

# 2SD1135

Silicon NPN Triple Diffused

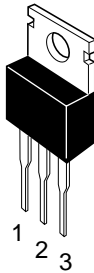
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## Application

Low frequency power amplifier complementary pair with 2SB859

## Outline

TO-220AB



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

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

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

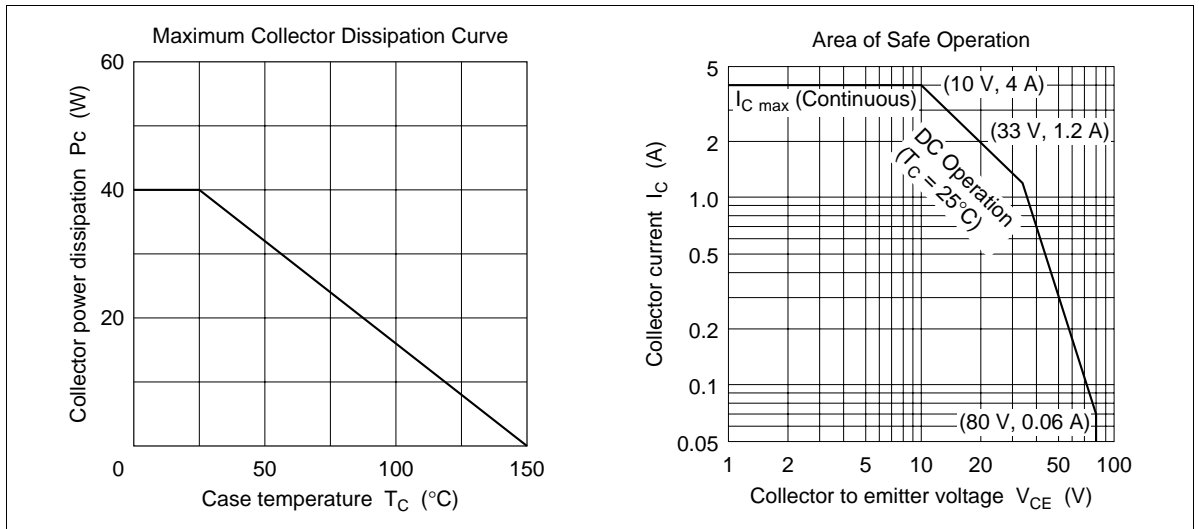
Note: 1. Value at  $T_C = 25^\circ\text{C}$ .

## Electrical Characteristics (Ta = 25°C)

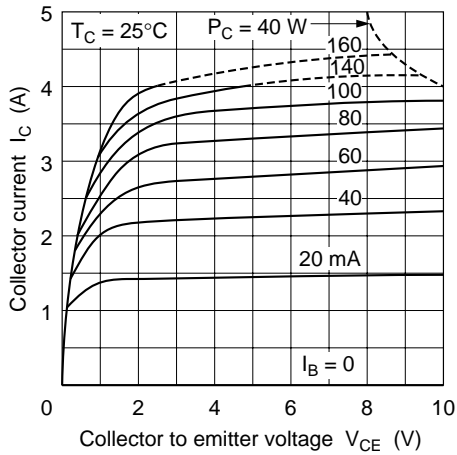
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	80	—	—	V	$I_C = 50 \text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \text{ }\mu\text{A}$ , $I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.1	mA	$V_{CB} = 80 \text{ V}$ , $I_E = 0$
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.

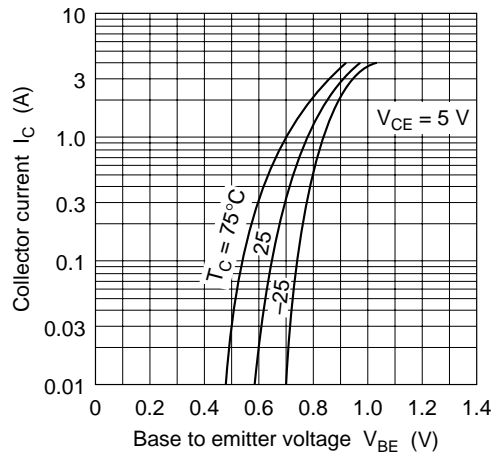
B	C
60 to 120	100 to 200



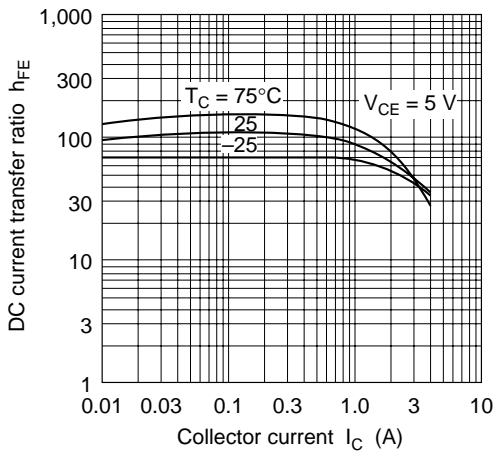
Typical Output Characteristics



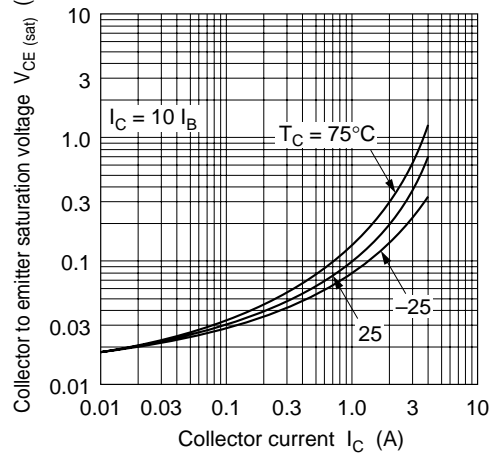
Typical Transfer Characteristics

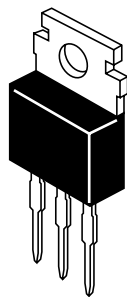
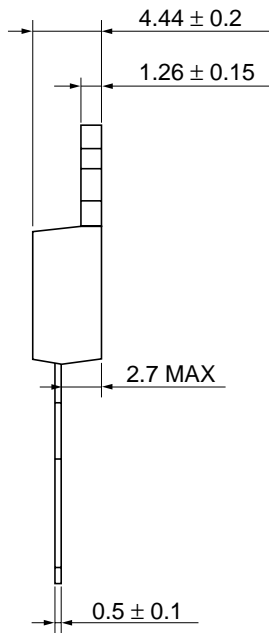
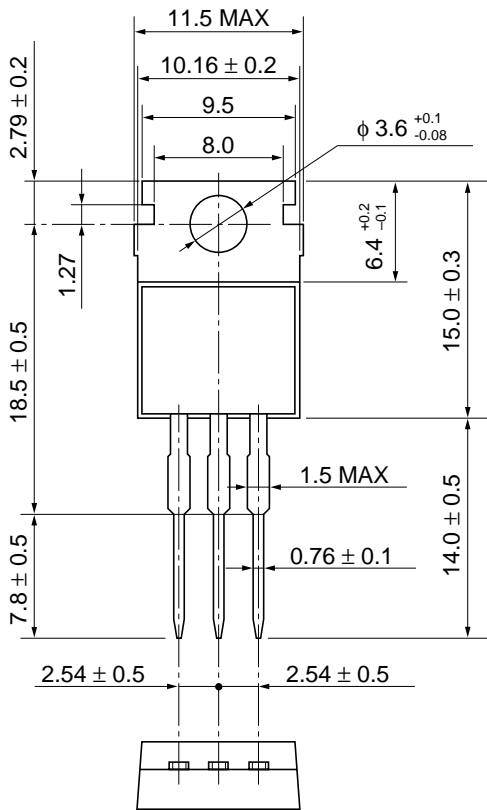


DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current





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

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