
2SD1138

Silicon NPN Triple Diffused

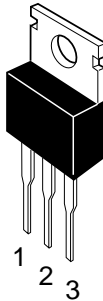
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Application

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 (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)

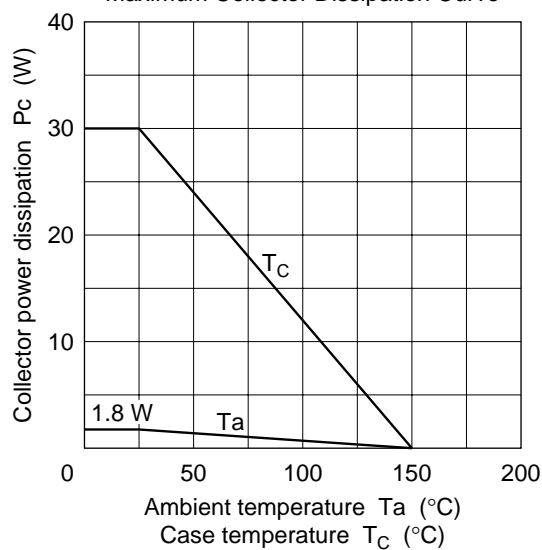
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	150	—	—	V	$I_C = 50\text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	6	—	—	V	$I_E = 5\text{ mA}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	1	μA	$V_{CB} = 120\text{ V}$, $I_E = 0$
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.

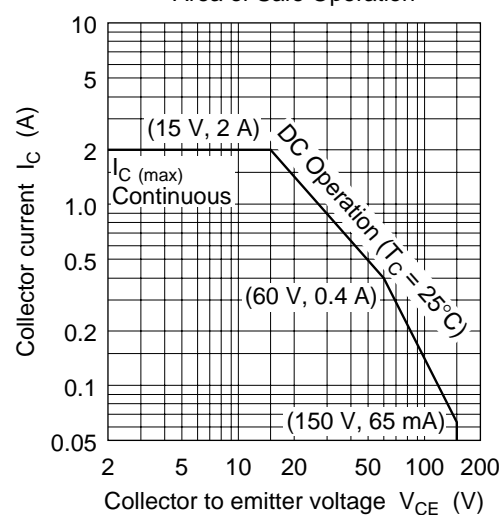
2. Pulse test.

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

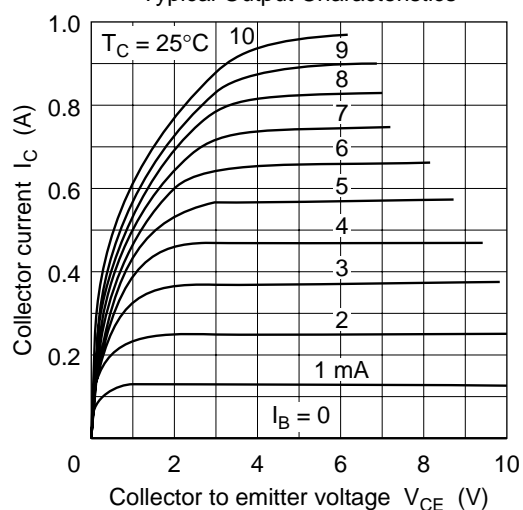
Maximum Collector Dissipation Curve



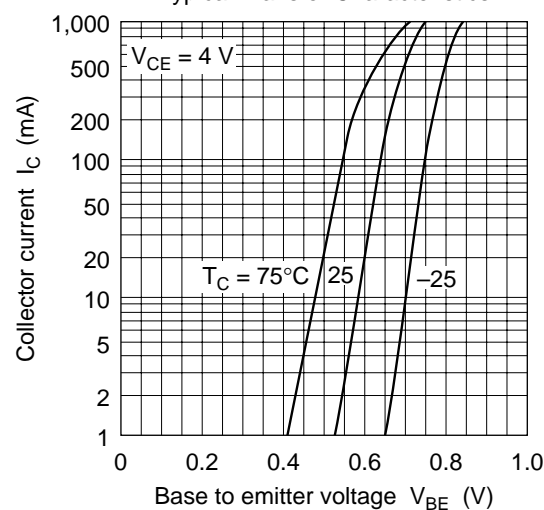
Area of Safe Operation

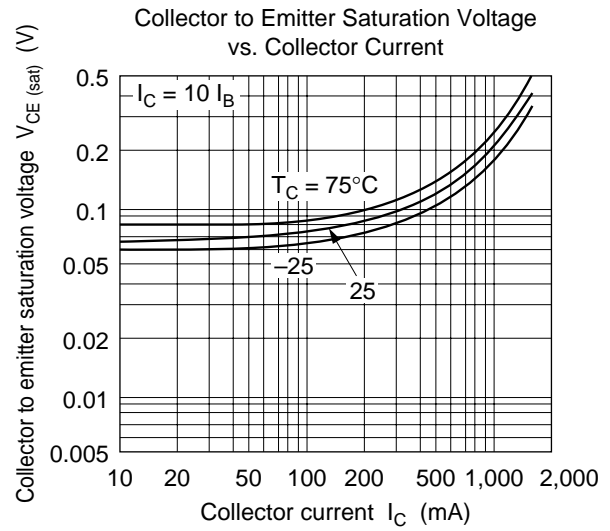
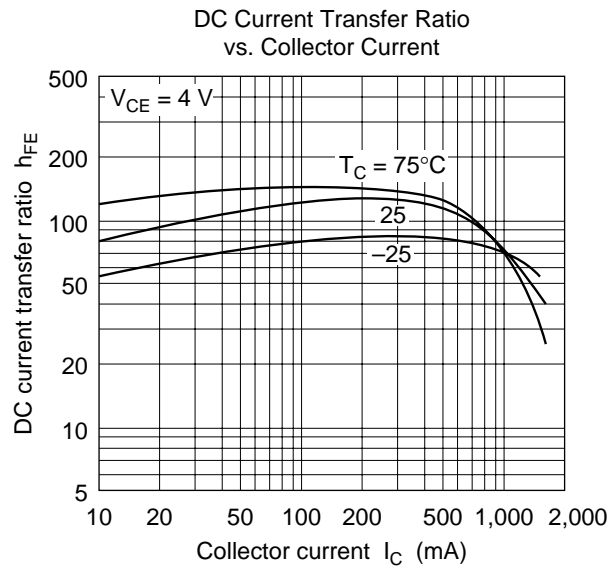


Typical Output Characteristics

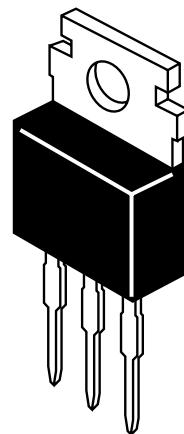
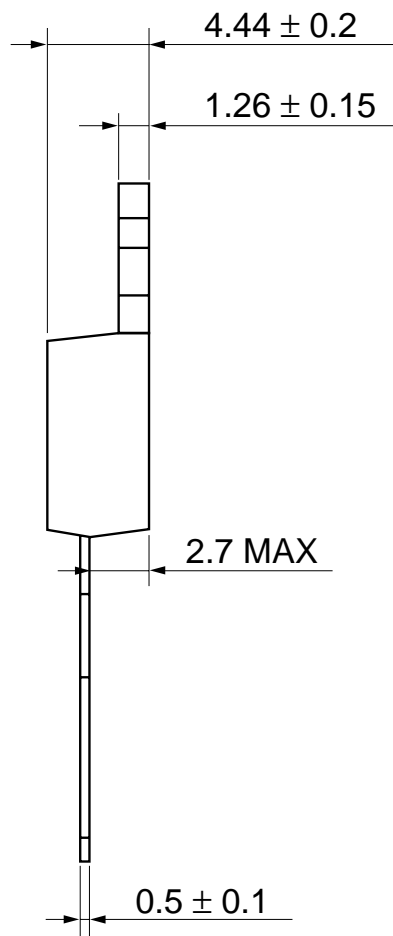
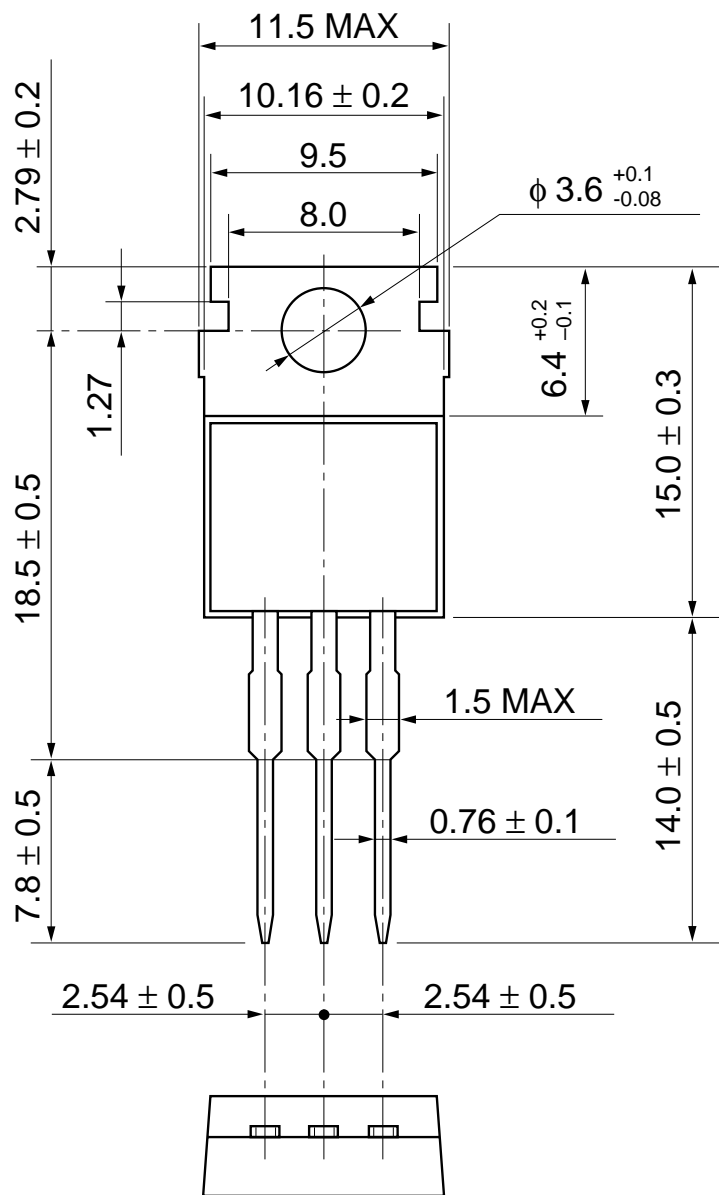


Typical Transfer Characteristics





Unit: mm



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

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