
2SD1138

Silicon NPN Triple Diffused

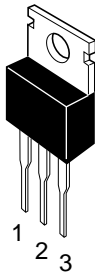
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Application

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

Outline

TO-220AB



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

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

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	$I_{\text{C (peak)}}$	5	A
Collector power dissipation	P_{C}	1.8	W
	P_{C}^{*1}	30	W
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-45 to +150	$^\circ\text{C}$

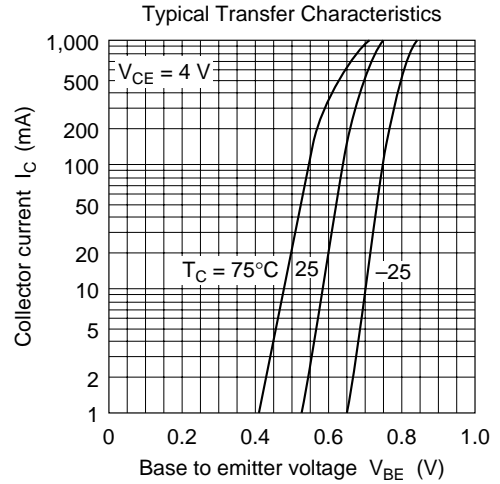
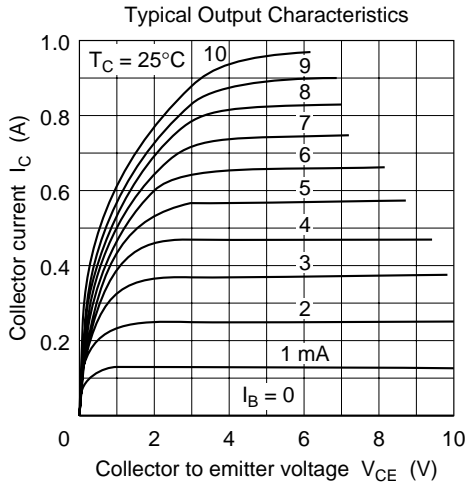
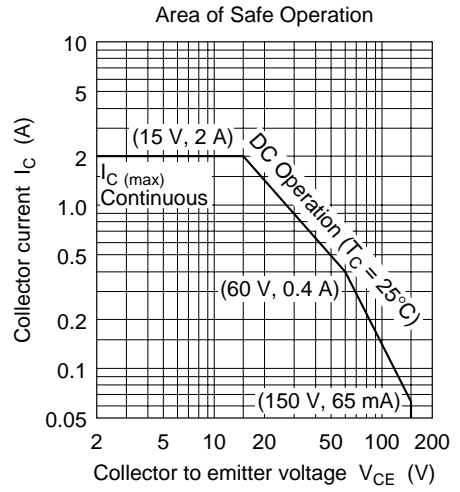
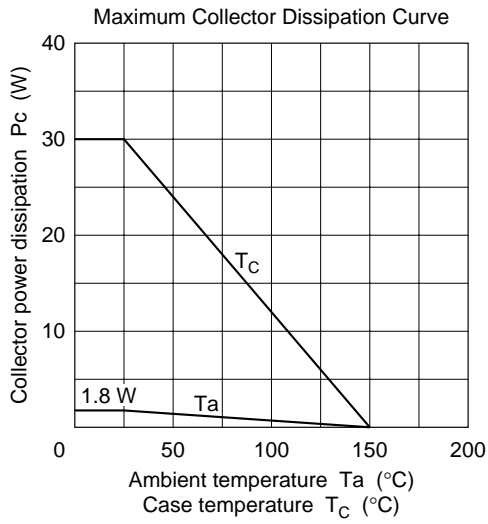
Note: 1. Value at $T_{\text{C}} = 25^\circ\text{C}$.

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

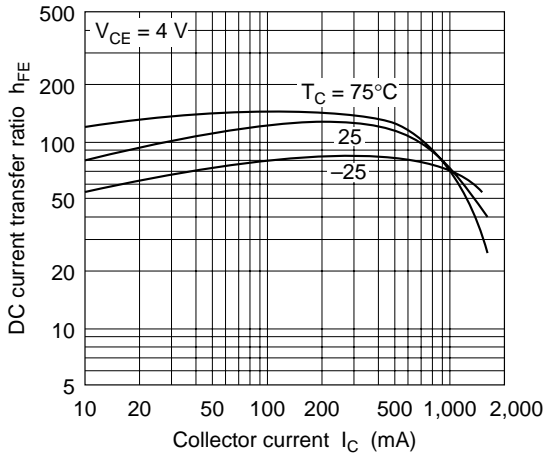
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	150	—	—	V	$I_{\text{C}} = 50 \text{ mA}$, $R_{\text{BE}} = \infty$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	6	—	—	V	$I_{\text{E}} = 5 \text{ mA}$, $I_{\text{C}} = 0$
Collector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

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

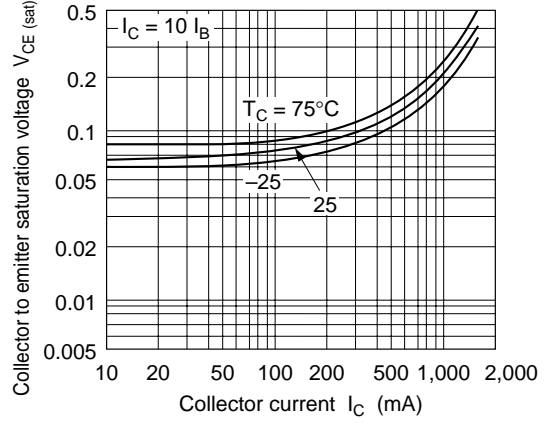
B	C	D
60 to 120	100 to 200	160 to 320

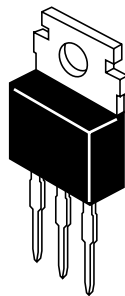
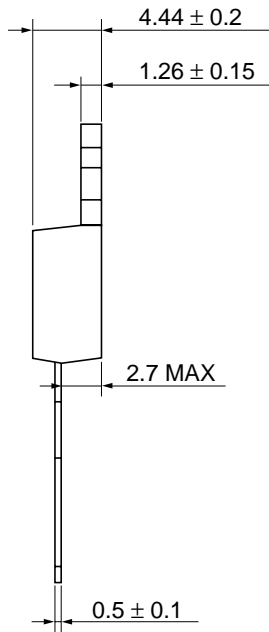


DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current





Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.8 g

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