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# 2SD1138

Silicon NPN Triple Diffused

## HITACHI

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### Application

Low frequency high voltage power amplifier TV vertical deflection output complementary pair with 2SB861

### Outline

TO-220AB



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

## 2SD1138

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

Item	Symbol	Rating	Unit
Collector to base voltage	$V_{CBO}$	200	V
Collector to emitter voltage	$V_{CEO}$	150	V
Emitter to base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	2	A
Collector peak current	$I_{C(peak)}$	5	A
Collector power dissipation	$P_C$	1.8	W
	$P_C^{*1}$	30	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	−45 to +150	°C

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

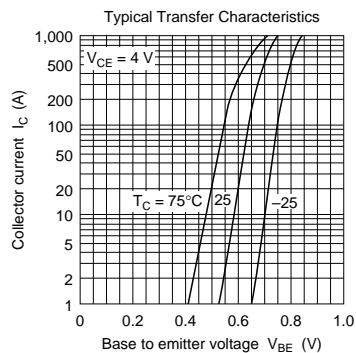
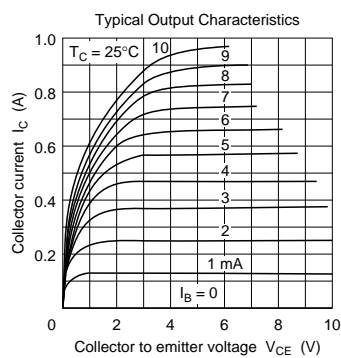
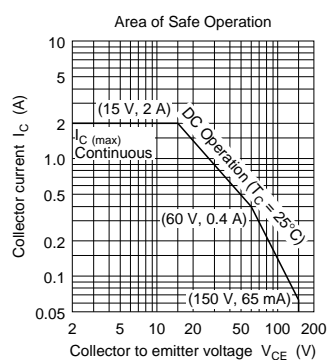
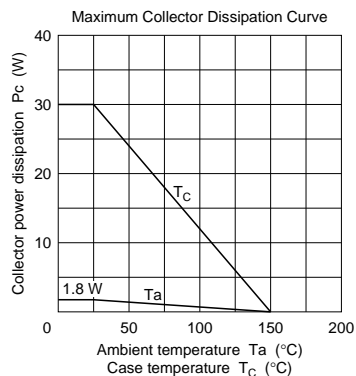
### Electrical Characteristics (Ta = 25°C)

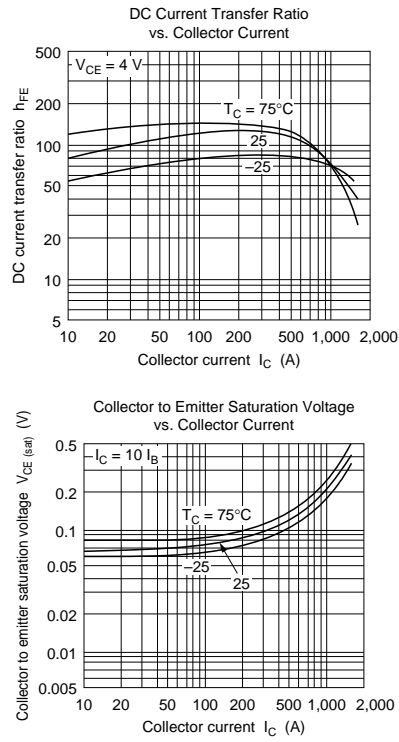
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	150	—	—	V	$I_C = 50\text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	6	—	—	V	$I_E = 5\text{ mA}$ , $I_C = 0$
Collector cutoff current	$I_{CEO}$	—	—	1	$\mu\text{A}$	$V_{CB} = 120\text{ V}$ , $I_E = 0$
DC current transfer ratio	$h_{FE1}^{*1}$	60	—	320		$V_{CE} = 4\text{ V}$ , $I_C = 50\text{ mA}$
	$h_{FE2}$	60	—	—		$V_{CE} = 10\text{ V}$ , $I_C = 500\text{ mA}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	3.0	V	$I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}^{*2}$
Base to emitter voltage	$V_{BE}$	—	—	1.0	V	$V_{CB} = 4\text{ V}$ , $I_C = 50\text{ mA}$
Collector output capacitance	$C_{ob}$	—	20	—	pF	$V_{CB} = 100\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$

Note: 1. The 2SD1138 is grouped by  $h_{FE1}$  as follows.

2. Pulse test.

B	C	D
60 to 120	100 to 200	160 to 320





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