

# 2SD1133, 2SD1134

Silicon NPN Triple Diffused

RENESAS

ADE-208-905 (Z)

1st. Edition

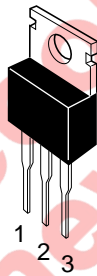
September 2000

## Application

Low frequency power amplifier complementary pair with 2SB857 and 2SB858

## Outline

TO-220AB



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

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

Item	Symbol	Ratings		Unit
		2SD1133	2SD1134	
Collector to base voltage	$V_{CBO}$	70	70	V
Collector to emitter voltage	$V_{CEO}$	50	60	V
Emitter to base voltage	$V_{EBO}$	5	5	V
Collector current	$I_C$	4	4	A
Collector peak current	$I_{C(peak)}$	8	8	A
Collector power dissipation	$P_C^{*1}$	40	40	W
Junction temperature	$T_j$	150	150	°C
Storage temperature	$T_{stg}$	-45 to +150	-45 to +150	°C

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

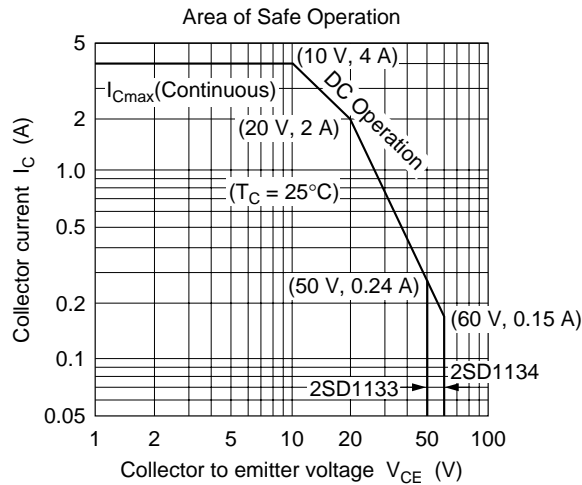
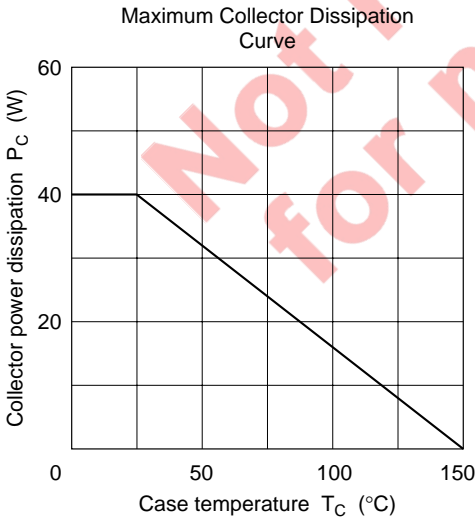
# 2SD1133, 2SD1134

## Electrical Characteristics (Ta = 25°C)

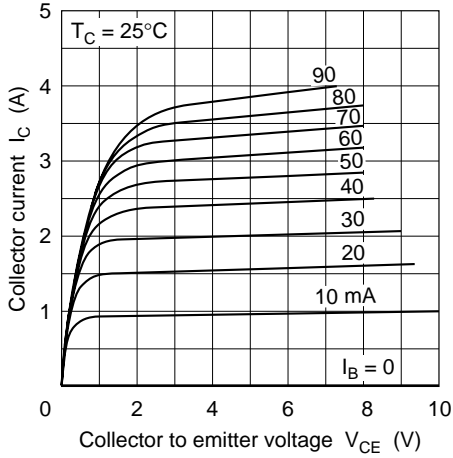
Item	Symbol	2SD1133			2SD1134			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	70	—	—	70	—	—	V	$I_C = 10\text{ }\mu\text{A}$ , $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	50	—	—	60	—	—	V	$I_C = 50\text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	1	—	—	1	$\mu\text{A}$	$V_{CB} = 50\text{ V}$ , $I_E = 0$
DC current transfer ratio	$h_{FE1}^{*1}$	60	—	320	60	—	320		$V_{CE} = 4\text{ V}$ , $I_C = 1\text{ A}^{*2}$
	$h_{FE2}$	35	—	—	35	—	—		$I_C = 0.1\text{ A}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1	—	—	1	V	$I_C = 2\text{ A}$ , $I_B = 0.2\text{ A}^{*2}$
Base to emitter voltage	$V_{BE}$	—	—	1	—	—	1	V	$V_{CE} = 4\text{ V}$ , $I_C = 1\text{ A}^{*2}$
Gain bandwidth product	$f_T$	—	7	—	—	7	—	MHz	$V_{CE} = 4\text{ V}$ , $I_C = 0.5\text{ A}^{*2}$

Notes: 1. The 2SD1133 and 2SD1134 are grouped by  $h_{FE1}$  as follows.  
2. Pulse test.

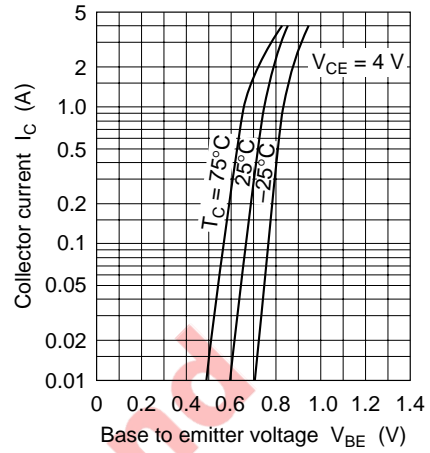
B	C	D
60 to 120	100 to 200	160 to 320



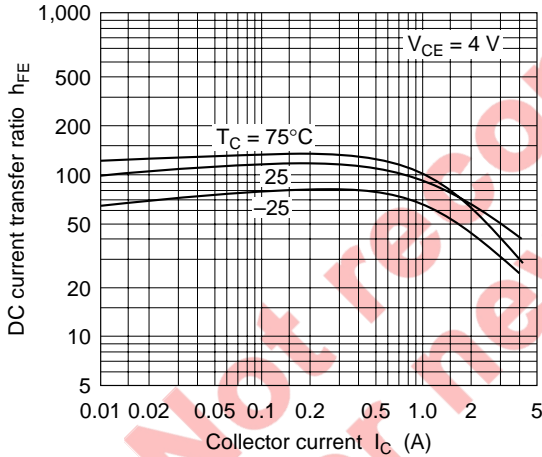
Typical Output Characteristics



Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current

