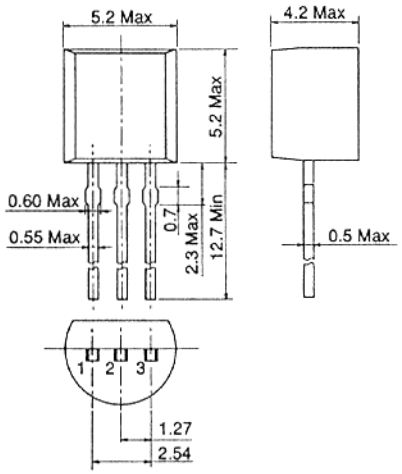
HITACHI

2SA836

SILICON PNP EPITAXIAL

LOW FREQUENCY LOW NOISE AMPLIFIER



1. Emitter
2. Collector
3. Base

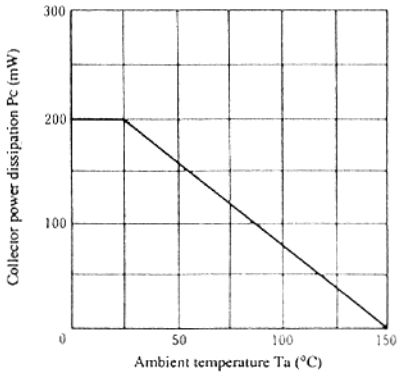
(Dimensions in mm)

(JEDEC TO-92)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SA836	Unit
Collector to base voltage	V_{CBO}	–55	V
Collector to emitter voltage	V_{CEO}	–55	V
Emitter to base voltage	V_{EBO}	–5	V
Collector current	I_C	–100	mA
Emitter current	I_E	100	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

MAXIMUM COLLECTOR DISSIPATION CURVE



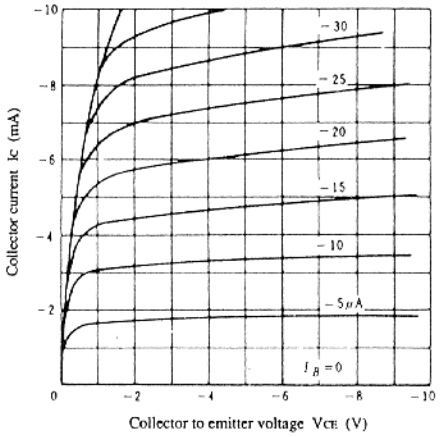
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition		min.	typ.	max.	Unit
Collector to base breakdown voltage	$V_{(BR)CBO}$	I_C = –10μA, I_E = 0		–55	—	—	V
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = –1mA, R_{BE} = ∞		–55	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = –10μA, I_C = 0		–5	—	—	V
Collector cutoff current	I_{CBO}	V_{CB} = –18V, I_E = 0		—	—	–100	nA
Emitter cutoff current	I_{EBO}	V_{EB} = –2V, I_C = 0		—	—	–50	nA
DC current transfer ratio	h_{FE}*	V_{CE} = –12V, I_C = –2mA		160	—	500	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = –10mA, I_B = –1mA		—	–0.1	–0.5	V
Base to emitter voltage	V_{BE}	V_{CE} = –12V, I_C = –2mA		—	–0.66	–0.75	V
Gain bandwidth product	fr	V_{CE} = –12V, I_E = 2mA		—	200	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = –10V, I_E = 0, f = 1MHz		—	2.0	—	pF
Noise figure	NF	V_{CE} = –6V, I_C = –0.1mA,	f = 10Hz	—	1	5	dB
		R_g = 10kΩ	f = 1kHz	—	0.5	1	dB

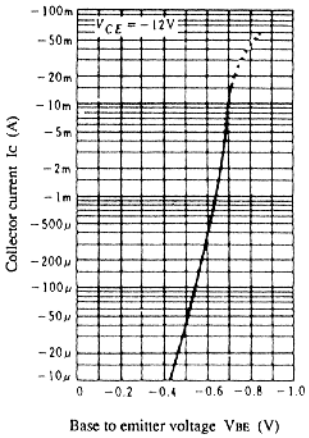
* The 2SA836 is grouped by h_{FE} as follows.

C	D
160 to 320	250 to 500

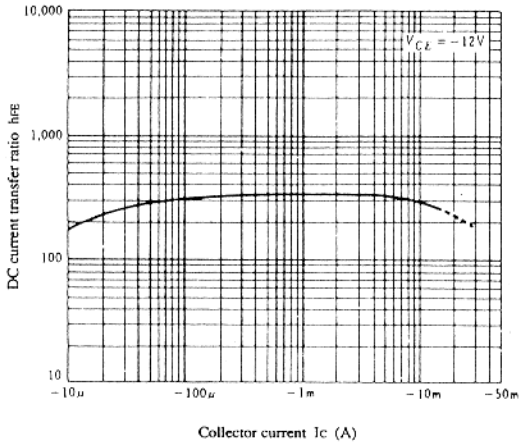
TYPICAL OUTPUT CHARACTERISTICS



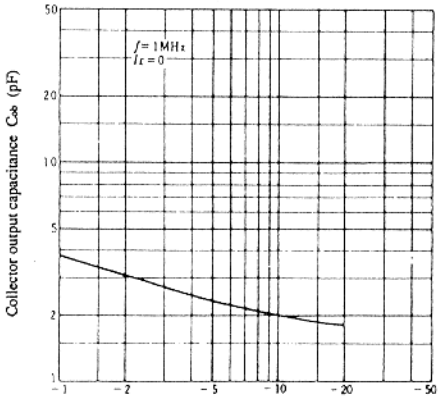
TYPICAL TRANSFER CHARACTERISTICS



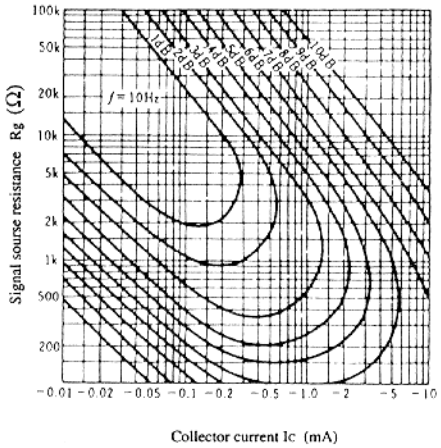
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



CONTOURS OF CONSTANT NOISE FIGURE (1)



CONTOURS OF CONSTANT NOISE FIGURE (2)