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# 2SD668, 2SD668A

Silicon NPN Epitaxial

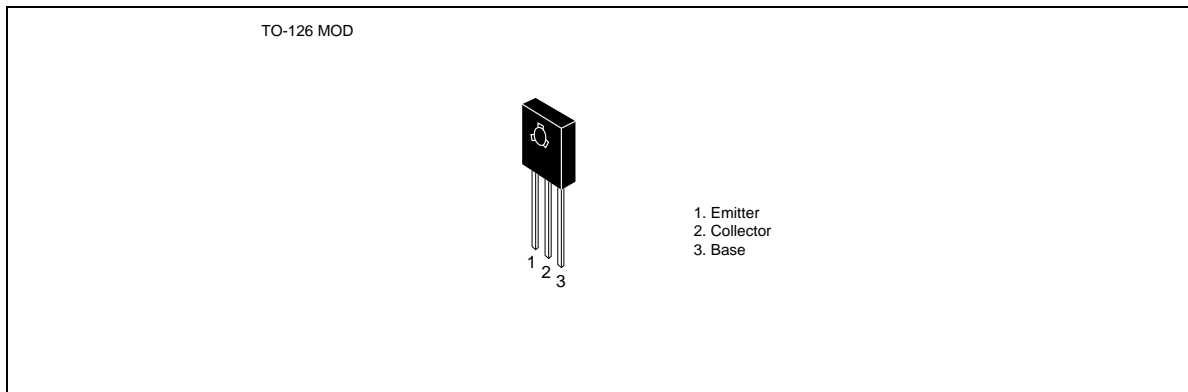
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### Application

Low frequency high voltage amplifier complementary pair with 2SB648/A

### Outline



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

Item	Symbol	Ratings		Unit
		2SD668	2SD668A	
Collector to base voltage	$V_{CBO}$	180	180	V
Collector to emitter voltage	$V_{CEO}$	120	160	V
Emitter to base voltage	$V_{EBO}$	5	5	V
Collector current	$I_C$	50	50	mA
Collector peak current	$I_{C(\text{peak})}$	100	100	mA
Collector power dissipation	$P_C$	1	1	W
Junction temperature	$T_j$	150	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	-55 to +150	$^\circ\text{C}$

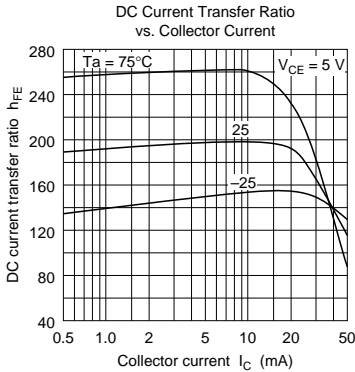
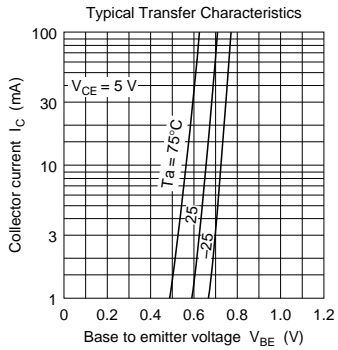
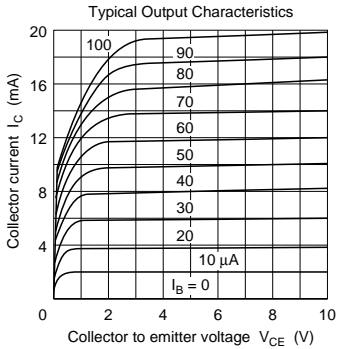
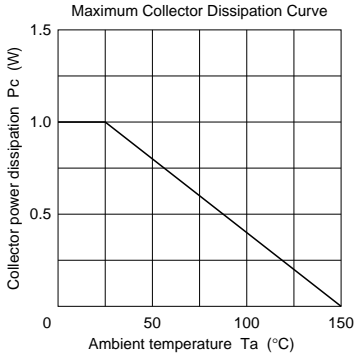
## 2SD668, 2SD668A

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

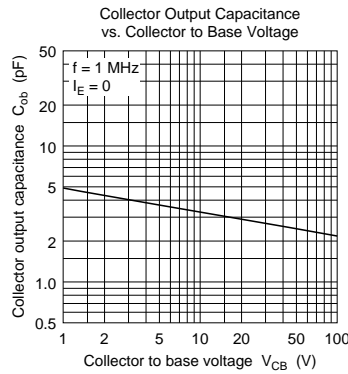
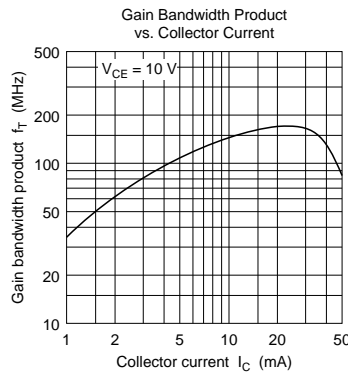
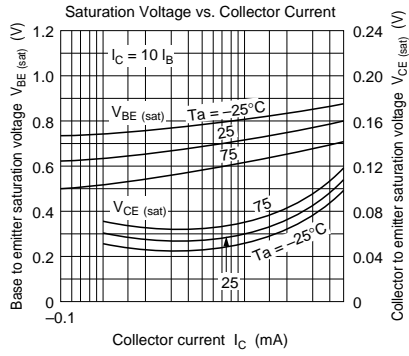
Item	Symbol	2SD668			2SD668A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	180	—	—	180	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	—	—	160	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	10	—	—	10	$\mu A$	$V_{CB} = 160 \text{ V}, I_E = 0$
DC current transfer ratio	$h_{FE1}^{*1}$	60	—	320	60	—	200		$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
	$h_{FE2}$	30	—	—	30	—	—		$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	2	—	—	2	V	$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$
Base to emitter voltage	$V_{BE}$	—	—	1.5	—	—	1.5	V	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Gain bandwidth product	$f_T$	—	140	—	—	140	—	MHz	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	Cob	—	3.5	—	—	3.5	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0,$ $f = 1 \text{ MHz}$

Note: 1. The 2SD668 and 2SD668A are grouped by  $h_{FE1}$  as follows.

	B	C	D
2SD668	60 to 120	100 to 200	160 to 320
2SD668A	60 to 120	100 to 200	—



# 2SD668, 2SD668A



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