
2SD970(K)

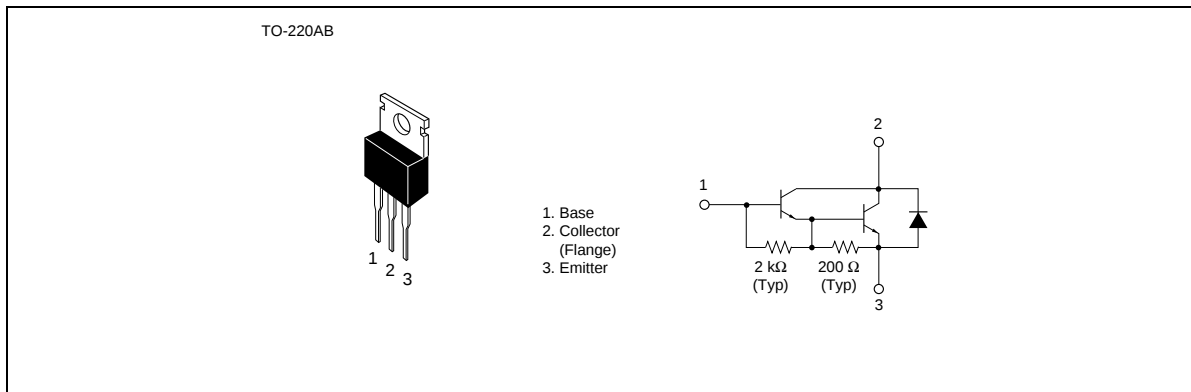
Silicon NPN Triple Diffused

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Application

Medium speed and power switching complementary pair with 2SB791(K)

Outline



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

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_{EB0}	7	V
Collector current	I_{C}	8	A
Collector peak current	$I_{\text{C(peak)}}$	12	A
Collector power dissipation	P_{C}^{*1}	40	W
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

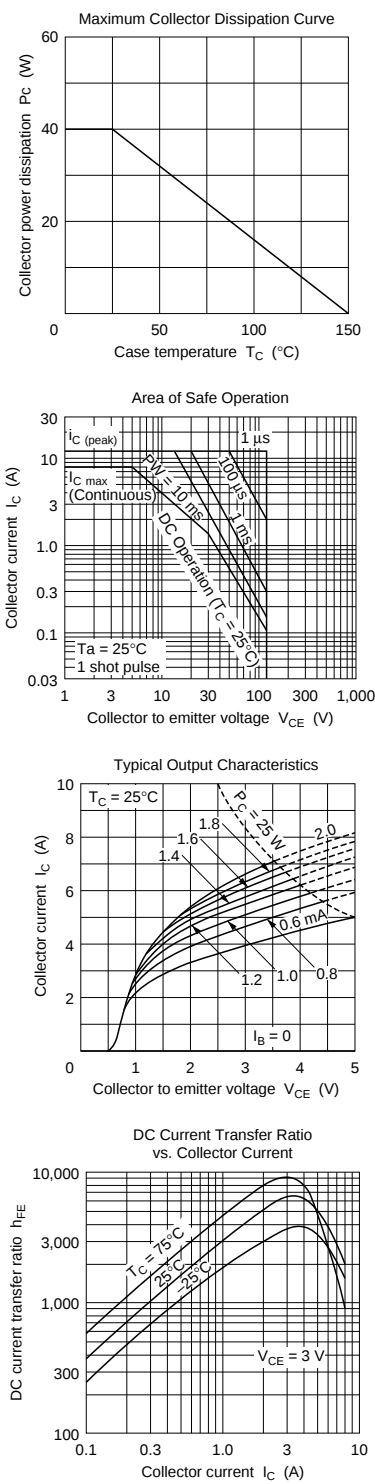
Note: 1. Value at $T_{\text{c}} = 25^\circ\text{C}$.

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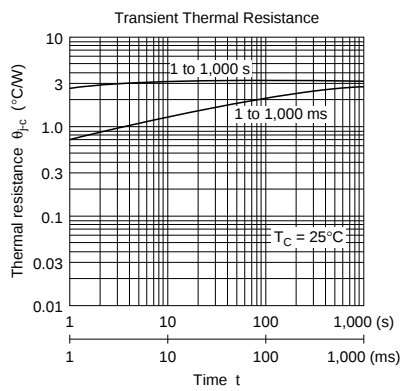
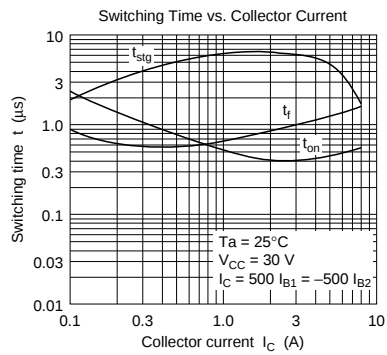
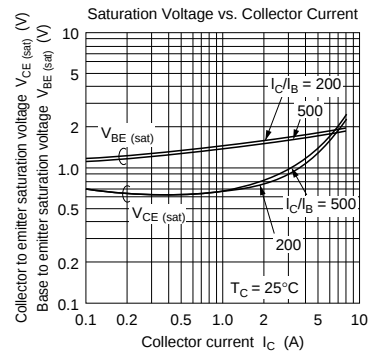
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	—	—	V	$I_C = 25 \text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 50 \text{ mA}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	100	μA	$V_{CB} = 120 \text{ V}$, $I_E = 0$
	I_{CEO}	—	—	10	μA	$V_{CE} = 100 \text{ V}$, $R_{BE} = \infty$
DC current transfer ratio	h_{FE}	1000	—	20000		$V_{CE} = 3 \text{ V}$, $I_C = 4 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	—	1.5	V	$I_C = 4 \text{ A}$, $I_B = 8 \text{ mA}^{*1}$
	$V_{CE(sat)2}$	—	—	3.0	V	$I_C = 8 \text{ A}$, $I_B = 80 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{BE(sat)1}$	—	—	2.0	V	$I_C = 4 \text{ A}$, $I_B = 8 \text{ mA}^{*1}$
	$V_{BE(sat)2}$	—	—	3.5	V	$I_C = 8 \text{ A}$, $I_B = 80 \text{ mA}^{*1}$
Turn on time	t_{on}	—	0.4	—	μs	$I_C = 4 \text{ A}$, $I_{B1} = -I_{B2} = 8 \text{ mA}$
Storage time	t_{stg}	—	5.4	—	μs	
Fall time	t_f	—	1.1	—	μs	

Note: 1. Pulse test.



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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