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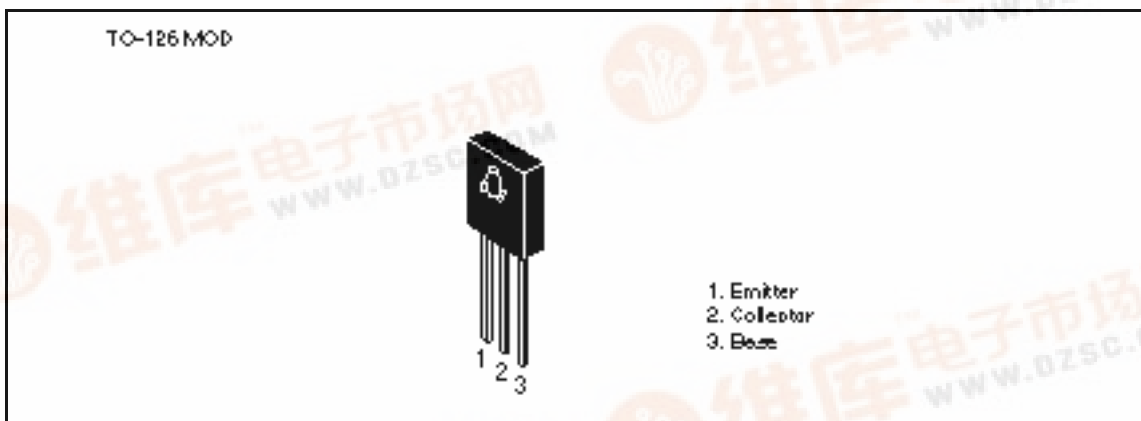
Silicon NPN Epitaxial

HITACHI

Application

High frequency amplifier

Outline



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	3.5	V
Collector current	I_C	0.3	A
Collector peak current	$I_{C(peak)}$	0.5	A
Collector power dissipation	P_C	0.8	W
	P_C^{*1}	5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

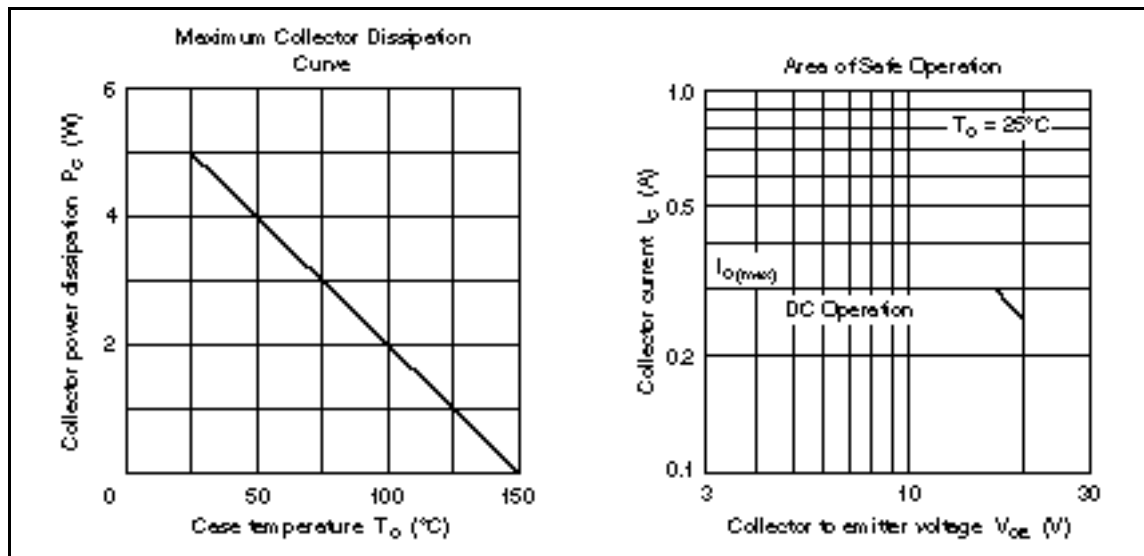
Note: 1. Value at $T_C = 25^\circ\text{C}$

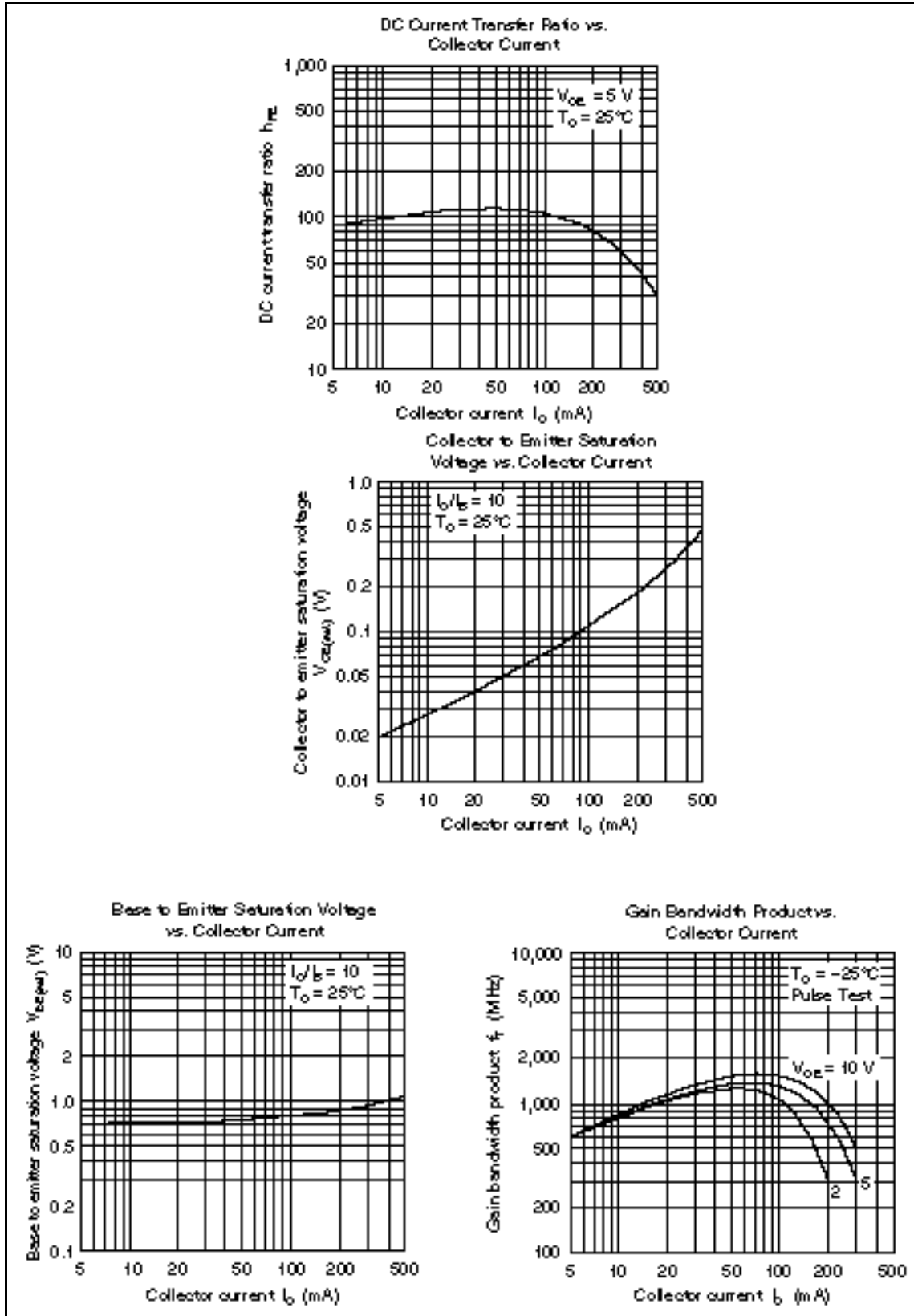
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Electrical Characteristics (Ta = 25°C)

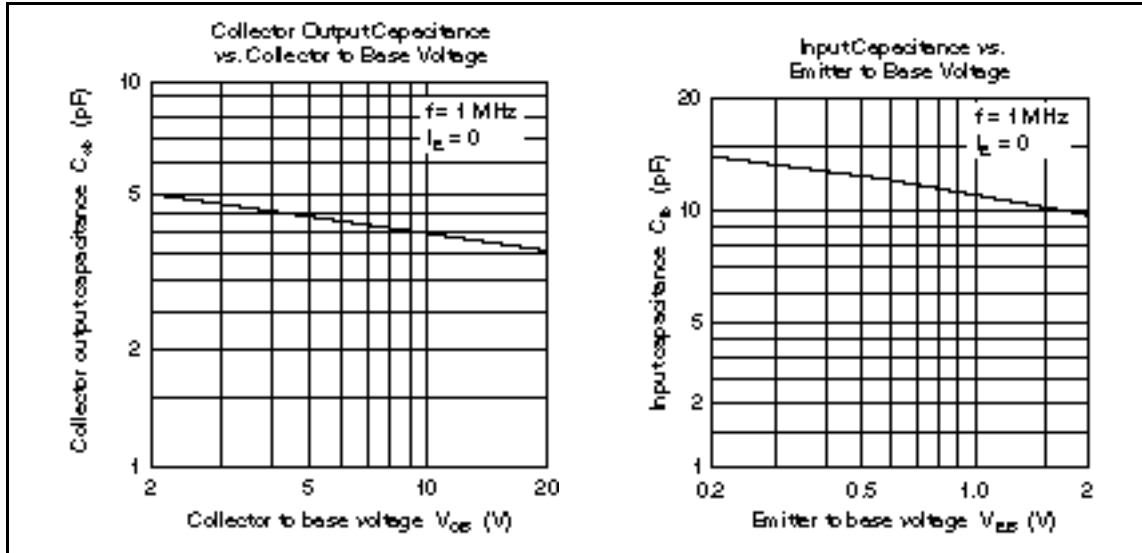
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 10 \text{ mA}$, $R_{BE} =$
Collector cutoff current	I_{CBO}	—	—	1	mA	$V_{CB} = 25 \text{ V}$, $I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	1	mA	$V_{EB} = 3 \text{ V}$, $I_C = 0$
DC current transfer ratio	h_{FE}	40	—	200		$V_{CE} = 5 \text{ V}$, $I_C = 50 \text{ mA}^{*1}$
Base to emitter voltage	V_{BE}	—	—	1.2	V	$V_{CE} = 5 \text{ V}$, $I_C = 300 \text{ mA}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	2.0	V	$I_C = 300 \text{ mA}$, $I_B = 60 \text{ mA}^{*1}$
Gain bandwidth product	f_T	—	1.2	—	GHz	$V_{CE} = 5 \text{ V}$, $I_C = 100 \text{ mA}^{*1}$
Collector output capacitance	C_{ob}	—	5	—	pF	$V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$
Input capacitance	C_{ib}	—	10	—	pF	$V_{EB} = 2 \text{ V}$, $I_C = 0$, $f = 1 \text{ MHz}$

Note: 1. Pulse test





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