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Silicon NPN Epitaxial

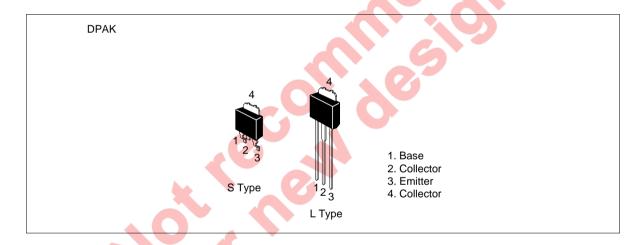


ADE-208-926 (Z) 1st. Edition September 2000

#### **Application**

Low frequency power amplifier complementary pair with 2SB1409(L)/(S)

#### **Outline**



#### **Absolute Maximum Ratings** $(Ta = 25^{\circ}C)$

		Ratings			
Item	Symbol	2SD2122(L)/(S)	2SD2123(L)/(S)	Unit	
Collector to base voltage	$V_{CBO}$	180	180	V	
Collector to emitter voltage	$V_{\text{CEO}}$	120	160	V	
Emitter to base voltage	$V_{EBO}$	5	5	V	
Collector current	I <sub>c</sub>	1.5	1.5	Α	
Collector peak current	I <sub>C(peak)</sub>	3	3	A	
Collector power dissipation	P <sub>C</sub> *1	18	18	W	
Junction temperature	Tj	150	150	°C	
Storage temperature	Tstg	-55 to +150	-55 to +150	°C	

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

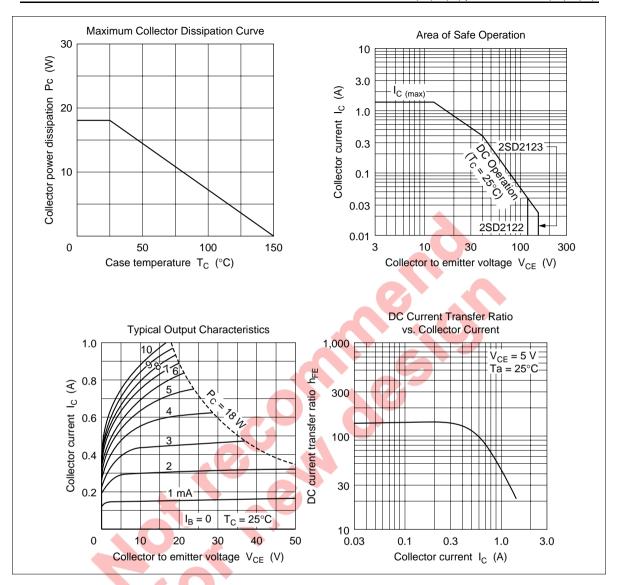
## **Electrical Characteristics** ( $Ta = 25^{\circ}C$ )

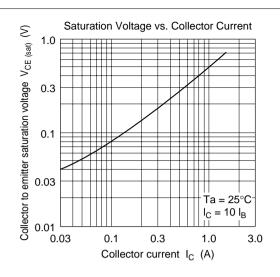
		2SD2122(L)/(S)		2SD2123(L)/(S)					
Item	Symbol	Min	Тур	Max	Min	Тур	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	180	ā	<b>9</b>	180	3	_	V	$I_C = 1 \text{ mA}, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120			160		_	V	$I_{\rm C}$ = 10 mA, $R_{\rm BE}$ = $\infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	_		5	_	_	V	$I_E = 1 \text{ mA}, I_C = 0$
Collector cutoff current	I <sub>CBO</sub>	- 4		10	_	_	10	μΑ	V <sub>CB</sub> = 160 V, I <sub>E</sub> = 0
DC current transfer ratio	h <sub>FE1</sub> *2	60	<b>—</b> .	200	60	_	200	Α	$V_{CE} = 5 \text{ V}, I_{C} = 150 \text{ mA}^{*1}$
	h <sub>FE2</sub>	30	_	_	30	_	_		$V_{CE} = 5 \text{ V}, I_{C} = 500 \text{ mA}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	_	_	1	_	_	1	V	$I_{\rm C} = 500 \text{ mA},$ $I_{\rm B} = 50 \text{ mA}^{*1}$
Base to emitter voltage	$V_{BE}$	_	_	1.5	_	_	1.5	V	$V_{CE} = 5 \text{ V}, I_{C} = 150 \text{ mA}^{*1}$
Gain bandwidth product	f <sub>T</sub>	_	180	_	_	180	_	MHz	$V_{CE} = 5 \text{ V}, I_{C} = 150 \text{ mA}^{*1}$
Collector output capacitance	Cob	_	14	_	_	14	_	pF	$V_{CB} = 10 \text{ V}, I_{E} = 0,$ f = 1 MHz

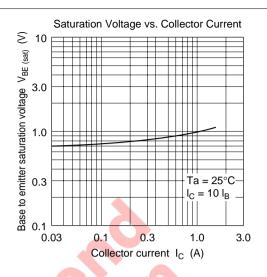
Notes: 1. Pulse test

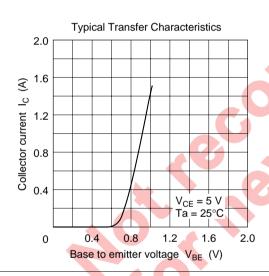
2. The 2SD2122(L)/(S) and 2SD2123(L)/(S) are grouped by  $h_{\mbox{\tiny FE1}}$  as follows.

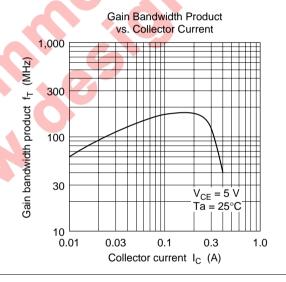
В	С
60 to 120	100 to 200

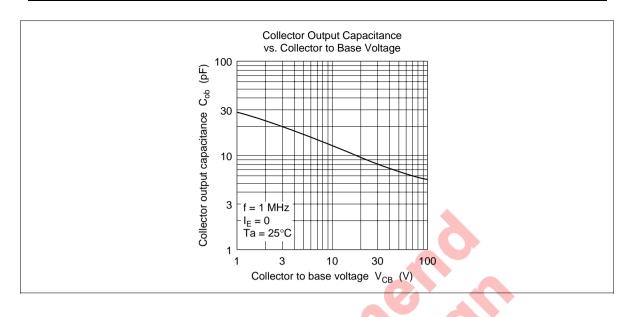












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