HITACHI

4AC13

Silicon NPN Epitaxial
Low Frequency Power Amplifier

Absolute Maximum Ratings

(for each device, Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to emitter voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	5	A
Collector peak current	$i_{C(peak)}$	10	A
Diode current	I_D	5	A

Item	Symbol	Rating	Unit
Collector power dissipation	P_C*1	4	W
	P_C*1 (T_C = 25°C)	28	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. 4 devices operation.

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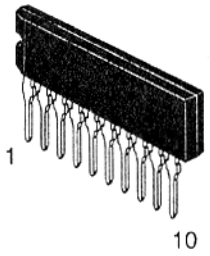
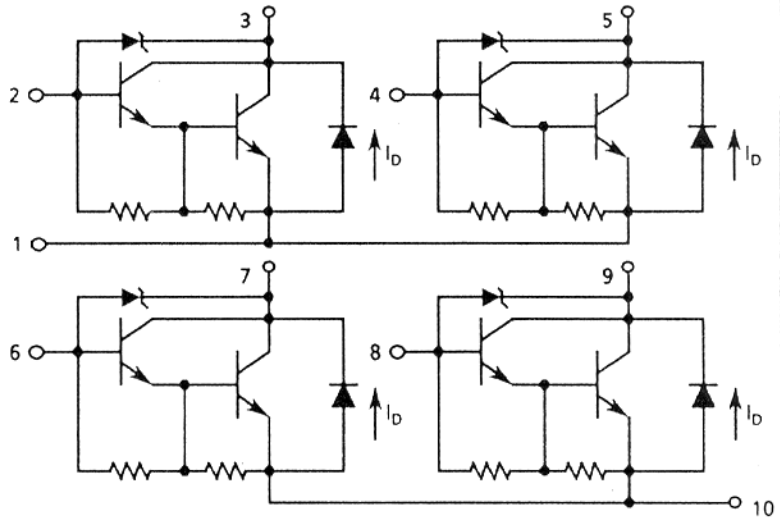
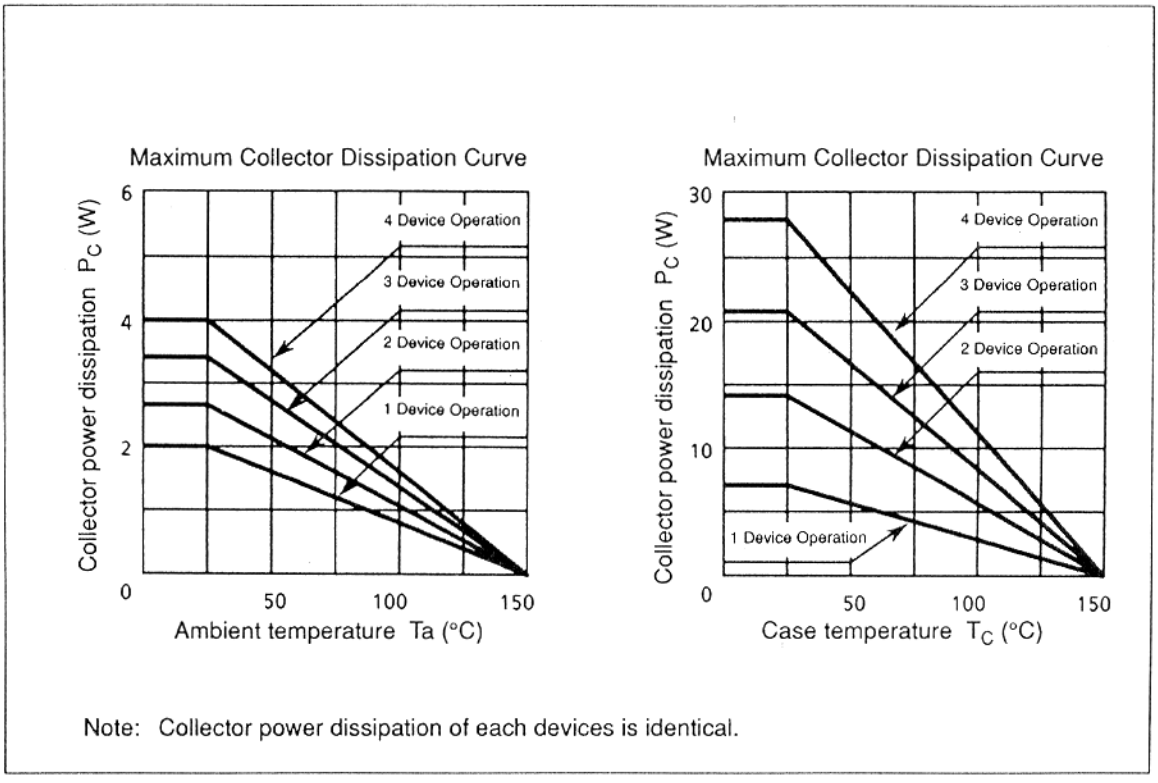




Electrical Characteristics (for each device, Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test condition
Collector to emitter breakdown voltage	$V_{(BR)CBO}$	50	—	—	V	I_C = 1 mA, I_E = 0
Collector to emitter sustain voltage	$V_{CEO(SUS)}$	50	—	70	V	I_C = 2 A, L = 10 mH, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	10	μA	V_{CB} = 40 V, I_E = 0
	I_{CEO}	—	—	10		V_{CE} = 40 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	2000	—	20000		V_{CE} = 2 V, I_C = 3 A*1
	h_{FE}	1000	—	—		V_{CE} = 2 V, I_C = 5 A*1
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	I_C = 3 A, I_B = 3 mA*1
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	2.0	V	I_C = 3 A, I_B = 3 mA*1
C to E diode forward current	V_D	—	—	3.5	V	I_D = 5 A

Note: 1. Pulse Test.



Note: Collector power dissipation of each devices is identical.

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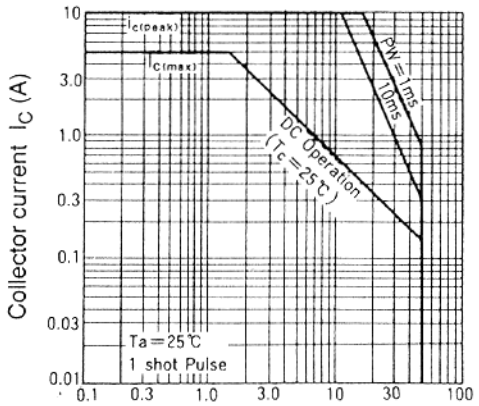
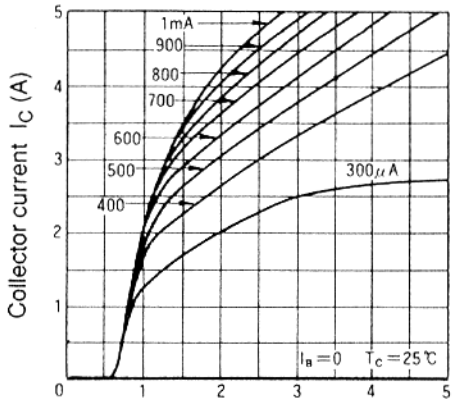
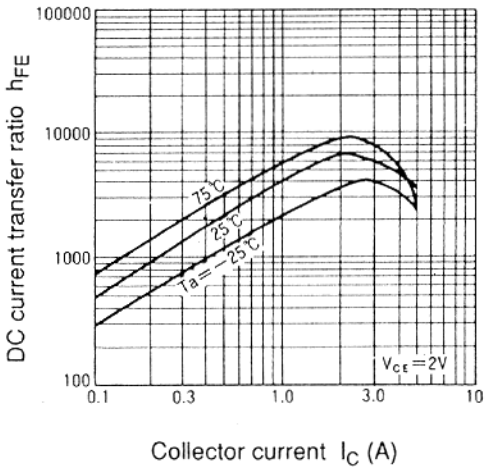
Area of Safe Operation



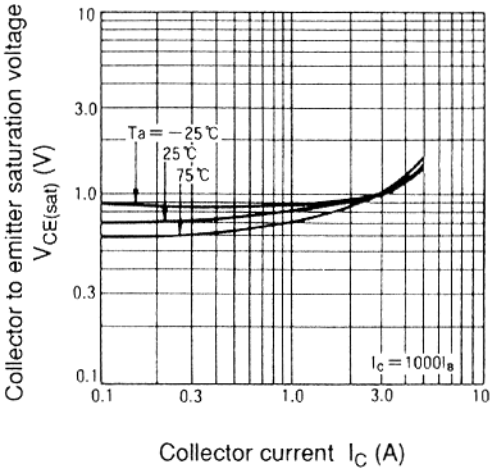
Typical Output Characteristics



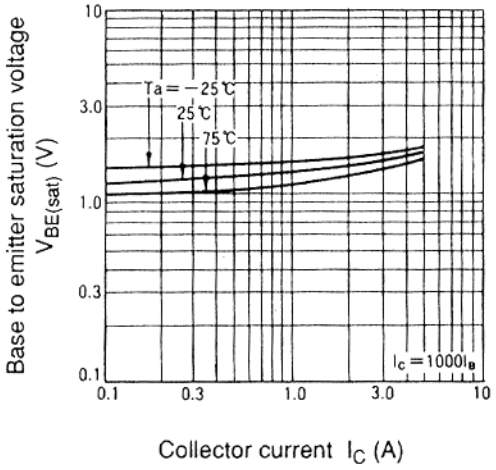
DC Current Transfer Ratio vs. Collector Current



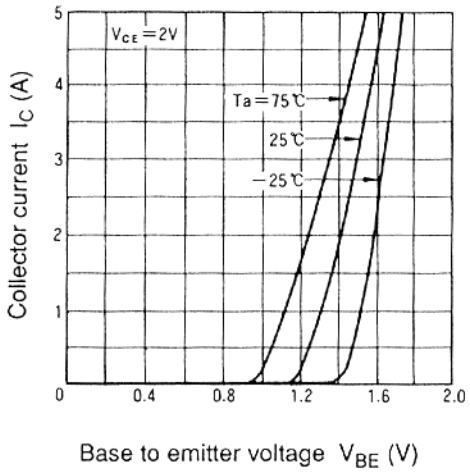
Collector to Emitter Saturation Voltage vs. Collector Current



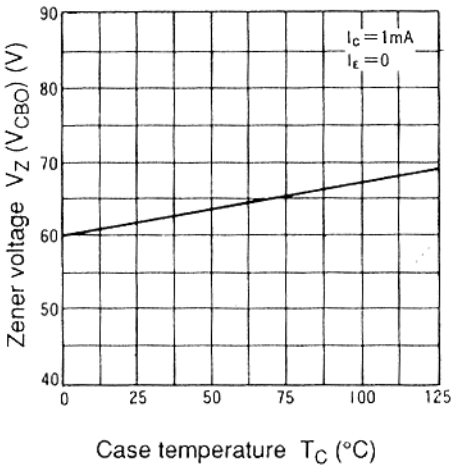
Base to Emitter Saturation Voltage vs. Collector Current



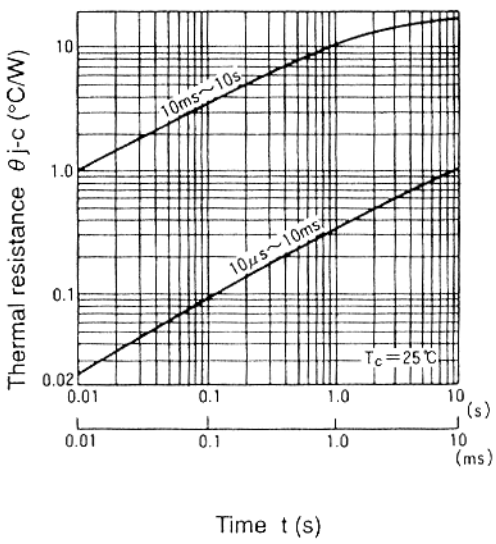
Typical Transfer Characteristics



Zener Voltage vs. Case Temperature



Transient Thermal Resistance



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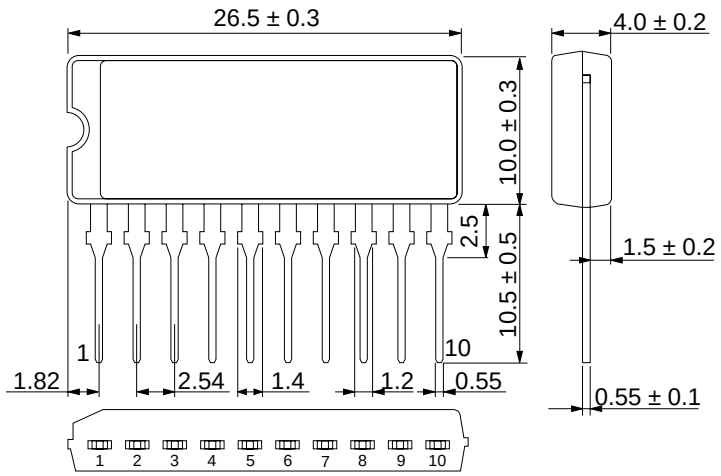
Unit: mm



Pin No.	1	2	3	4	5	6	7	8	9	10
Electrode	E	B	C	B	C	B	C	B	C	E

Note: B: Base
C: Collector
E: Emitter