

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Not recommended
for new design

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Renesas Technology Home Page: <http://www.renesas.com>

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

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2SB857, 2SB858

Silicon PNP Triple Diffused

RENESAS

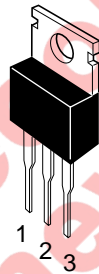
ADE-208-859 (Z)
1st. Edition
September 2000

Application

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

Outline

TO-220AB



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

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings		Unit
		2SB857	2SB858	
Collector to base voltage	V_{CBO}	-70	-70	V
Collector to emitter voltage	V_{CEO}	-50	-60	V
Emitter to base voltage	V_{EBO}	-5	-5	V
Collector current	I_C	-4	-4	A
Collector peak current	$I_{C(peak)}$	-8	-8	A
Collector power dissipation	P_C^{*1}	40	40	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-45 to +150	-45 to +150	°C

Note: 1. Value at $T_C = 25^\circ\text{C}$

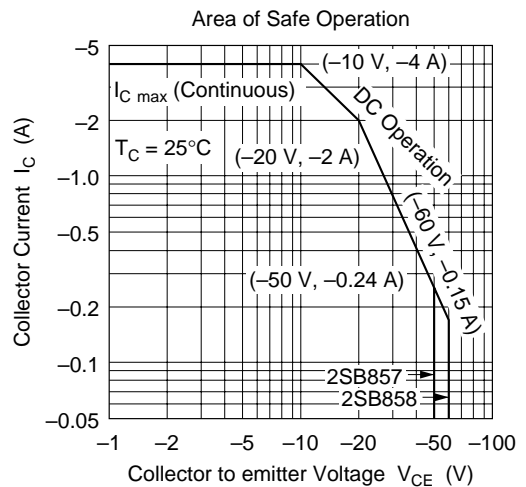
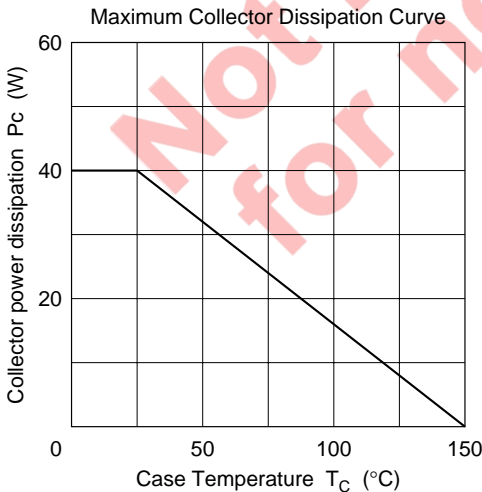
2SB857, 2SB858

Electrical Characteristics (Ta = 25°C)

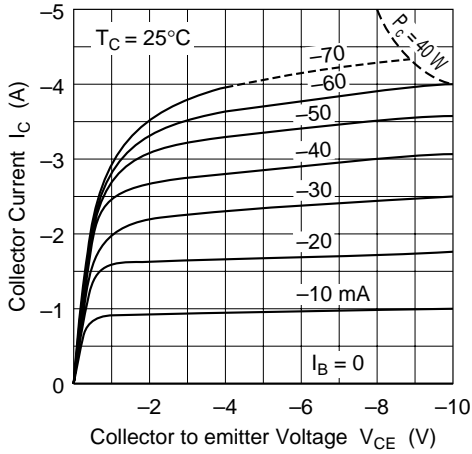
Item	Symbol	2SB857			2SB858			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-70	—	—	-70	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-50	—	—	-60	—	—	V	$I_C = -50 \text{ mA}, R_{BE} = \infty$
Emitter to base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

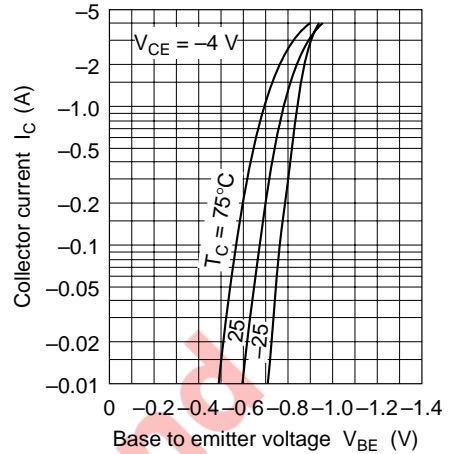
B	C	D
60 to 120	100 to 200	160 to 320



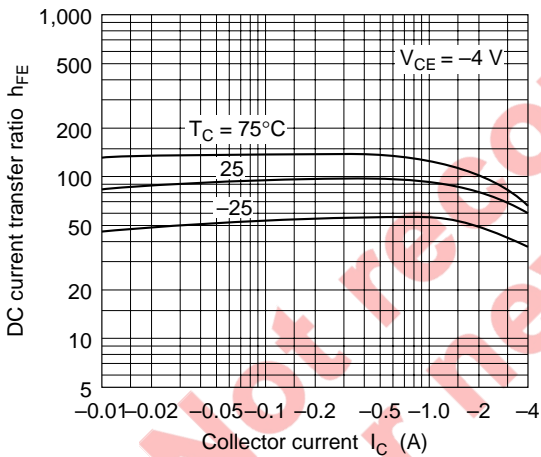
Typical Output Characteristics



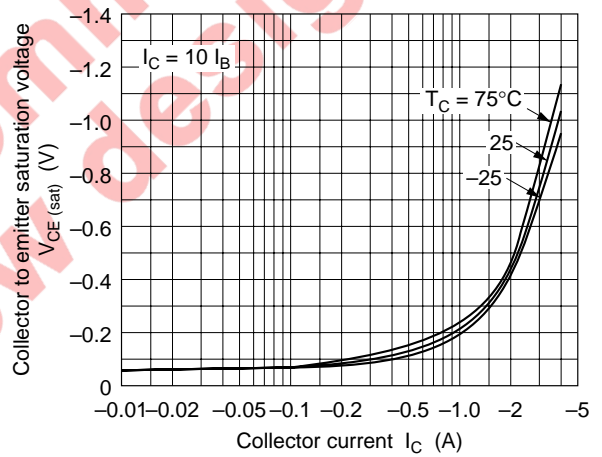
Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



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