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# 2SD970(K)

Silicon NPN Triple Diffused

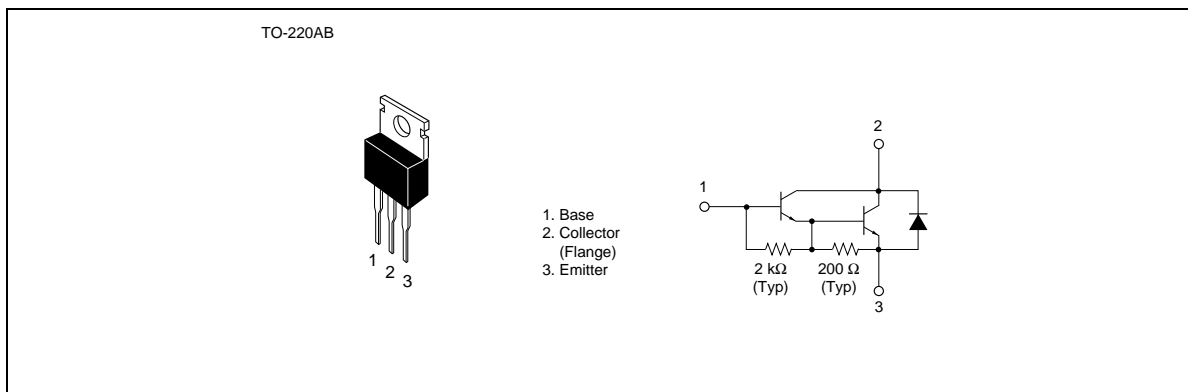
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### Application

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	$V_{\text{CBO}}$	120	V
Collector to emitter voltage	$V_{\text{CEO}}$	120	V
Emitter to base voltage	$V_{\text{EBO}}$	7	V
Collector current	$I_{\text{C}}$	8	A
Collector peak current	$I_{\text{C(peak)}}$	12	A
Collector power dissipation	$P_{\text{C}}^{*1}$	40	W
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

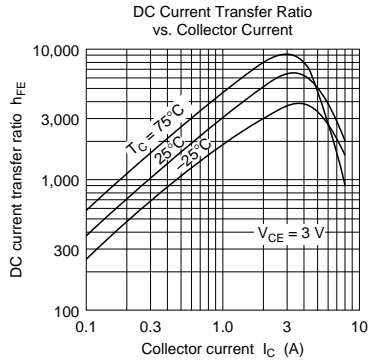
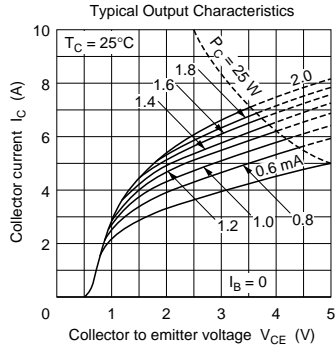
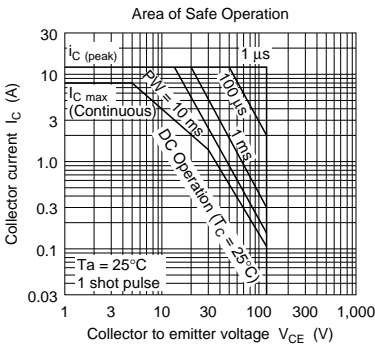
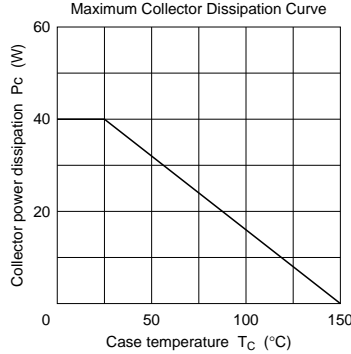
Note: 1. Value at  $T_{\text{c}} = 25^\circ\text{C}$ .

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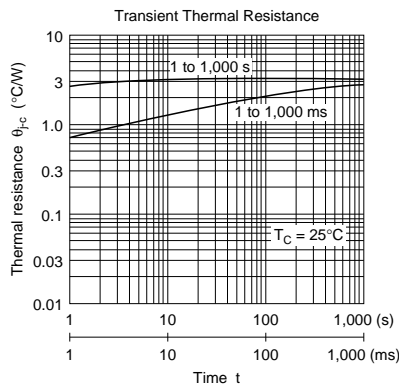
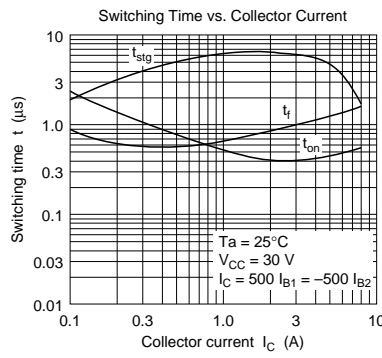
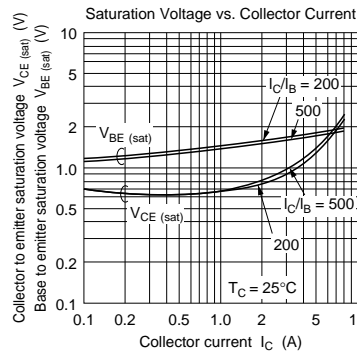
### Electrical Characteristics (Ta = 25°C)

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	$\mu\text{A}$	$V_{CB} = 120 \text{ V}, I_E = 0$
	$I_{CEO}$	—	—	10	$\mu\text{A}$	$V_{CE} = 100 \text{ V}, R_{BE} = \_$
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	—	$\mu\text{s}$	$I_C = 4 \text{ A}, I_{B1} = -I_{B2} = 8 \text{ mA}$
Storage time	$t_{stg}$	—	5.4	—	$\mu\text{s}$	
Fall time	$t_f$	—	1.1	—	$\mu\text{s}$	

Note: 1. Pulse test.



# 2SD970(K)



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