
2SB1002

Silicon PNP Epitaxial

HITACHI

ADE-208-1035 (Z)

1st. Edition

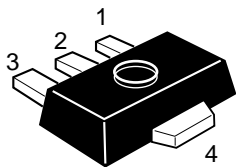
Mar. 2001

Application

- Low frequency power amplifier
- Complementary pair with 2SD1368

Outline

UPAK



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

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	-70	V
Collector to emitter voltage	V_{CEO}	-50	V
Emitter to base voltage	V_{EBO}	-6	V
Collector current	I_{C}	-1	A
Collector peak current	$i_{\text{C(peak)}}^{*1}$	-1.5	A
Collector power dissipation	P_{C}^{*2}	1	W
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes: 1. $PW \leq 10 \text{ ms}$, Duty cycle $\leq 20\%$

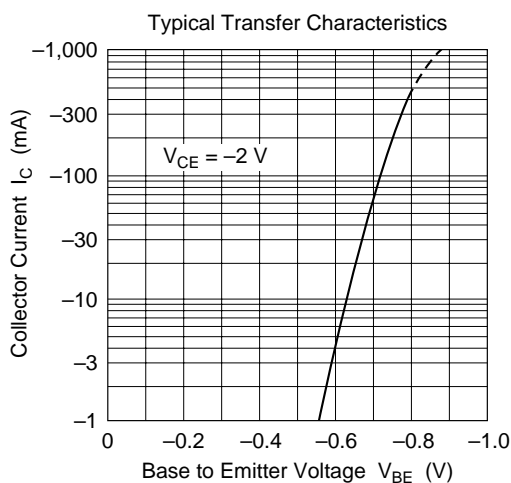
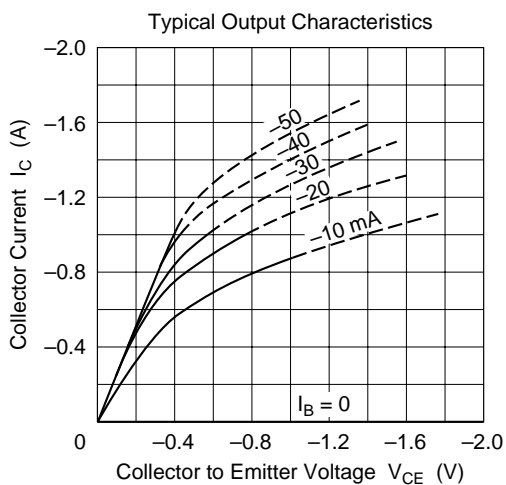
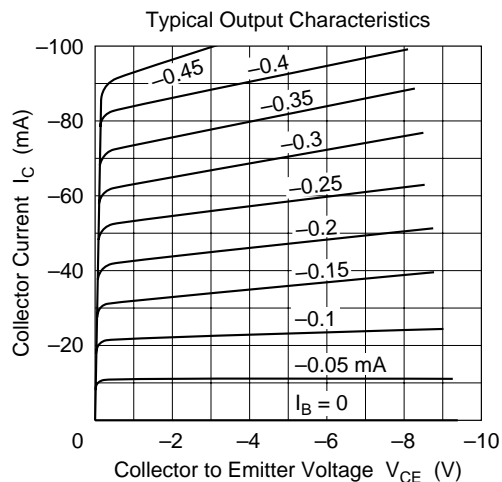
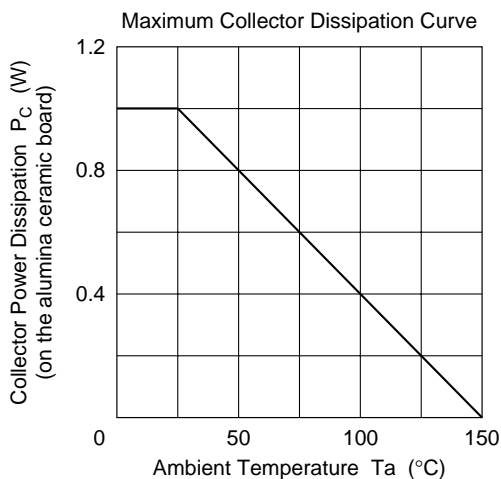
2. Value on the alumina ceramic board ($12.5 \times 20 \times 0.7 \text{ mm}$)

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

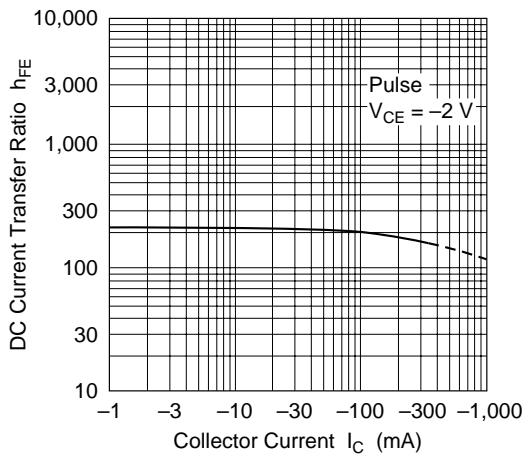
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	-70	—	—	V	$I_{\text{C}} = -10 \mu\text{A}$, $I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	-50	—	—	V	$I_{\text{C}} = -1 \text{ mA}$, $R_{\text{BE}} = \infty$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	-6	—	—	V	$I_{\text{E}} = -10 \mu\text{A}$, $I_{\text{C}} = 0$
Collector cutoff current	I_{CBO}	—	—	-0.1	μA	$V_{\text{CB}} = -50 \text{ V}$, $I_{\text{E}} = 0$
Emitter cutoff current	I_{EBO}	—	—	-0.1	μA	$V_{\text{EB}} = -4 \text{ V}$, $I_{\text{C}} = 0$
DC current transfer ratio	h_{FE}^{*1}	100	—	320		$V_{\text{CE}} = -2 \text{ V}$, $I_{\text{C}} = -0.1 \text{ A}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	—	—	-0.6	V	$I_{\text{C}} = -1 \text{ A}$, $I_{\text{B}} = -0.1 \text{ A}$ (Pulse test)
Base to emitter saturation voltage	$V_{\text{BE(sat)}}$	—	—	-1.2	V	$I_{\text{C}} = -1 \text{ A}$, $I_{\text{B}} = -0.1 \text{ A}$ (Pulse test)
Gain bandwidth product	f_{T}	—	150	—	MHz	$V_{\text{CE}} = -2 \text{ V}$, $I_{\text{C}} = -10 \text{ mA}$ (Pulse test)
Collector output capacitance	C_{ob}	—	35	—	pF	$V_{\text{CB}} = -10 \text{ V}$, $I_{\text{E}} = 0$, $f = 1 \text{ MHz}$

Note: 1. The 2SB1002 is grouped by h_{FE} as follows.

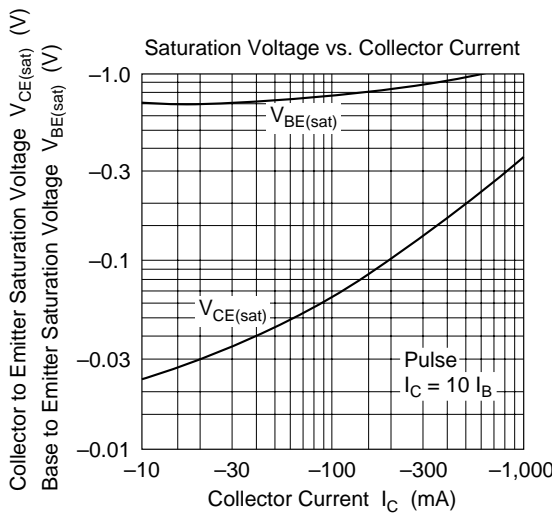
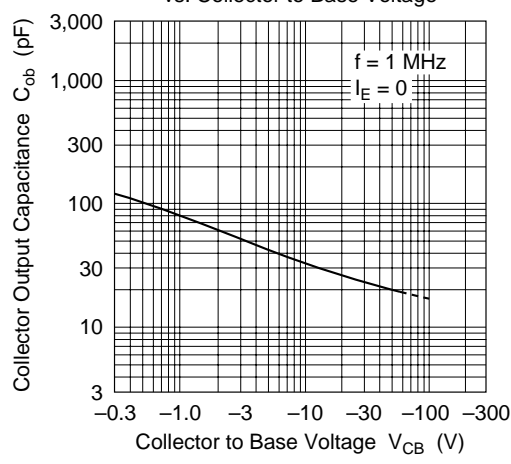
Mark	CH	CJ
h_{FE}	100 to 200	160 to 320



DC Current Transfer Ratio vs.
Collector Current



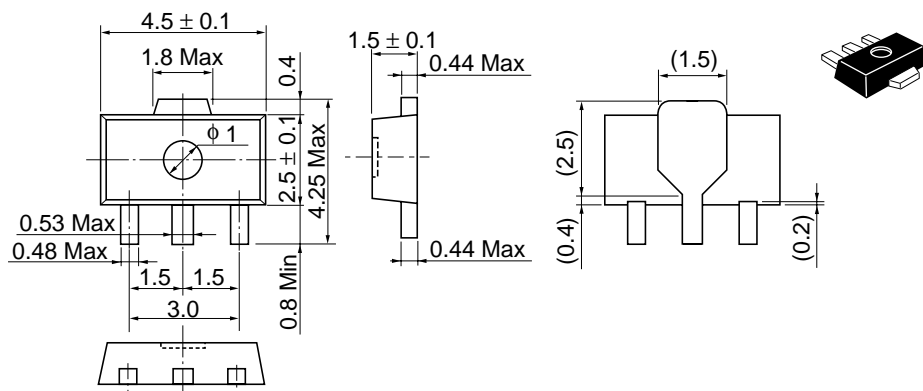
Collector Output Capacitance
vs. Collector to Base Voltage



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.050 g

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