2SB1048

Silicon PNP Epitaxial, Darlington

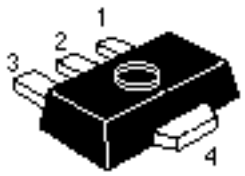
HITACHI

Application

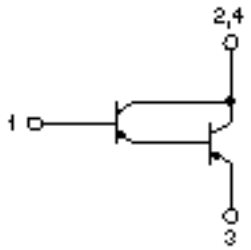
High gain amplifier

Outline

UPAK



1. Base
2. Collector
3. Emitter
4. Collector (Flange)



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–60	V
Collector to emitter voltage	V_{CEO}	–60	V
Emitter to base voltage	V_{EBO}	–7	V
Collector current	I_C	–1	A
Collector peak current	$i_{C(peak)}$ *[1]	–2	A
Collector power dissipation	P_C *[2]	1	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

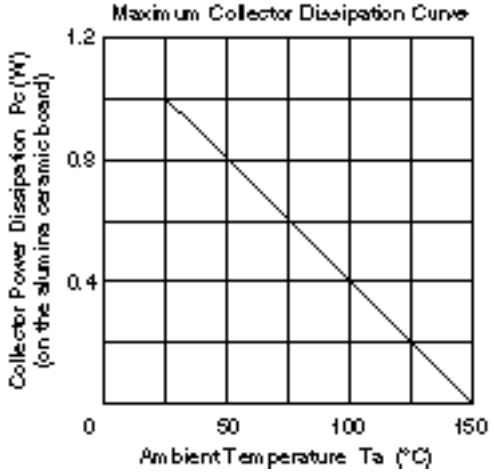
Notes: 1. PW ≤ 10 ms, Duty cycle ≤ 20%
2. Value on the alumina ceramic board (12.5 × 30 × 0.7 mm)

Electrical Characteristics (Ta = 25°C)

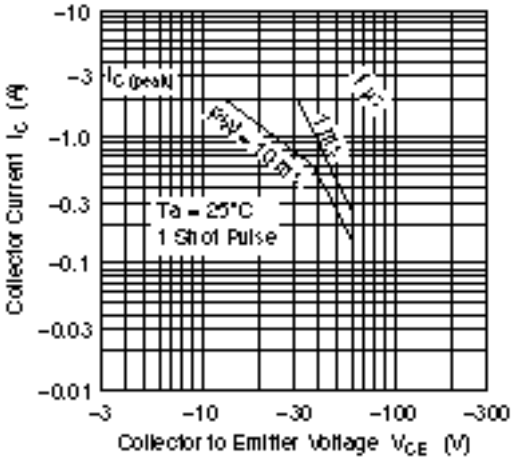
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–60	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–60	—	—	V	I_C = –1 mA, R_{BE} = ∞
Collector cutoff current	I_{CBO}	—	—	–10	µA	V_{CB} = –60 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	–10	µA	V_{EB} = –7 V, I_E = 0
DC current transfer ratio	h_{FE}	2000	—	100000		V_{CE} = –3 V, I_C = –500 mA*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–2.0	V	I_C = –500 mA, I_B = –1 mA*[1]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	–2.0	V	I_C = –500 mA, I_B = –1 mA*[1]

Notes: 1. Pulse test
2. Marking is “BT”

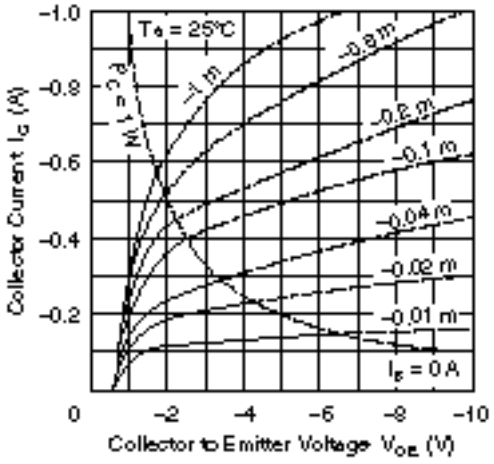
Maximum Collector Dissipation Curve



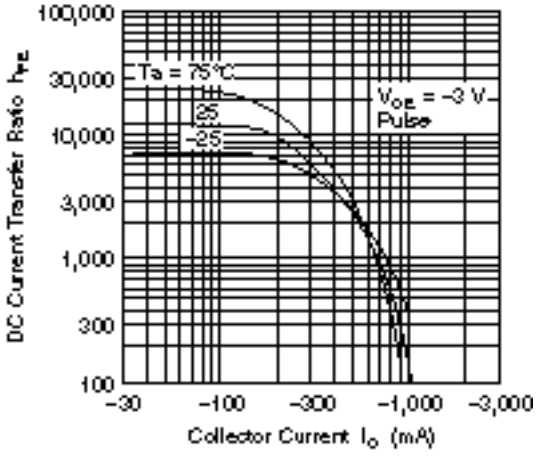
Area of Safe Operation

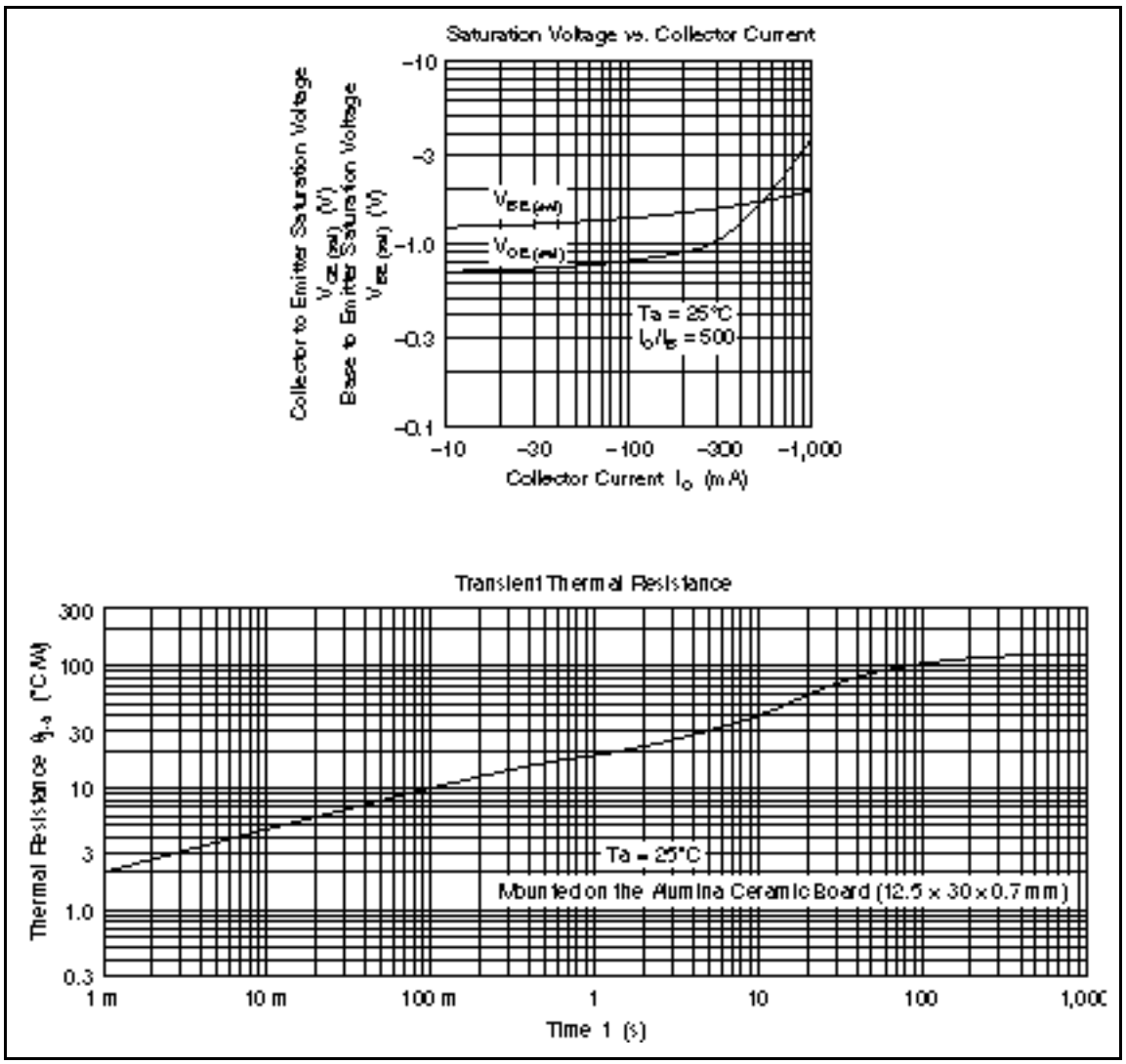


Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current




Saturation Voltage vs. Collector Current
Collector to Emitter Saturation Voltage
$V_{CE(sat)}$ (V)
Base to Emitter Saturation Voltage
$V_{BE(sat)}$ (V)
−10
−3
−1.0
−0.3
−0.1
$V_{BE(sat)}$
$V_{CE(sat)}$
Ta = 25°C
I_C/I_B = 500
−10
−30
−100
−300
−1,000
Collector Current I_C (mA)
Transient Thermal Resistance
Thermal Resistance θ_{j-a} (°C/W)
300
100
30
10
3
1.0
0.3
Ta = 25°C
Mounted on the Alumina Ceramic Board (12.5 × 30 × 0.7 mm)
1 m
10 m
100 m
1
10
100
1,000
Time t (s)

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