2SB1407(L)/(S)

Silicon PNP Epitaxial

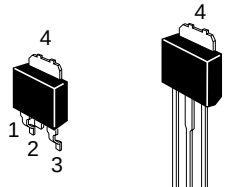
HITACHI

Application

Low frequency power amplifier complementary Pair with 2SD2121(L)/(S)

Outline

DPAK



S Type

L Type

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}	–35	V
Collector to emitter voltage	V_{CEO}	–35	V
Emitter to base voltage	V_{EBO}	–5	V
Collector current	I_C	–2.5	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)

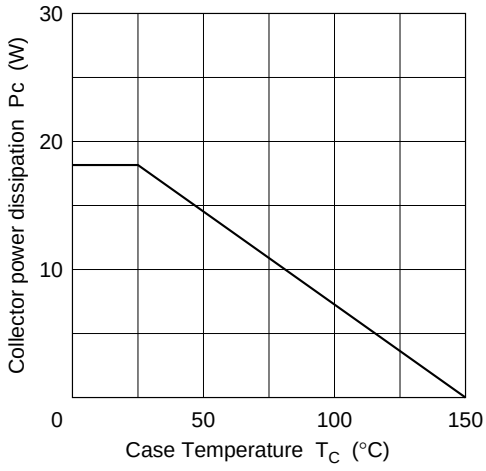
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–35	—	—	V	I_C = –1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–35	—	—	V	I_C = –10 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	V	I_E = –1 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–20	µA	V_{CB} = –35 V, I_E = 0
DC current transfer ratio	h_{FE1}*[1]	60	—	320		V_{CE} = –2 V, I_C = –0.5 A*[2]
	h_{FE2}	20	—	—		V_{CE} = –2 V, I_C = –1.5 A*[2]
Base to emitter voltage	V_{BE}	—	—	–1.5	V	V_{CE} = –2 V, I_C = –1.5 A*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–1.0	V	I_C = –2 A, I_B = –0.2 A*[2]

Notes: 1. The 2SB1407(L)/(S) is grouped by h_{FE1} as follows.

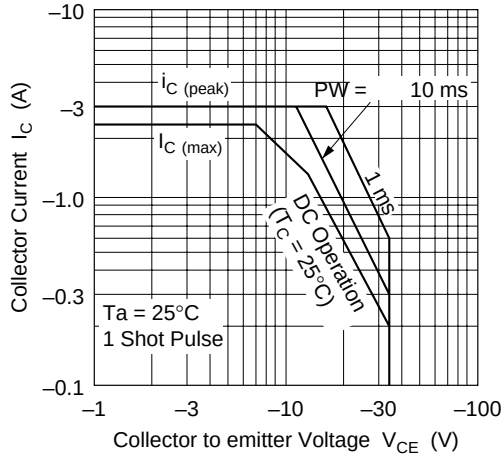
B	C	D
60 to 120	100 to 200	160 to 320

2. Pulse test.

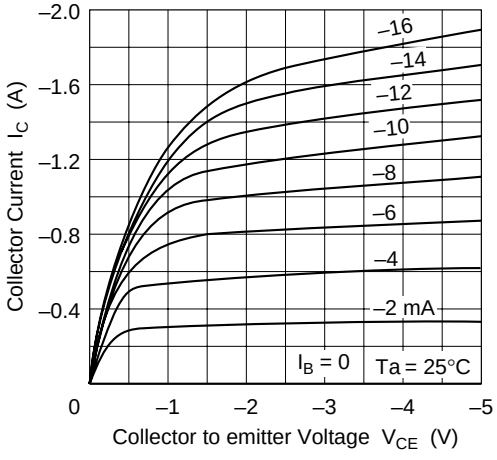
Maximum Collector Dissipation Curve



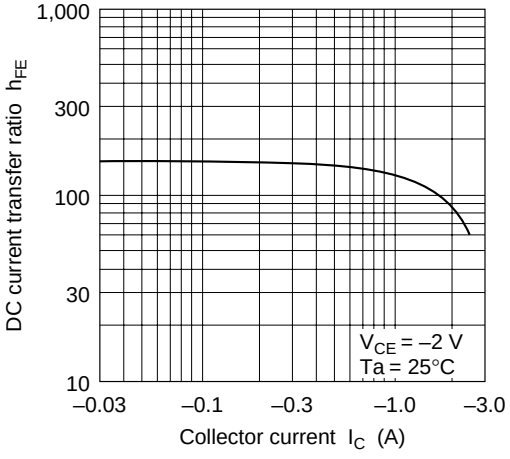
Area of Safe Operation

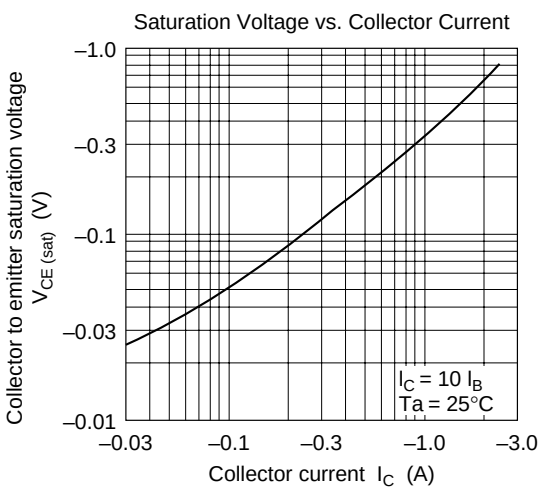


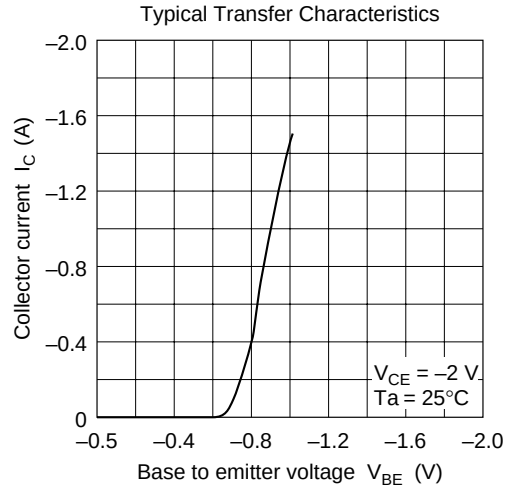
Typical Output Characteristics



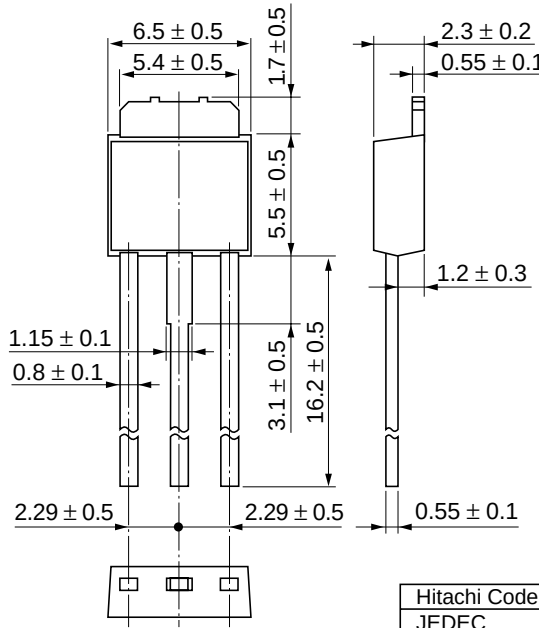
DC Current Transfer Ratio vs. Collector Current

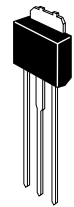



Saturation Voltage vs. Collector Current
Collector to emitter saturation voltage
$V_{CE (sat)}$ (V)
–1.0
–0.3
–0.1
–0.03
–0.01
–0.03
–0.1
–0.3
–1.0
–3.0
Collector current I_C (A)
I_C = 10 I_B
Ta = 25°C


Typical Transfer Characteristics
Collector current I_C (A)
–2.0
–1.6
–1.2
–0.8
–0.4
0
–0.5
–0.4
–0.8
–1.2
–1.6
–2.0
Base to emitter voltage V_{BE} (V)
V_{CE} = –2 V
Ta = 25°C

Unit: mm





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

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