

2SD1133, 2SD1134

Silicon NPN Triple Diffused

RENESAS

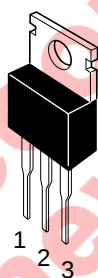
ADE-208-905 (Z)
1st. Edition
September 2000

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 $T_C = 25^\circ\text{C}$.

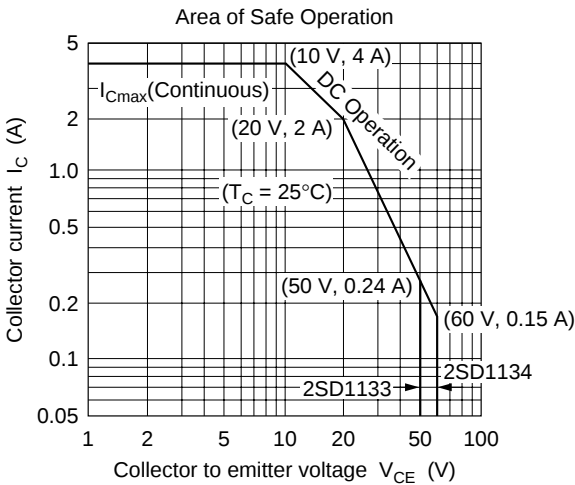
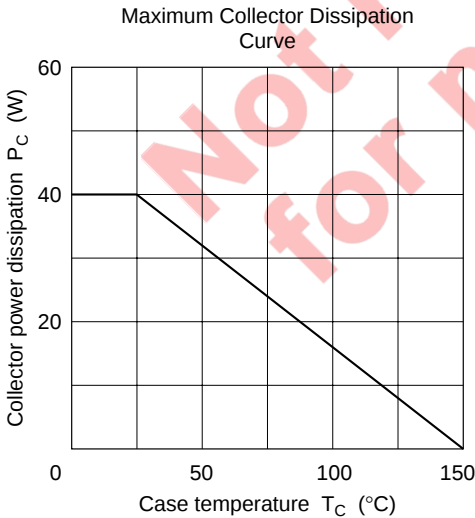
2SD1133, 2SD1134

Electrical Characteristics (Ta = 25°C)

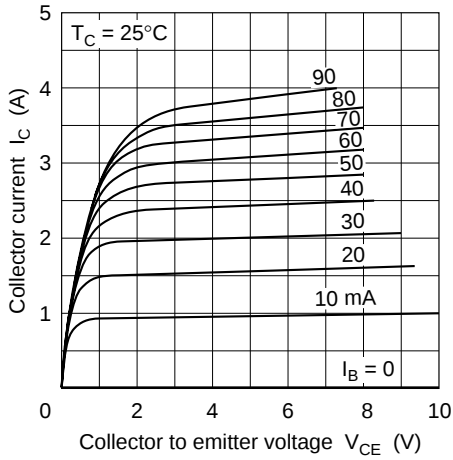
Item	Symbol	2SD1133			2SD1134			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	70	—	—	70	—	—	V	$I_C = 10\text{ }\mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	50	—	—	60	—	—	V	$I_C = 50\text{ mA}$, $R_{BE} = \infty$
Emitter 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	μA	$V_{CB} = 50\text{ V}$, $I_E = 0$
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.

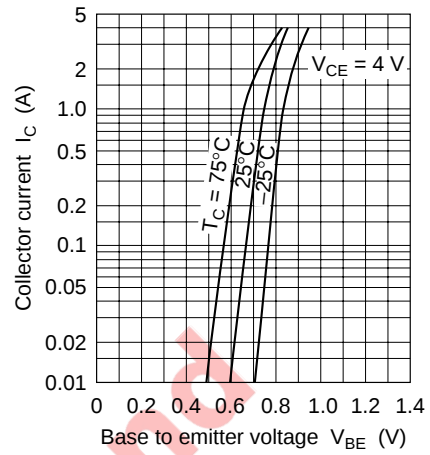
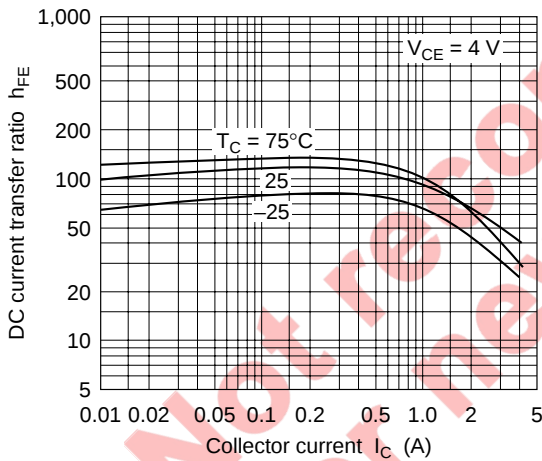
B	C	D
60 to 120	100 to 200	160 to 320



Typical Output Characteristics



Typical Transfer Characteristics

DC Current Transfer Ratio
vs. Collector CurrentCollector to Emitter Saturation Voltage
vs. Collector Current