

2SD668, 2SD668A

Silicon NPN Epitaxial

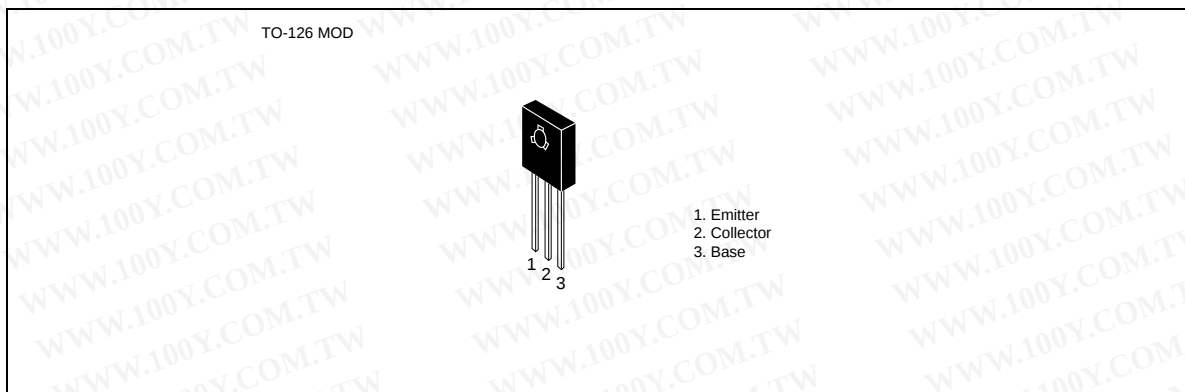
HITACHI

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Application

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

Outline



Absolute Maximum Ratings (Ta = 25°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	$I_{C(peak)}$	100	100	mA
Collector power dissipation	P_C	1	1	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

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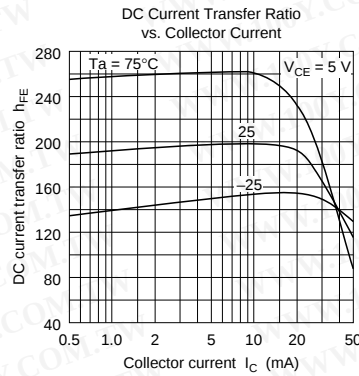
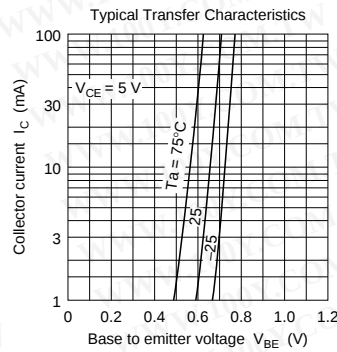
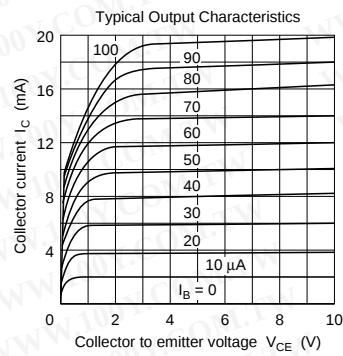
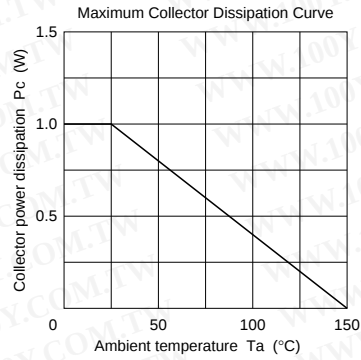
Electrical Characteristics (Ta = 25°C)

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	μA	$V_{CB} = 160 \text{ V}, I_E = 0$
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	C_{ob}	—	3.5	—	—	3.5	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$

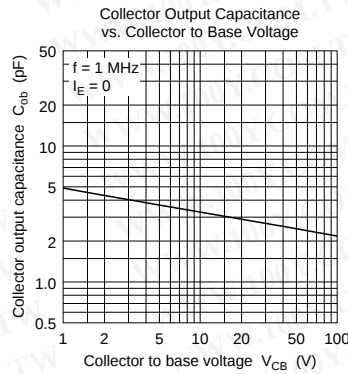
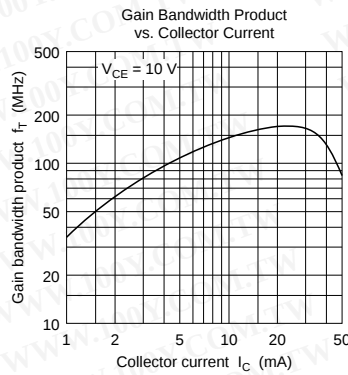
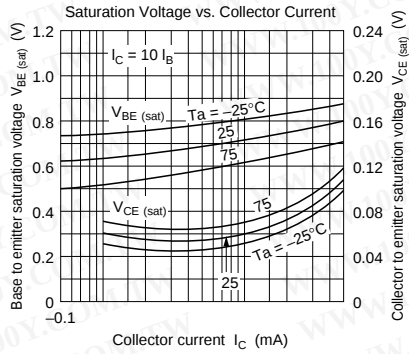
Note: 1. The 2SD668 and 2SD668A are grouped by h_{FE1} as follows.

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

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