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# 2SD2104

Silicon NPN Triple Diffused

# HITACHI

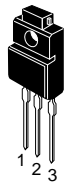
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## Application

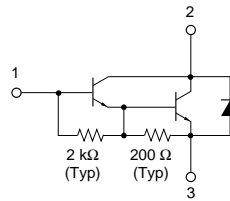
Low frequency power amplifier

## Outline

TO-220FM



- 1. Base
- 2. Collector
- 3. Emitter



## 2SD2104

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	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	$I_C$	8	A
Collector peak current	$I_{C(peak)}$	12	A
Collector power dissipation	$P_C$	2	W
	$P_C^{*1}$	25	
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

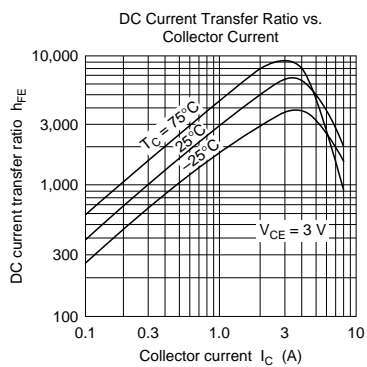
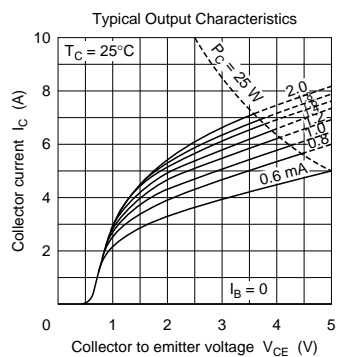
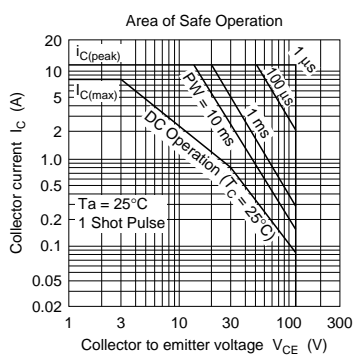
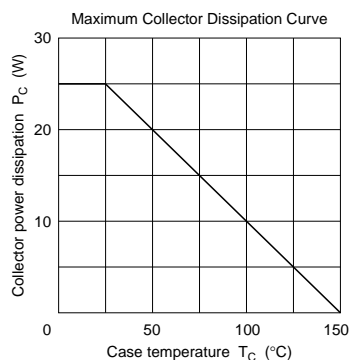
Note: 1. Value at  $T_C = 25^\circ\text{C}$ .

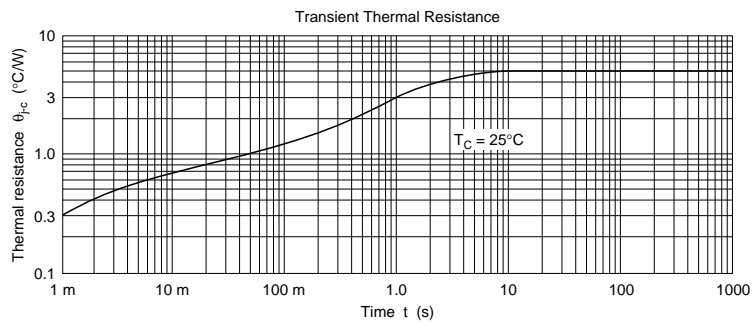
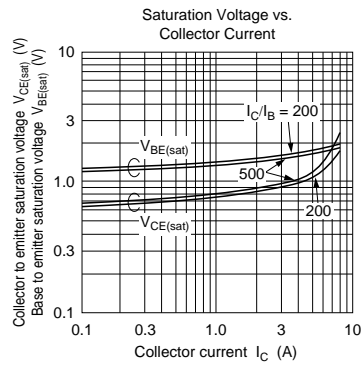
### Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	120	—	—	V	$I_C = 0.1 \text{ mA}$ , $I_E = 0$
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	$I_{CBO}$	—	—	10	$\mu\text{A}$	$V_{CB} = 100 \text{ V}$ , $I_E = 0$
	$I_{CEO}$	—	—	10		$V_{CE} = 100 \text{ V}$ , $R_{BE} = \infty$
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		$I_C = 8 \text{ A}$ , $I_B = 80 \text{ mA}^{*1}$
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		$I_C = 8 \text{ A}$ , $I_B = 80 \text{ mA}^{*1}$

Note: 1. Pulse test.

See switching characteristic curve of 2SD970(K).





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