2SB1494

Silicon PNP Triple Diffused

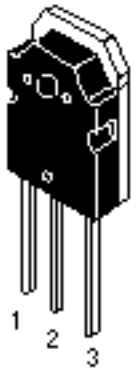
HITACHI

Application

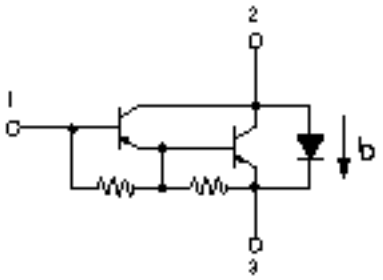
Low frequency power amplifier complementary Pair with 2SD2256

Outline

TO-3P



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



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Absolute Maximum Ratings (Ta = 25°C)

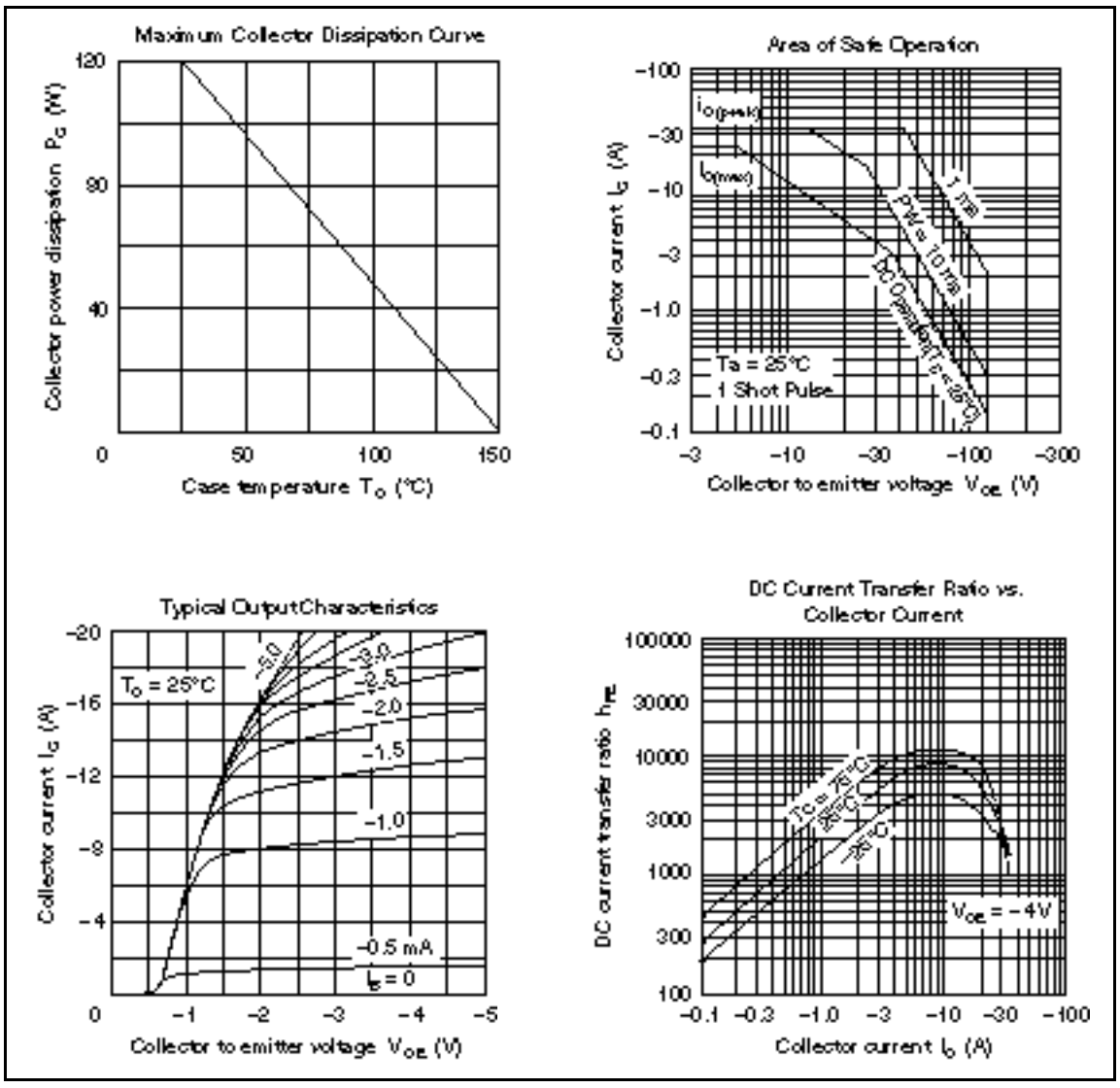
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–120	V
Collector to emitter voltage	V_{CEO}	–120	V
Emitter to base voltage	V_{EBO}	–7	V
Collector current	I_C	–25	A
Collector peak current	$I_{C(peak)}$	–35	A
Collector power dissipation	P_C*[1]	120	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C
C to E diode forward current	I_D*[1]	25	A

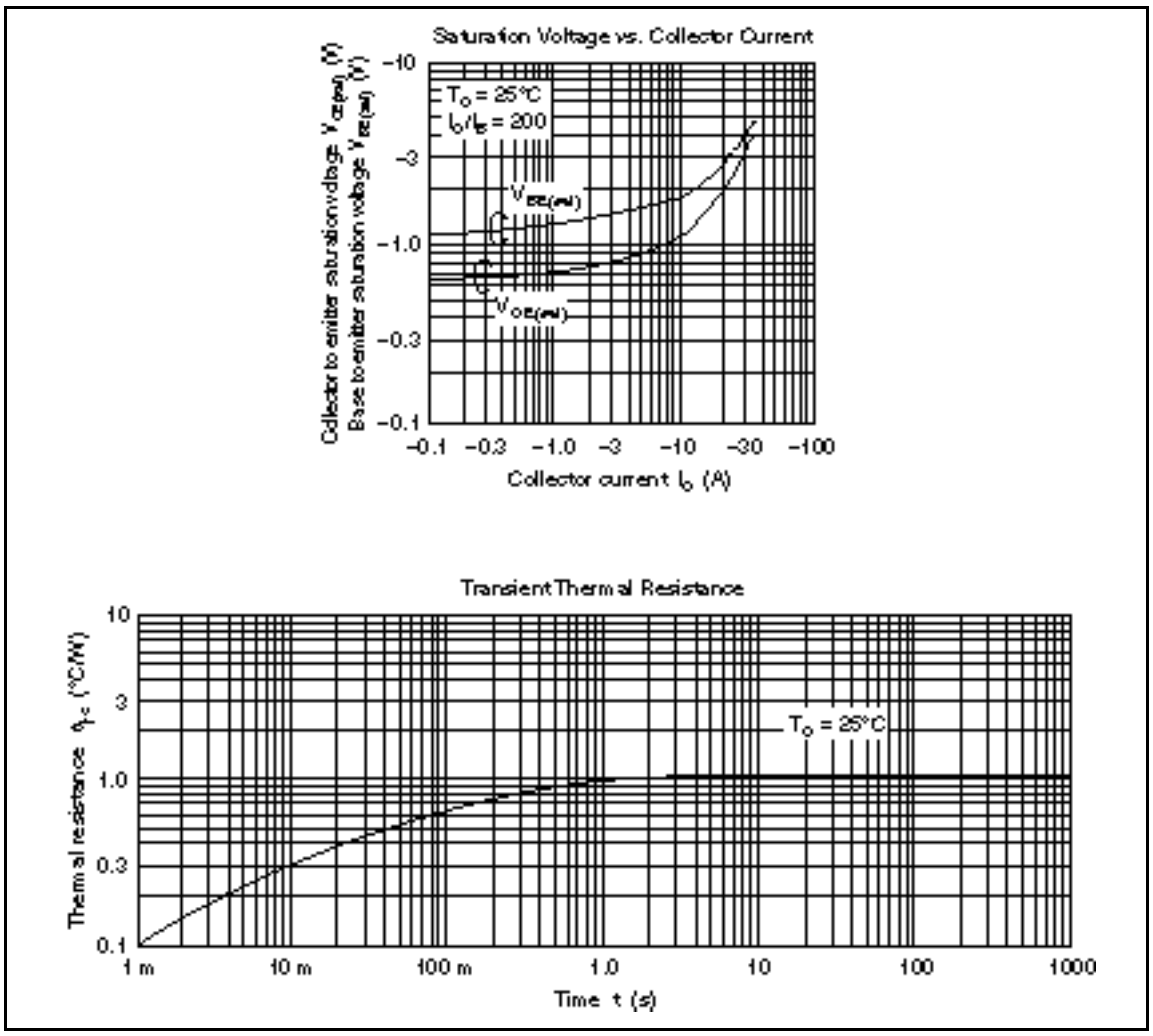
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–120	—	—	V	I_C = –0.1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–120	—	—	V	I_C = –25 mA, R_{BE} = ∞
Collector to emitter sustain voltage	$V_{CEO(sus)}$	–120	—	—	V	I_C = –200 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–7	—	—	V	I_E = –50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–10	µA	V_{CB} = –100 V, I_E = 0
	I_{CEO}	—	—	–10		V_{CE} = –100 V, R_{BE} = ∞
DC current transfer ratio	h_{FE1}	2000	—	20000		V_{CE} = –4 V, I_C = –12 A*[1]
	h_{FE2}	500	—	—		V_{CE} = –4 V, I_C = –25 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	—	–2.0	V	I_C = –12 A, I_B = –24 mA*[1]
	$V_{CE(sat)2}$	—	—	–3.5		I_C = –25 A, I_B = –250 mA*[1]
Base to emitter saturation voltage	$V_{BE(sat)1}$	—	—	–3.0	V	I_C = –12 A, I_B = –24 mA
	$V_{BE(sat)2}$	—	—	–4.5		I_C = –25 A, I_B = –250 mA*[1]

Note: 1. Pulse test.


Maximum Collector Dissipation Curve
Collector power dissipation P_C (W)
120
80
40
0
50
100
150
Case temperature T_C (°C)
Area of Safe Operation
Collector current I_C (A)
−100
−30
−10
−3
−1.0
−0.3
−0.1
$i_{C(peak)}$
$i_{C(max)}$
1 ms
PW = 10 ms
DC Operation
Ta = 25°C
1 Shot Pulse
−3
−10
−30
−100
−300
Collector to emitter voltage V_{CE} (V)
Typical Output Characteristics
Collector current I_C (A)
−20
−16
−12
−8
−4
T_C = 25°C
−5.0
−3.0
−2.5
−2.0
−1.5
−1.0
−0.5 mA
I_B = 0
0
−1
−2
−3
−4
−5
Collector to emitter voltage V_{CE} (V)
DC Current Transfer Ratio vs. Collector Current
DC current transfer ratio h_{FE}
100000
30000
10000
3000
1000
300
100
T_C = 75°C
25°C
−25°C
V_{CE} = −4V
−0.1
−0.3
−1.0
−3
−10
−30
−100
Collector current I_C (A)


Saturation Voltage vs. Collector Current
Collector to emitter saturation voltage $V_{CE(sat)}$ (V)
Base to emitter saturation voltage $V_{BE(sat)}$ (V)
T_C = 25°C
I_C/I_B = 200
$V_{BE(sat)}$
$V_{CE(sat)}$
−10
−3
−1.0
−0.3
−0.1
−0.1 −0.3 −1.0 −3 −10 −30 −100
Collector current I_C (A)
Transient Thermal Resistance
Thermal resistance θ_{j-c} (°C/W)
10
3
1.0
0.3
0.1
T_C = 25°C
1 m 10 m 100 m 1.0 10 100 1000
Time t (s)

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HITACHI

Hitachi, Ltd.
Semiconductor & IC Div.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100, Japan
Tel: Tokyo (03) 3270-2111
Fax: (03) 3270-5109

For further information write to:

Hitachi America, Ltd.
Semiconductor & IC Div.
2000 Sierra Point Parkway
Brisbane, CA. 94005-1835
U.S.A.
Tel: 415-589-8300
Fax: 415-583-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Dornacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 0628-585000
Fax: 0628-778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071