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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2SB831

Silicon PNP Epitaxial

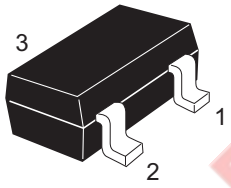
REJ03G0653-0200
(Previous ADE-208-1033)
Rev.2.00
Aug.10.2005

Application

- Low frequency amplifier
- Complementary pair with 2SD1101

Outline

RENESAS Package code: PLSP0003ZB-A
(Package name: MPAK)



1. Emitter
2. Base
3. Collector

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–25	V
Collector to emitter voltage	V_{CEO}	–20	V
Emitter to base voltage	V_{EBO}	–5	V
Collector current	I_C	–0.7	A
Collector peak current	$i_{C(peak)}$	–1	A
Collector power dissipation	P_C	150	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Electrical Characteristics

(Ta = 25°C)

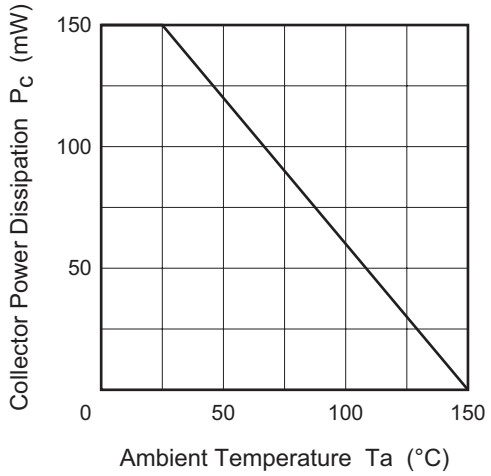
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–25	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–20	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	V	I_E = –10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–1.0	µA	V_{CB} = –20 V, I_E = 0
DC current transfer ratio	h_{FE}*[1]	85	—	240		V_{CE} = –1 V, I_C = –0.15 A*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–0.5	V	I_C = –0.5 A, I_B = –0.05 A*[2]
Base to emitter voltage	V_{BE}	—	—	–1.0	V	V_{CE} = –1 V, I_C = –0.15 A*[2]

Notes: 1. The 2SB831 is grouped by h_{FE} as follows.
2. Pulse test

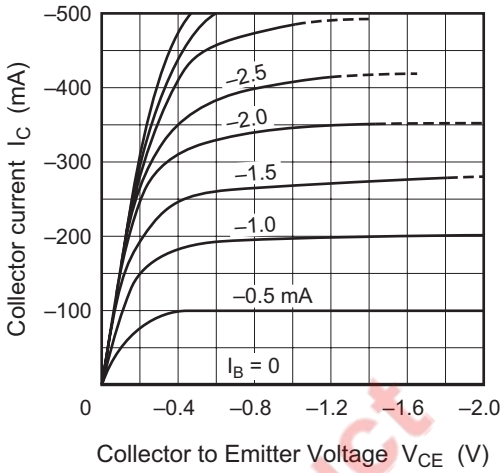
Grade	B	C
Mark	BB	BC
h_{FE}	85 to 170	120 to 240

Main Characteristics

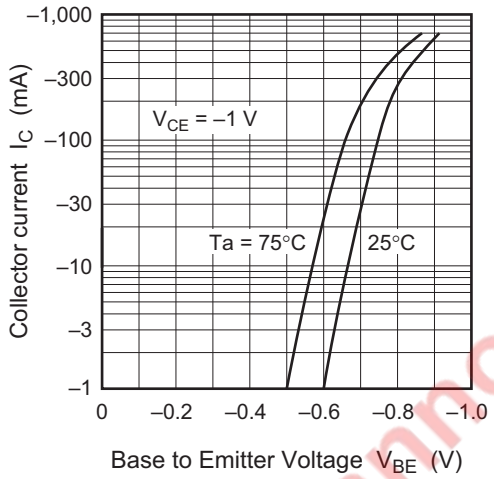
Maximum Collector Dissipation Curve



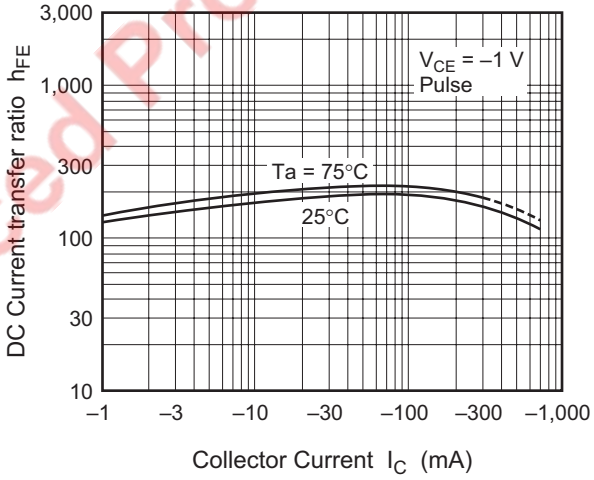
Typical Output Characteristics



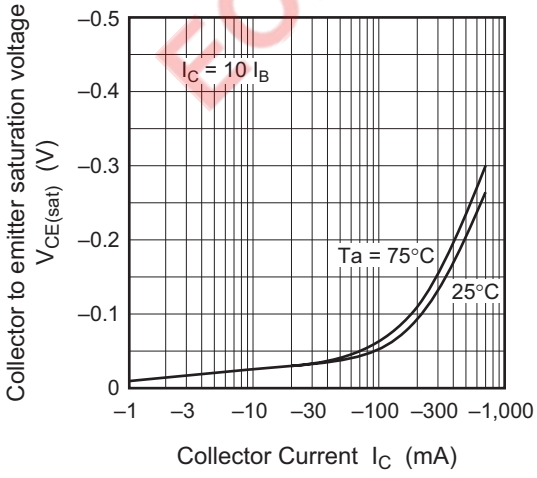
Typical Transfer Characteristics



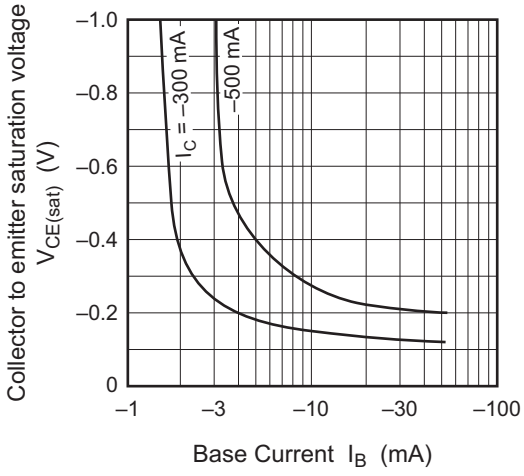
DC Current Transfer Ratio vs. Collector Current



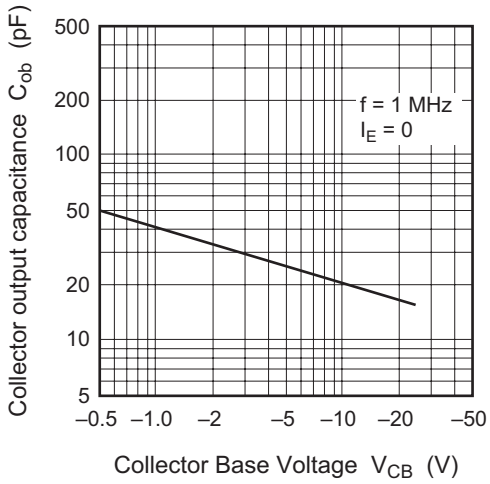
Collector to Emitter Saturation Voltage vs. Collector Current



Collector to Emitter Saturation Voltage vs. Base Current

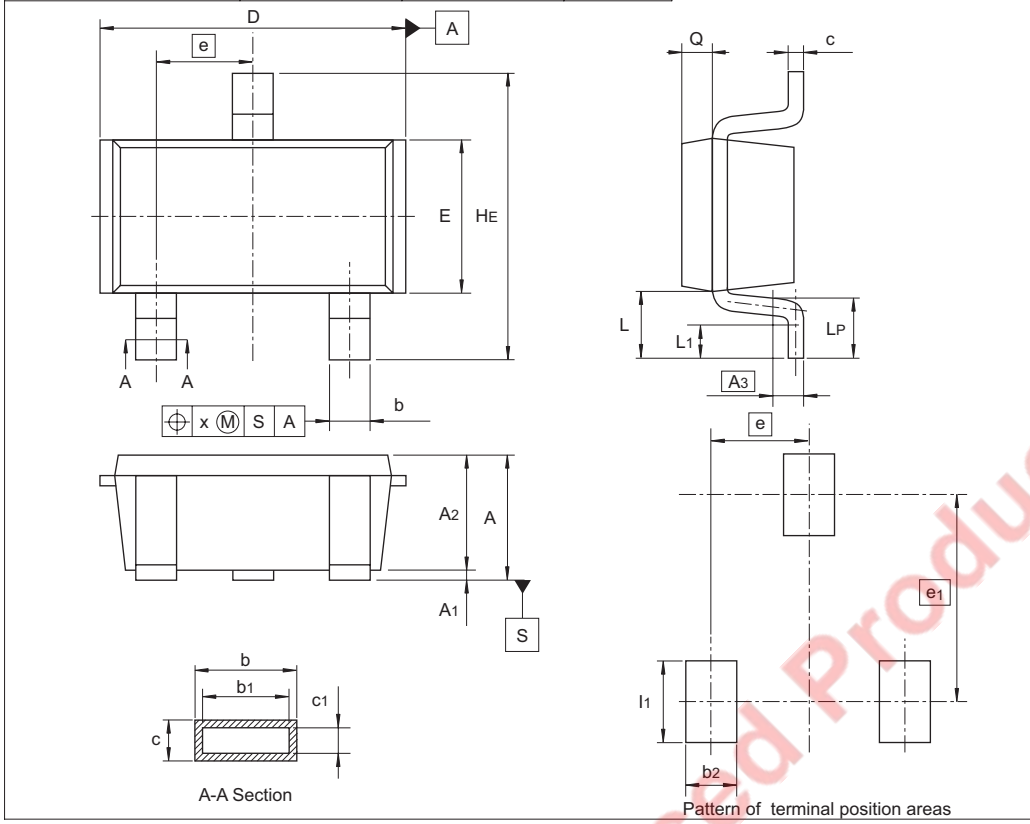


Collector Output Capacitance vs.
Collector to Base Voltage



Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-59A	PLSP0003ZB-A	MPAK(T) / MPAK(T)V, MPAK / MPAKV	0.011g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	1.0	—	1.3
A_1	0	—	0.1
A_2	1.0	1.1	1.2
A_3	—	0.25	—
b	0.35	0.42	0.5
b_1	—	0.4	—
c	0.1	0.13	0.15
c_1	—	0.11	—
D	2.7	—	3.1
E	1.35	1.5	1.65
e	—	0.95	—
H_E	2.2	2.8	3.0
L	0.35	—	0.75
L_1	0.15	—	0.55
L_P	0.25	—	0.65
x	—	—	0.05
b_2	—	—	0.55
e_1	—	1.95	—
l_1	—	—	1.05
Q	—	0.3	—

Ordering Information

Part Name	Quantity	Shipping Container
2SB831BBTL-E 2SB831BCTL-E	3000	ϕ 178 mm Reel, 8 mm Emboss Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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