to emitter voltage	V _{CEO}	-80	V
Emitter to base voltage	V _{EBO}	-5	V
Collector current	I _C	-4	A
Collector peak current	I _{C(peak)}	-8	A
Collector power dissipation	P _C *1	40	W
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-45 to +150	°C

Note: 1. Value at T_c = 25°C

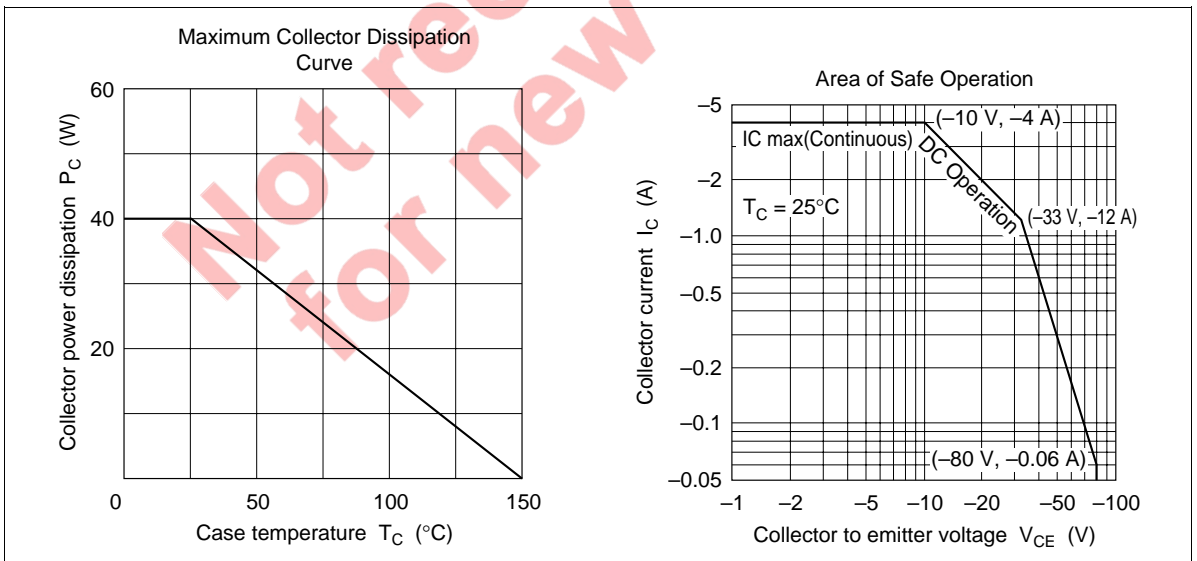
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-80	—	—	V	$I_C = -50 \text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	V	$I_E = -10 \text{ }\mu\text{A}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	-0.1	mA	$V_{CB} = -80 \text{ V}$, $I_E = 0$
DC current transfer ratio	h_{FE1}^{*1}	60	—	200		$V_{CE} = -5 \text{ V}$, $I_C = -1 \text{ A}^{*2}$
	h_{FE2}	35	—	—		$V_{CE} = -5 \text{ V}$, $I_C = -0.1 \text{ A}^{*2}$
Base to emitter voltage	V_{BE}	—	—	-1.5	V	$V_{CE} = -5 \text{ V}$, $I_C = -1 \text{ A}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-2	V	$I_C = -2 \text{ A}$, $I_B = -0.2 \text{ A}^{*2}$
Gain bandwidth product	f_T	—	20	—	MHz	$V_{CE} = -5 \text{ V}$, $I_C = -0.5 \text{ A}^{*2}$
Collector output capacitance	C_{ob}	—	75	—	pF	$V_{CB} = -20 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$

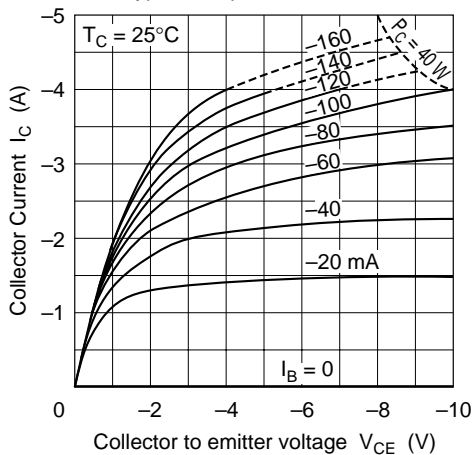
Notes: 1. The 2SB859 is grouped by h_{FE1} as follows.

2. Pulse test

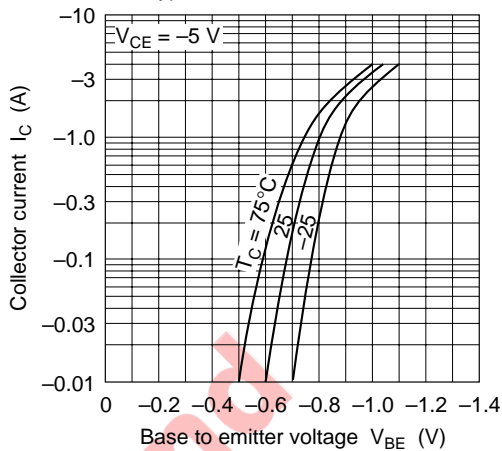
B	C
60 to 120	100 to 200



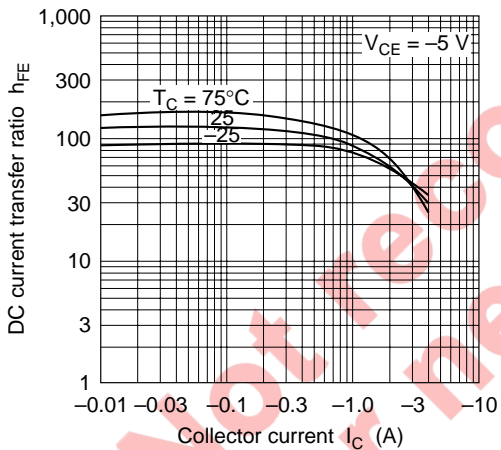
Typical Output Characteristics



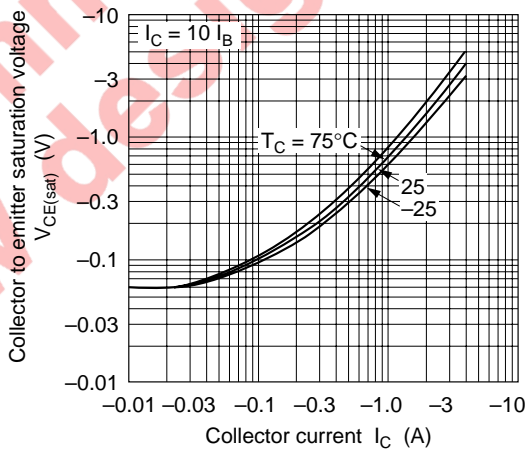
Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



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