

# 2SD1135

Silicon NPN Triple Diffused

# HITACHI

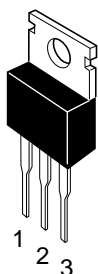
ADE-208-906 (Z)  
1st. Edition  
Sep. 2000

## Application

Low frequency power amplifier complementary pair with 2SB859

## Outline

TO-220AB



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

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

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{\text{CBO}}$	100	V
Collector to emitter voltage	$V_{\text{CEO}}$	80	V
Emitter to base voltage	$V_{\text{EBO}}$	5	V
Collector current	$I_{\text{C}}$	4	A
Collector peak current	$I_{\text{C(peak)}}$	8	A
Collector power dissipation	$P_{\text{C}}^{*1}$	40	W
Junction temperature	$T_{\text{j}}$	150	$^{\circ}\text{C}$
Storage temperature	$T_{\text{stg}}$	-45 to +150	$^{\circ}\text{C}$

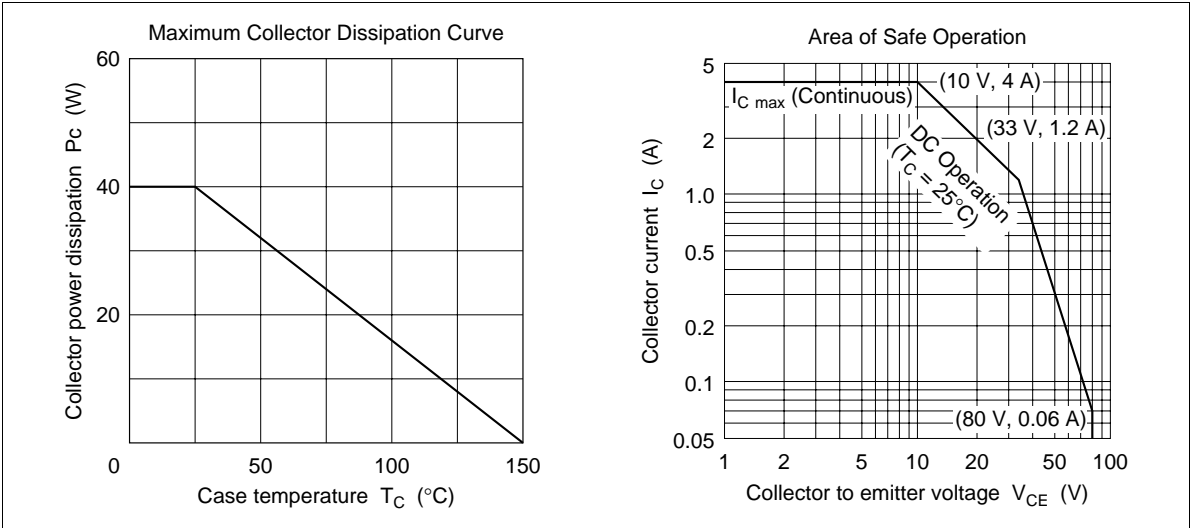
Note: 1. Value at  $T_{\text{C}} = 25^{\circ}\text{C}$ .

Electrical Characteristics (Ta = 25°C)

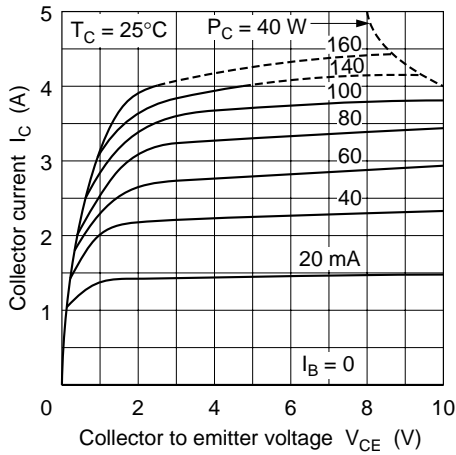
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	80	—	—	V	$I_C = 50\text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.1	mA	$V_{CB} = 80\text{ V}$ , $I_E = 0$
DC current transfer ratio	$h_{FE1}^{*1}$	60	—	200		$V_{CE} = 5\text{ V}$ , $I_C = 1\text{ A}^{*2}$
	$h_{FE2}$	35	—	—		$V_{CE} = 5\text{ V}$ , $I_C = 0.1\text{ A}^{*2}$
Base to emitter voltage	$V_{BE}$	—	—	1.5	V	$V_{CE} = 5\text{ V}$ , $I_C = 1\text{ A}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	2	V	$I_C = 2\text{ A}$ , $I_B = 0.2\text{ A}^{*2}$
Gain bandwidth product	$f_T$	—	10	—	MHz	$V_{CE} = 5\text{ V}$ , $I_C = 0.5\text{ A}^{*2}$
Collector output capacitance	$C_{ob}$	—	40	—	pF	$V_{CB} = 20\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$

Notes: 1. The 2SD1135 is grouped by  $h_{FE1}$  as follows.  
2. Pulse test.

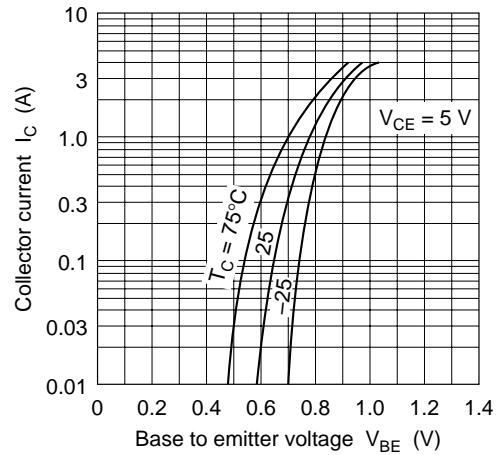
B	C
60 to 120	100 to 200



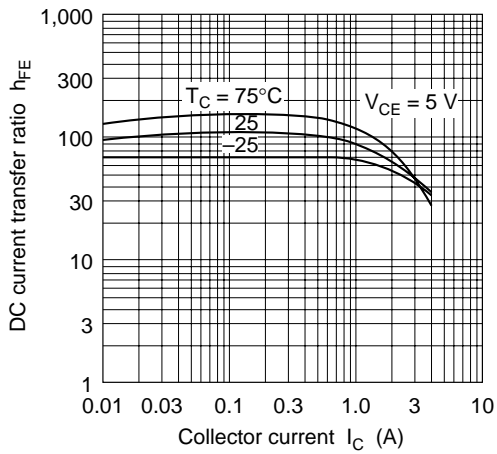
Typical Output Characteristics



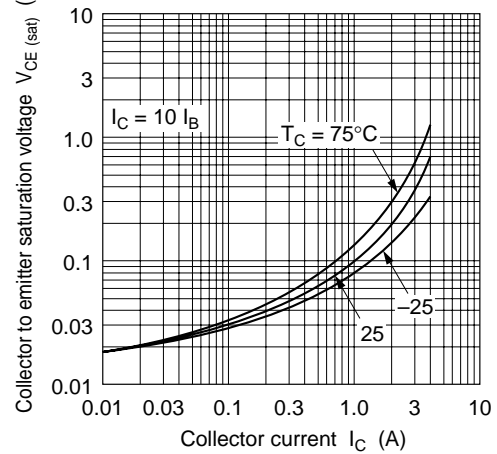
Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current

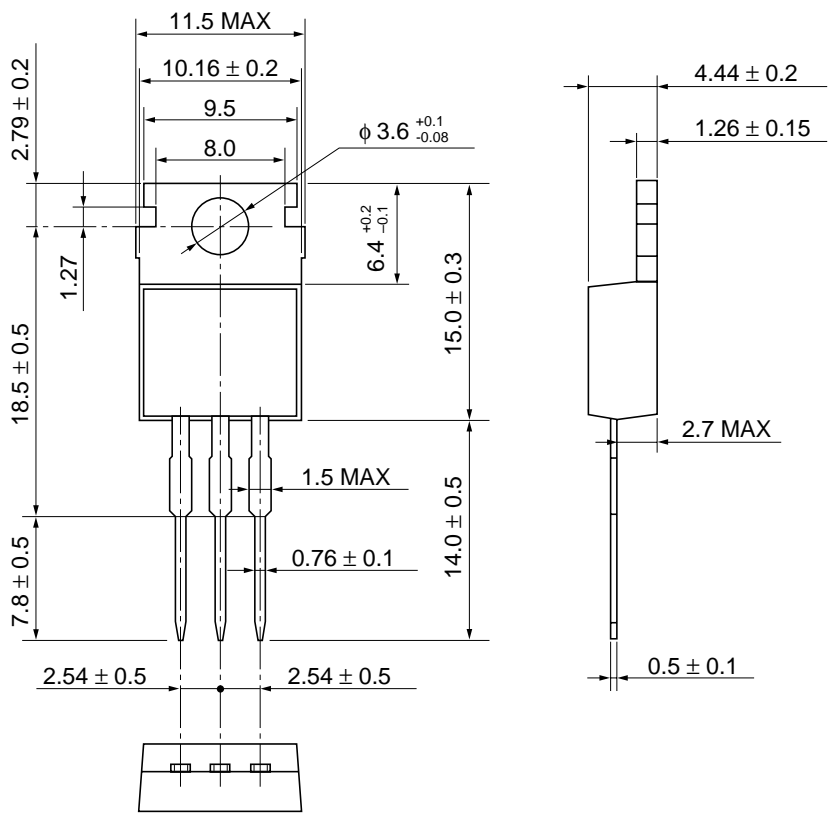


Collector to Emitter Saturation Voltage vs. Collector Current



Package Dimensions

Unit: mm



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

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