2SB1409(L)/(S)

Silicon PNP Epitaxial

HITACHI

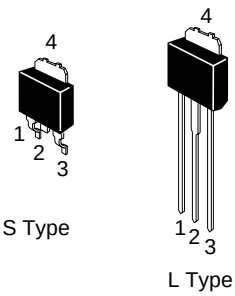
ADE-208-877 (Z)
1st. Edition
Sep. 2000

Application

Low frequency power amplifier complementary Pair with 2SD2123(L)/(S)

Outline

DPAK



1. Base
2. Collector
3. Emitter
4. Collector

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–180	V
Collector to emitter voltage	V_{CEO}	–160	V
Emitter to base voltage	V_{EBO}	–5	V
Collector current	I_C	–1.5	A
Collector peak current	$I_{C(peak)}$	–3	A
Collector power dissipation	P_C*[1]	18	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

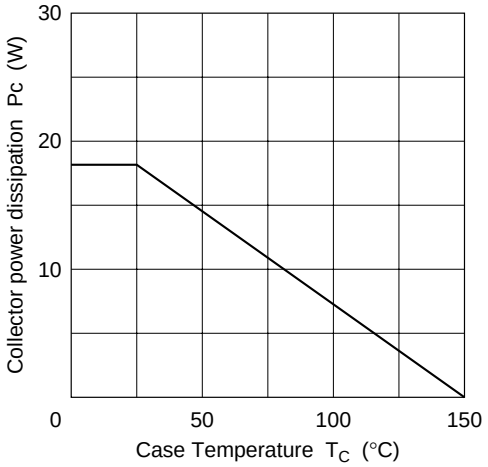
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–180	—	—	V	I_C = –1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–160	—	—	V	I_C = –10 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	V	I_E = –1 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–10	µA	V_{CB} = –160 V, I_E = 0
DC current transfer ratio	h_{FE1}*[1]	60	—	200		V_{CE} = –5 V, I_C = –150 mA*[2]
	h_{FE2}	30	—	—		V_{CE} = –5 V, I_C = –500 mA*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–1	V	I_C = –500 mA, I_B = –50 mA
Base to emitter voltage	V_{BE}	—	—	–1.5	V	V_{CE} = –5 V, I_C = –150 mA
Gain bandwidth product	f_T	—	240	—	MHz	V_{CE} = –5 V, I_C = –150 mA
Collector output capacitance	Cob	—	25	—	pF	V_{CB} = –10 A, I_E = 0, f = 1 MHz

Notes: 1. The 2SB1409(L)/(S) is grouped by h_{FE1} as follows.

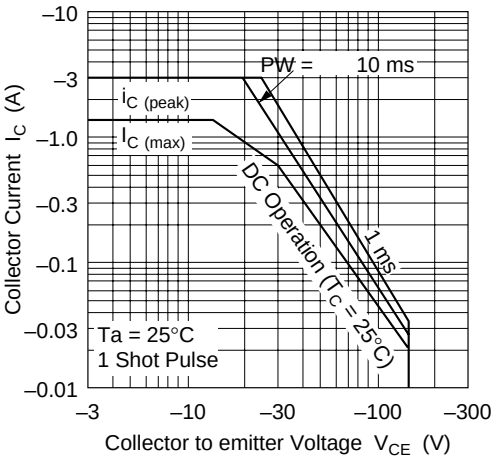
B	C
60 to 120	100 to 200

2. Pulse test.

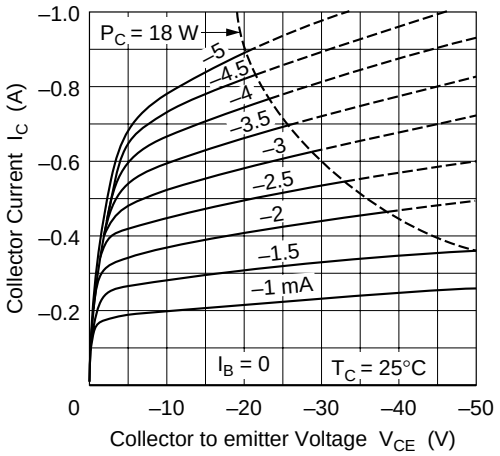
Maximum Collector Dissipation Curve



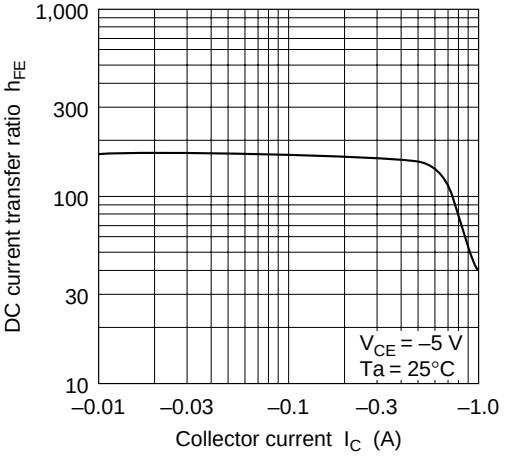
Area of Safe Operation



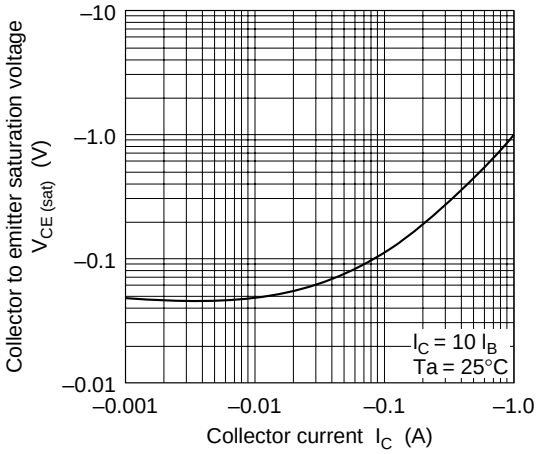
Typical Output Characteristics



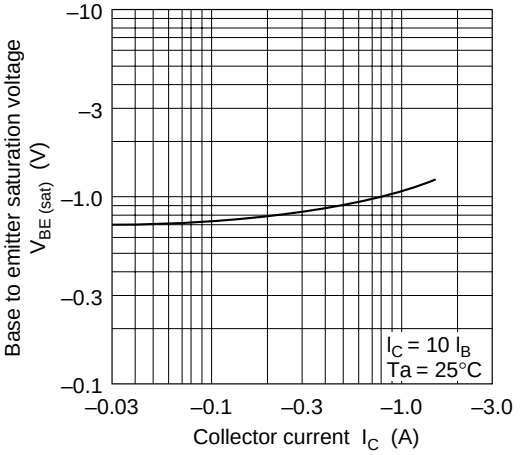
DC Current Transfer Ratio vs. Collector Current



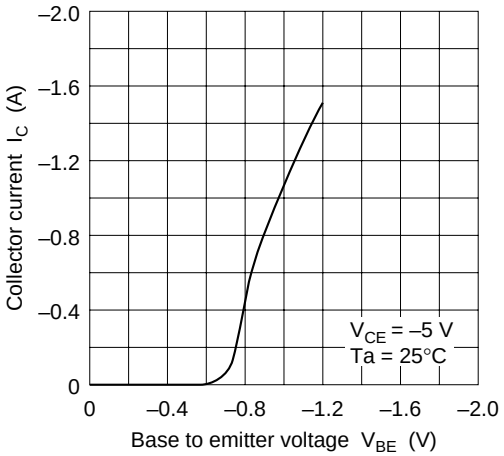
Saturation Voltage vs. Collector Current



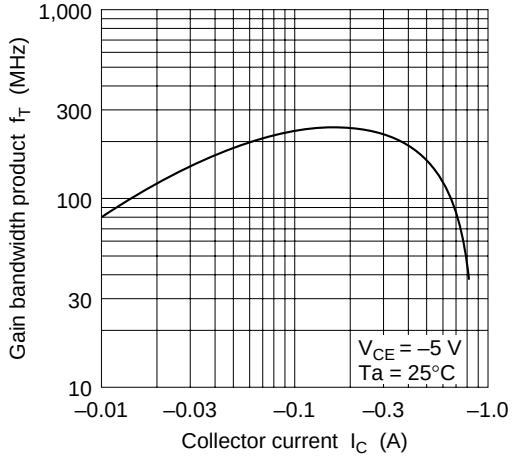
Saturation Voltage vs. Collector Current



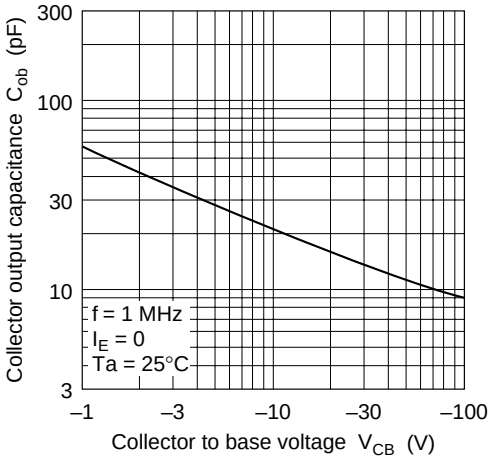
Typical Transfer Characteristics



Gain Bandwidth Product vs. Collector Current

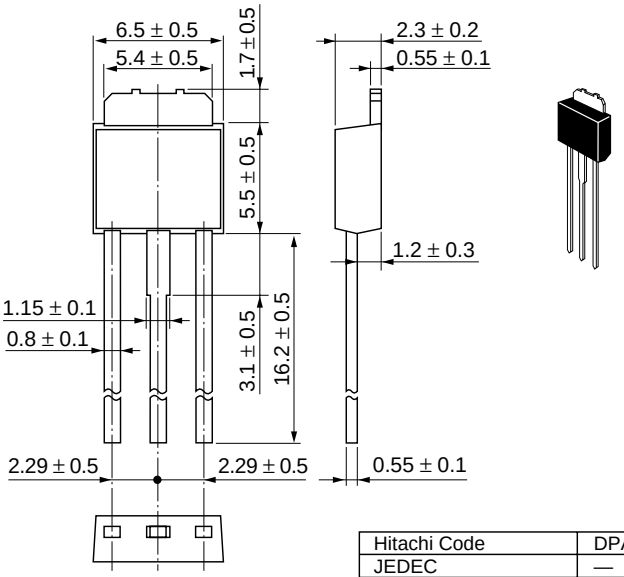


Collector Output Capacitance vs.
Collector to Base Voltage



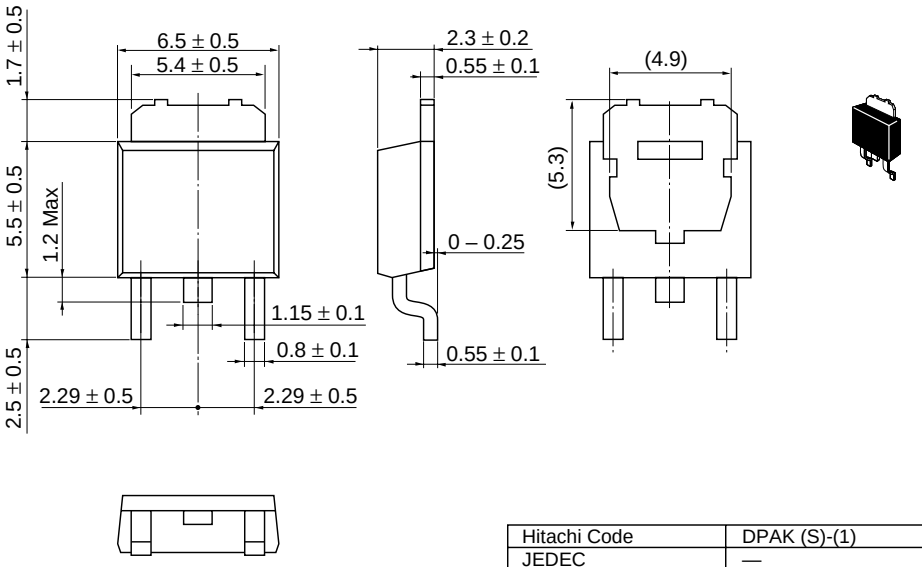
Package Dimensions

Unit: mm



Hitachi Code	DPAK (L)-(1)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.42 g

Unit: mm



Hitachi Code	DPAK (S)-(1)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.28 g

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