# 2SD970(K)

## Silicon NPN Triple Diffused

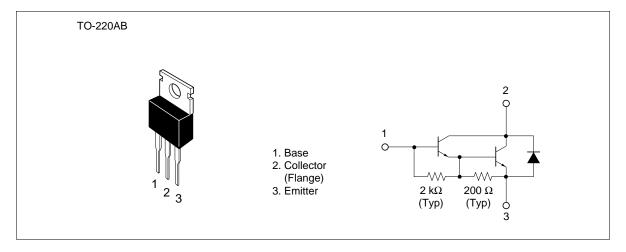
# **HITACHI**

ADE-208-901 (Z) 1st. Edition Sep. 2000

### **Application**

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

#### **Outline**



## **Absolute Maximum Ratings** $(Ta = 25^{\circ}C)$

Item	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	120	V
Collector to emitter voltage	V <sub>CEO</sub>	120	V
Emitter to base voltage	$V_{EBO}$	7	V
Collector current	I <sub>c</sub>	8	A
Collector peak current	I <sub>C(peak)</sub>	12	A
Collector power dissipation	P <sub>c</sub> *1	40	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

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

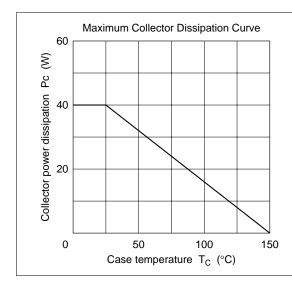


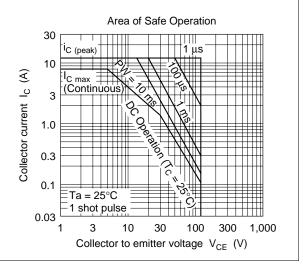
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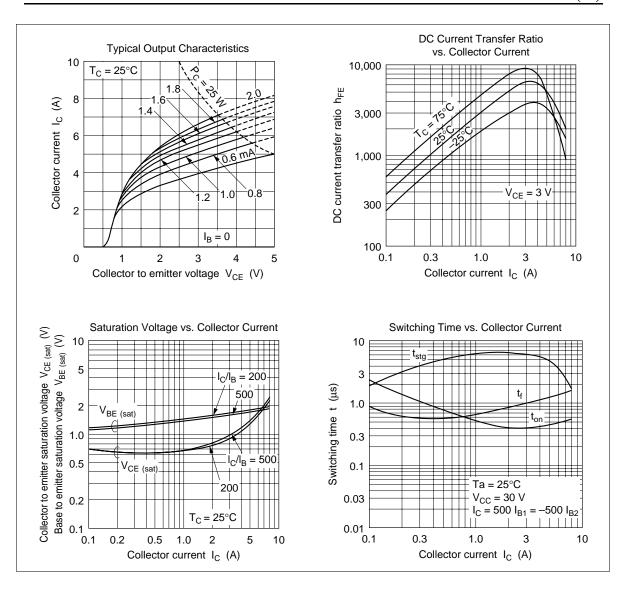
### **Electrical Characteristics** ( $Ta = 25^{\circ}C$ )

Item	Symbol	Min	Тур	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	_	_	V	$I_{\rm C}$ = 25 mA, $R_{\rm BE}$ = $\infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	_	_	V	$I_{\rm E} = 50 \text{ mA}, I_{\rm C} = 0$
Collector cutoff current	I <sub>CBO</sub>	_	_	100	μΑ	$V_{CB} = 120 \text{ V}, I_{E} = 0$
	I <sub>CEO</sub>	_	_	10	μΑ	V <sub>CE</sub> = 100 V, R <sub>BE</sub> = ∞
DC current transfer ratio	h <sub>FE</sub>	1000	_	20000		$V_{CE} = 3 \text{ V}, I_{C} = 4 \text{ A}^{*1}$
Collector to emitter saturation	$V_{\text{CE(sat)1}}$	_	_	1.5	V	$I_{\rm C} = 4 \text{ A}, I_{\rm B} = 8 \text{ mA}^{*1}$
voltage	V <sub>CE(sat)2</sub>	_	_	3.0	V	$I_{\rm C} = 8 \text{ A}, I_{\rm B} = 80 \text{ mA}^{*1}$
Base to emitter saturation	$V_{\text{BE}(\text{sat})1}$	_	_	2.0	V	$I_{\rm C} = 4 \text{ A}, I_{\rm B} = 8 \text{ mA}^{*1}$
voltage	$V_{\text{BE(sat)2}}$	_	_	3.5	V	$I_{\rm C} = 8 \text{ A}, I_{\rm B} = 80 \text{ mA}^{*1}$
Turn on time	t <sub>on</sub>	_	0.4	_	μs	$I_{\rm C} = 4 \text{ A}, I_{\rm B1} = -I_{\rm B2} = 8 \text{ mA}$
Storage time	t <sub>stg</sub>	_	5.4	_	μs	
Fall time	t <sub>f</sub>	_	1.1	_	μs	

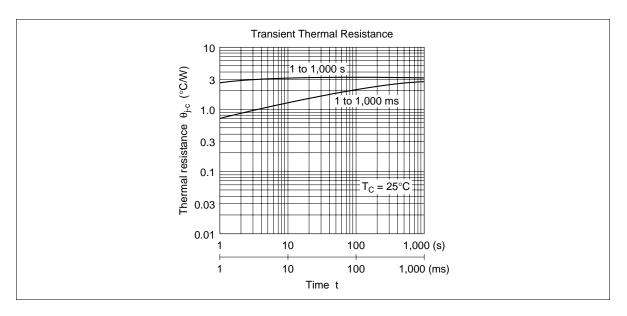
Note: 1. Pulse test.



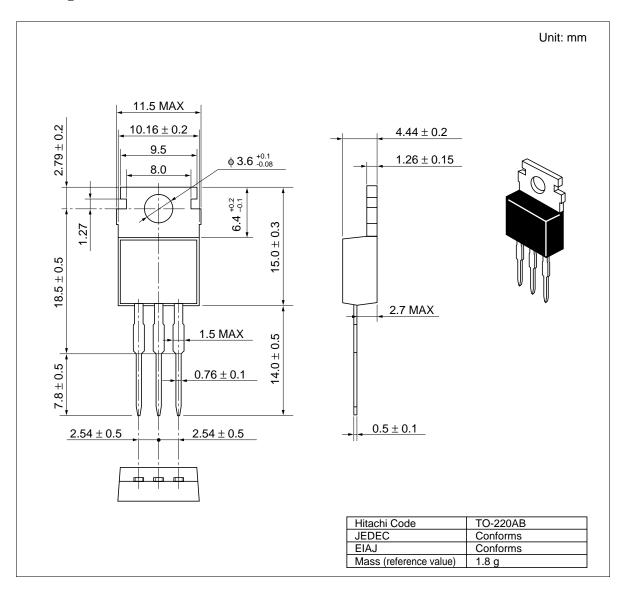




## 2SD970(K)



### **Package Dimensions**



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