
2SB649, 2SB649A

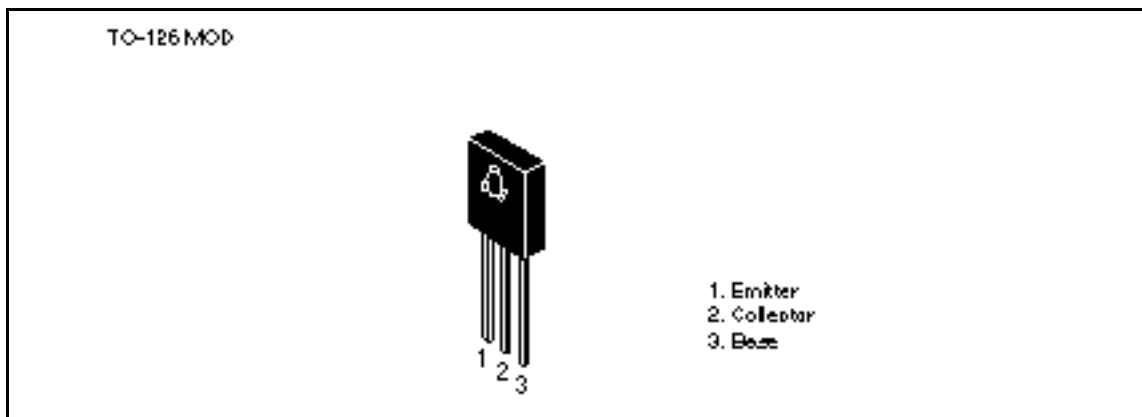
Silicon PNP Epitaxial

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Application

Low frequency power amplifier complementary pair with 2SD669/A

Outline



2SB649, 2SB649A

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings		Unit
		2SB649	2SB649A	
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	-1.5	-1.5	A
Collector peak current	$I_{C(peak)}$	-3	-3	A
Collector power dissipation	P_C	1	1	W
	P_C^{*1}	20	20	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

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

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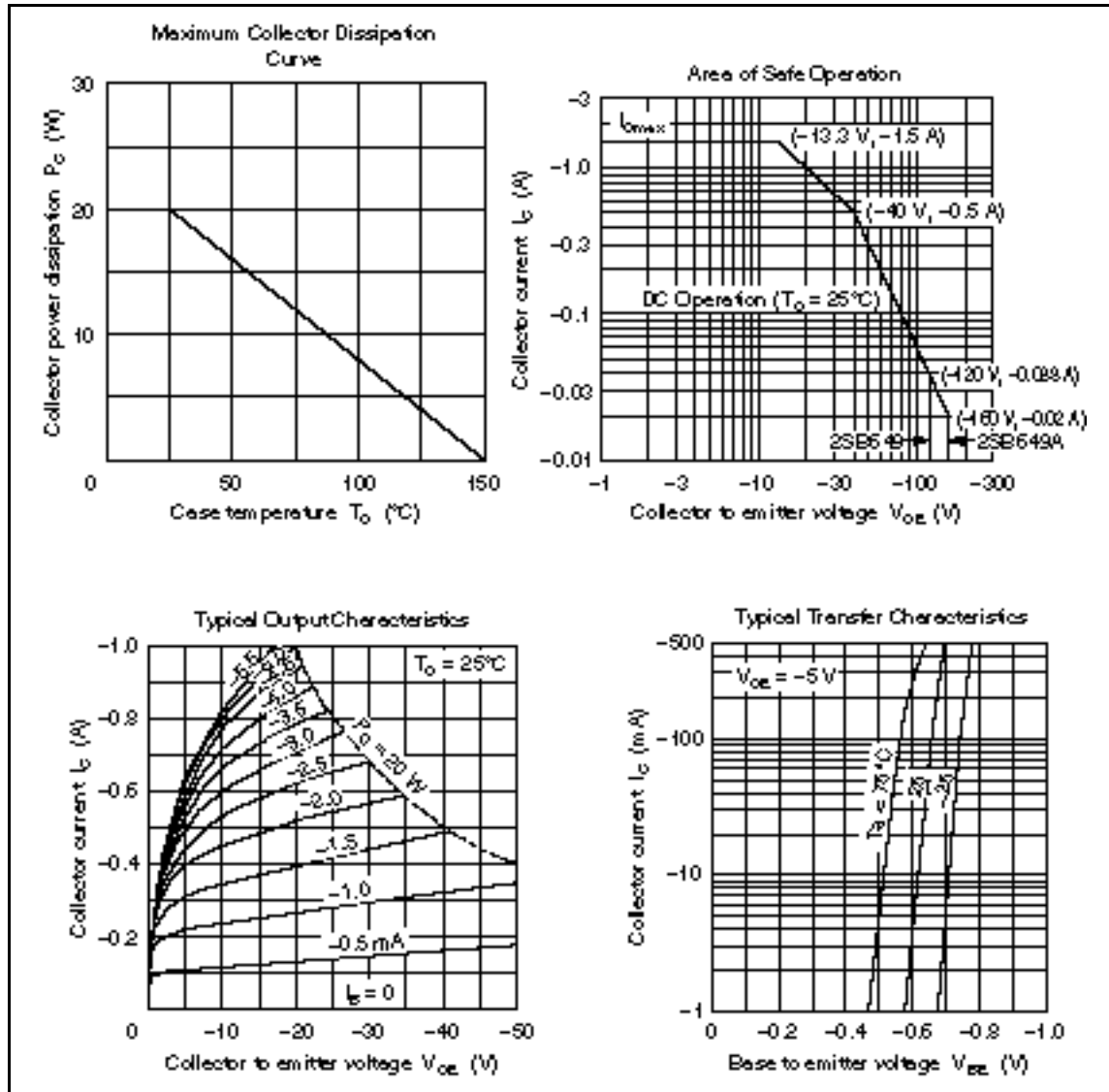
Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SB649			2SB649A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-180	—	—	-180	—	—	V	$I_C = -1 \text{ mA}, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-120	—	—	-160	—	—	V	$I_C = -10 \text{ mA}, R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	-5	—	—	V	$I_E = -1 \text{ mA}, I_C = 0$
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		$V_{CE} = -5 \text{ V},$ $I_C = -150 \text{ mA}$
	h_{FE2}	30	—	—	30	—	—		$V_{CE} = -5 \text{ V},$ $I_C = -500 \text{ mA}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-1	—	—	-1	V	$I_C = -500 \text{ mA},$ $I_B = -50 \text{ mA}$
Base to emitter voltage	V_{BE}	—	—	-1.5	—	—	-1.5	V	$V_{CE} = -5 \text{ V},$ $I_C = -150 \text{ mA}$
Gain bandwidth product	f_T	—	140	—	—	140	—	MHz	$V_{CE} = -5 \text{ V},$ $I_C = -150 \text{ mA}$
Collector output capacitance	Cob	—	27	—	—	27	—	pF	$V_{CB} = -10 \text{ V}, I_E = 0,$ $f = 1 \text{ MHz}$

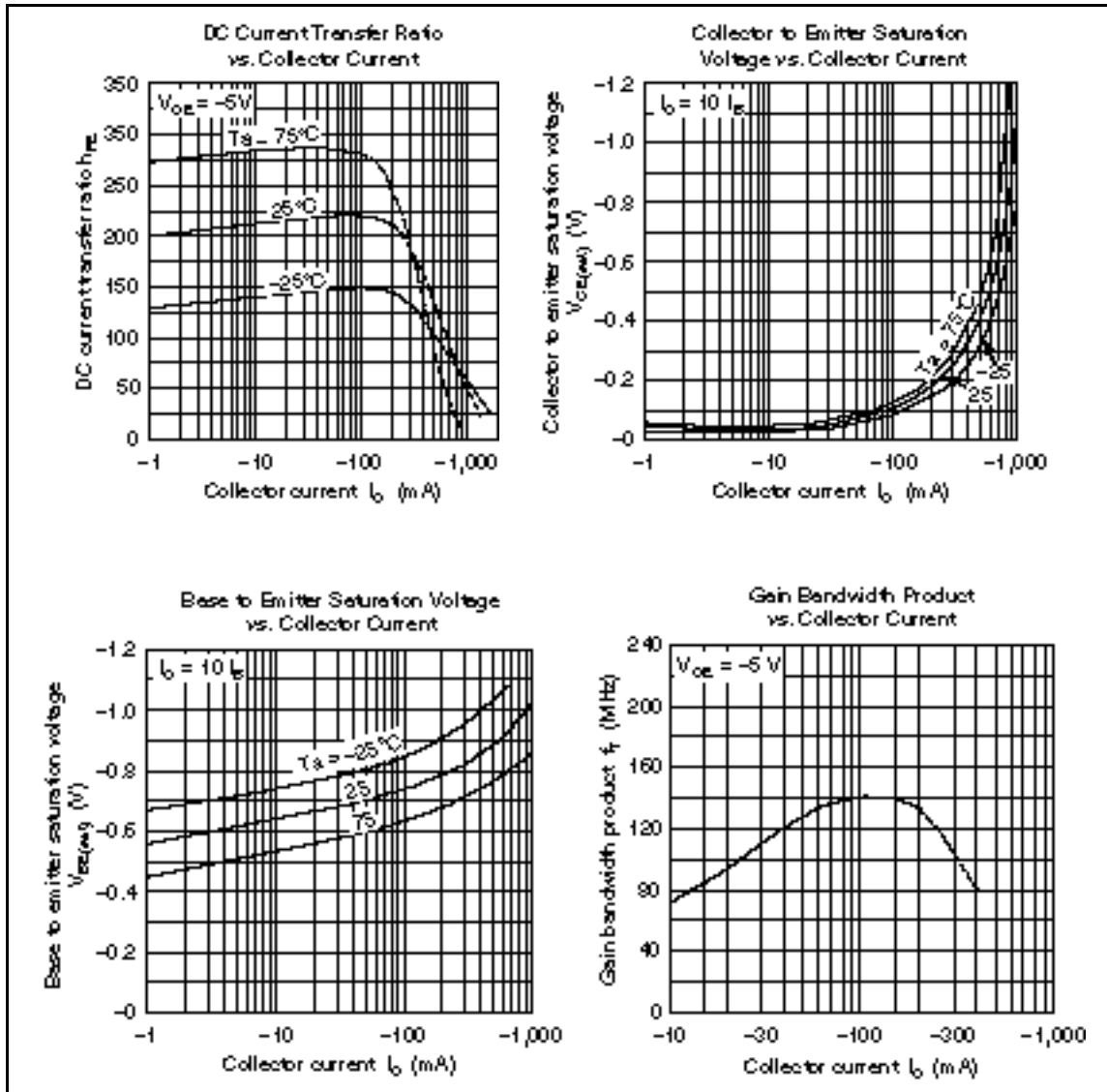
Notes: 1. The 2SB649 and 2SB649A are grouped by h_{FE1} as follows.
2. Pulse test

	B	C	D
2SB649	60 to 120	100 to 200	160 to 320
2SB649A	60 to 120	100 to 200	—

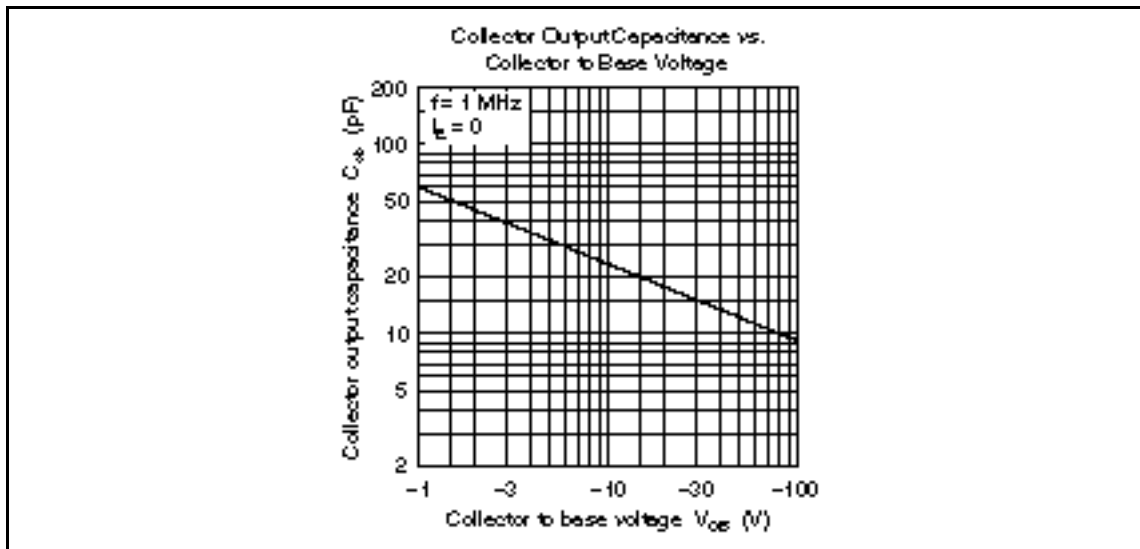
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