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# 2SD1558, 2SD1599

Silicon NPN Triple Diffused

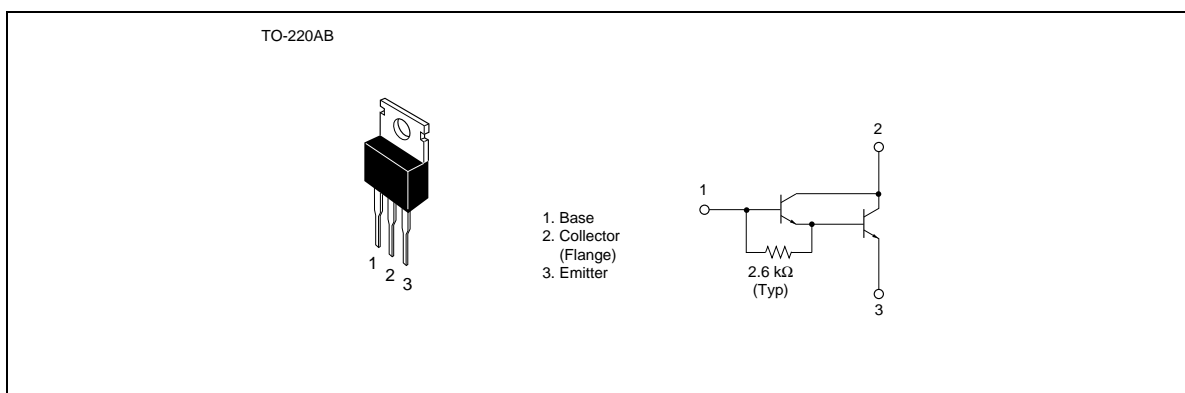
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### Application

Low frequency power amplifier complementary pair with 2SB1007

### Outline



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

Item	Symbol	Ratings		Unit
		2SD1558	2SD1599	
Collector to base voltage	$V_{CBO}$	60	80	V
Collector to emitter voltage	$V_{CEO}$	60	80	V
Emitter to base voltage	$V_{EBO}$	7	7	V
Collector current	$I_C$	4	4	A
Collector peak current	$I_{C(\text{peak})}$	8	8	A
Collector power dissipation	$P_C^{*1}$	40	40	W
Junction temperature	$T_j$	150	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	-55 to +150	$^\circ\text{C}$

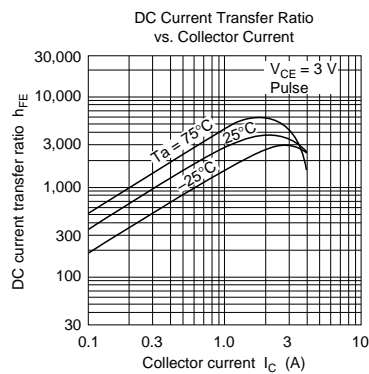
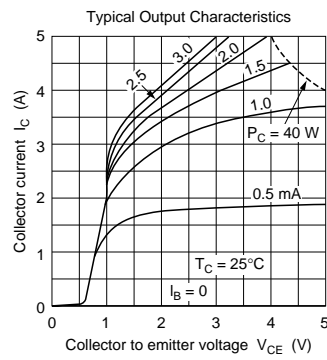
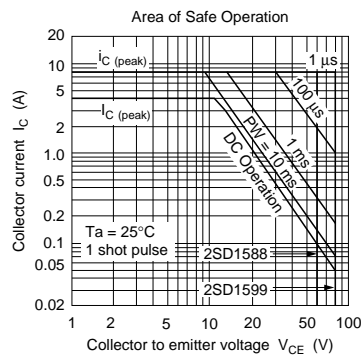
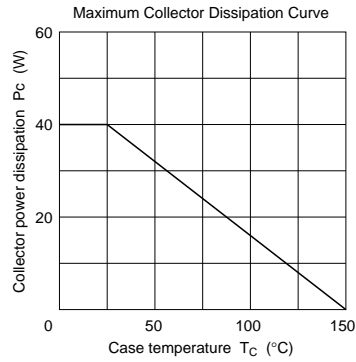
Note: 1. Value at  $T_c = 25^\circ\text{C}$ .

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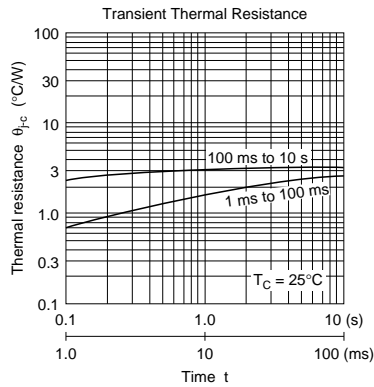
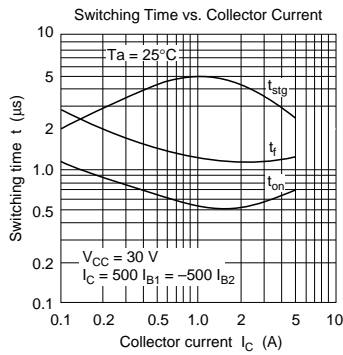
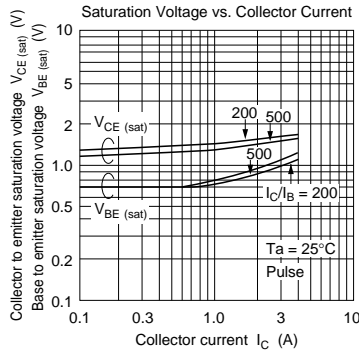
### Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SD1558			2SD1599			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	80	—	—	V	$I_C = 25 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	7	—	—	V	$I_E = 50 \text{ mA}, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	100	—	—	100	$\mu\text{A}$	$V_{CB} = 60 \text{ V}, I_E = 0$
	$I_{CEO}$	—	—	10	—	—	10	$\mu\text{A}$	$V_{CE} = 50 \text{ V}, R_{BE} = \infty$
DC current transfer ratio	$h_{FE}$	1000	—	20000	1000	—	20000		$V_{CE} = 3 \text{ V}, I_C = 2 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	—	1.5	—	—	1.5	V	$I_C = 2 \text{ A}, I_B = 4 \text{ mA}^{*1}$
	$V_{CE(sat)2}$	—	—	3.0	—	—	3.0	V	$I_C = 4 \text{ A}, I_B = 40 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{BE(sat)1}$	—	—	2.0	—	—	2.0	V	$I_C = 2 \text{ A}, I_B = 4 \text{ mA}^{*1}$
	$V_{BE(sat)2}$	—	—	3.5	—	—	3.5	V	$I_C = 4 \text{ A}, I_B = 40 \text{ mA}^{*1}$
Turn on time	$t_{on}$	—	0.5	—	—	0.5	—	$\mu\text{s}$	$I_C = 2 \text{ A}, I_{B1} = -I_{B2} = 4 \text{ mA}$
Storage time	$t_{stg}$	—	6.0	—	—	6.0	—	$\mu\text{s}$	
Fall time	$t_f$	—	1.0	—	—	1.0	—	$\mu\text{s}$	

Note: 1. Pulse test.



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