2SD1418

Silicon NPN Epitaxial

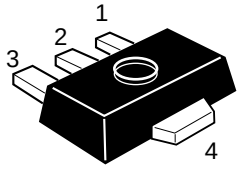
HITACHI

Application

- Low frequency power amplifier
- Complementary pair with 2SB1025

Outline

UPAK



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

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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	120	V
Collector to emitter voltage	V_{CEO}	80	V
Emitter to base voltage	V_{EBO}	5	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 x 20 x 0.7 mm)

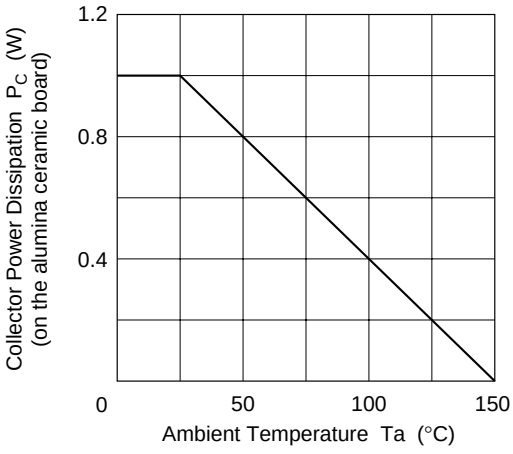
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	120	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	80	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	10	µA	V_{CB} = 100 V, I_E = 0
DC current transfer ratio	h_{FE1}*[1]	60	—	320		V_{EB} = 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*[2]
Base to emitter voltage	V_{BE}	—	—	1.5	V	V_{CE} = 5 V, I_C = 150 mA*[2]
Gain bandwidth product	f_T	—	140	—	MHz	V_{CE} = 5 V, I_C = 150 mA*[2]
Collector output capacitance	Cob	—	12	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz

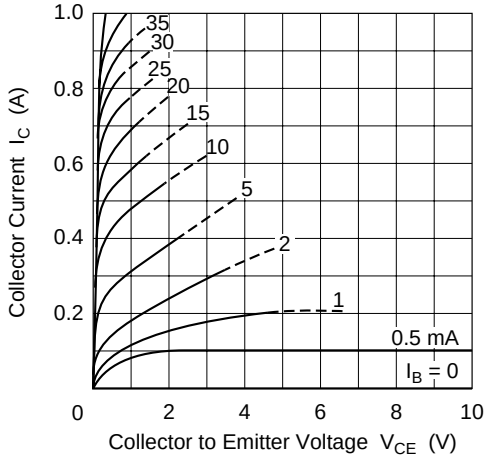
Notes: 1. The 2SD1418 is grouped by h_{FE1} as follows.
2. Pulse test

Mark	DA	DB	DC
h_{FE1}	60 to 120	100 to 200	160 to 320

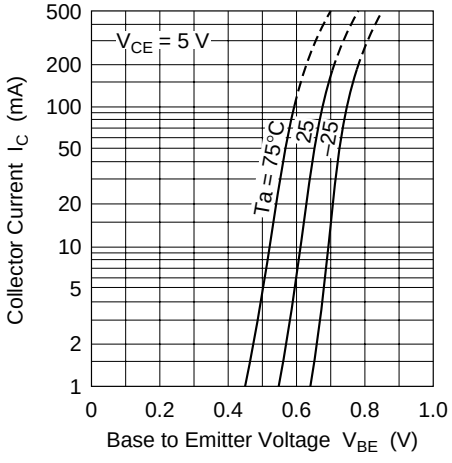
Maximum Collector Dissipation Curve



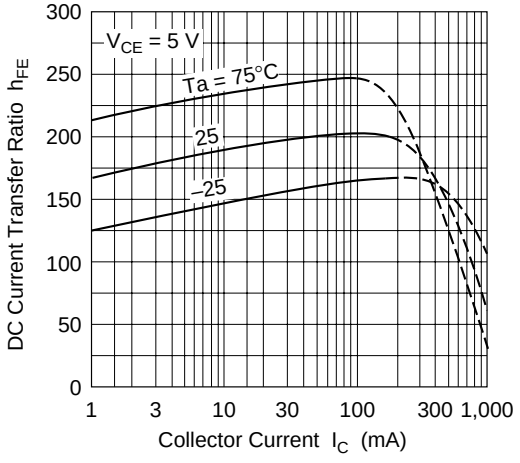
Typical Output Characteristics



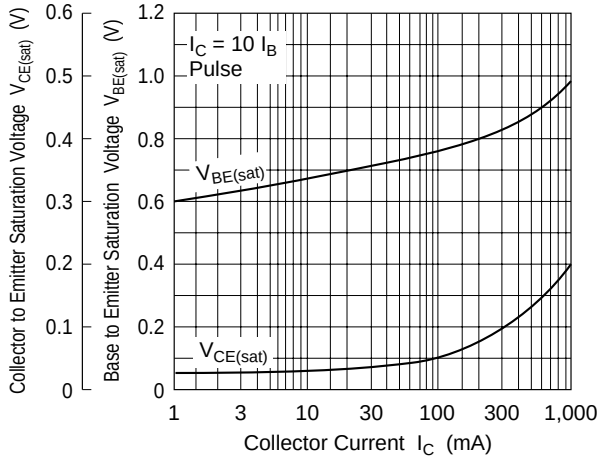
Typical Transfer Characteristics



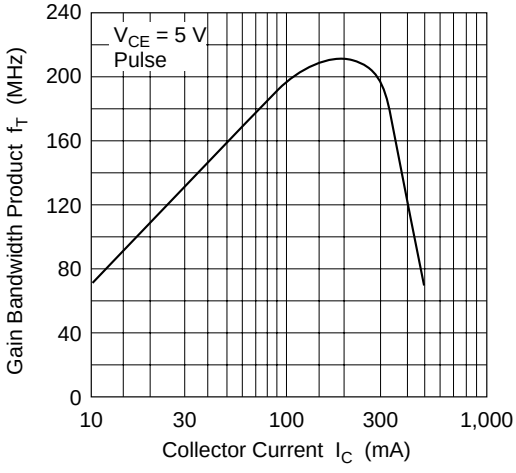
DC Current Transfer Ratio vs. Collector Current



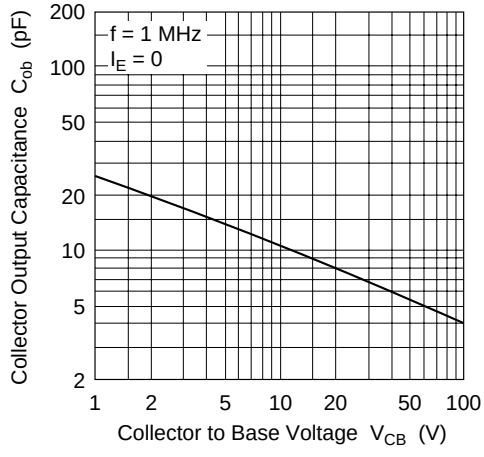
Saturation Voltage vs. Collector Current



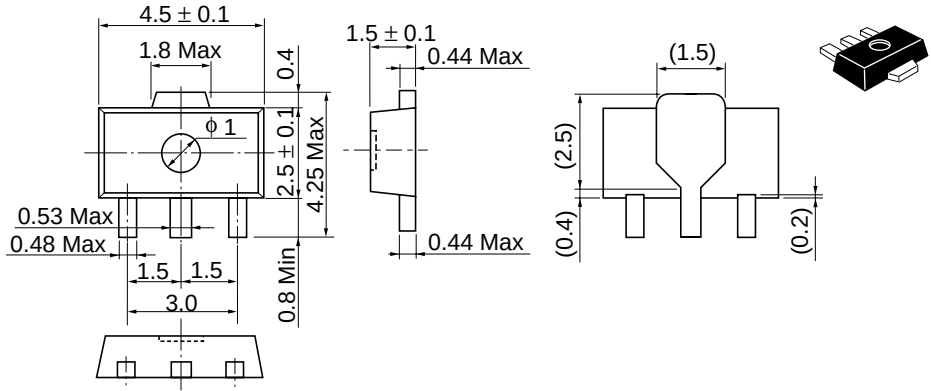
Gain Bandwidth Product vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage



Unit: mm



Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.050 g

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