2SD1970

Silicon NPN Epitaxial

HITACHI

Application

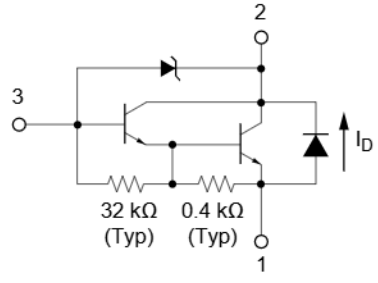
Low frequency power amplifier

Outline

TO-126 MOD



1. Emitter
2. Collector
3. Base



Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	24	V
Collector to emitter voltage	V_{CEO}	24	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	2	A
Collector peak current	$I_{C(peak)}$	4	A
C to E diode forward current	I_D	2	A
Collector power dissipation	P_C*[1]	10	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

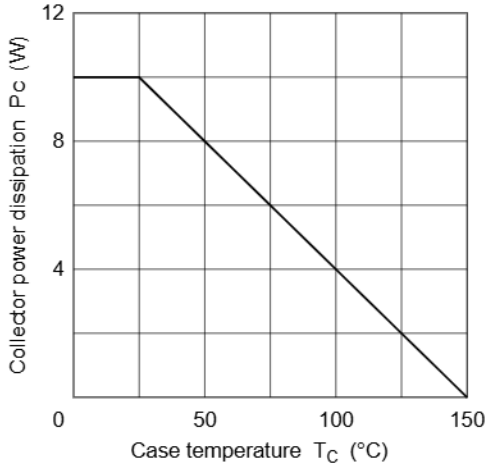
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

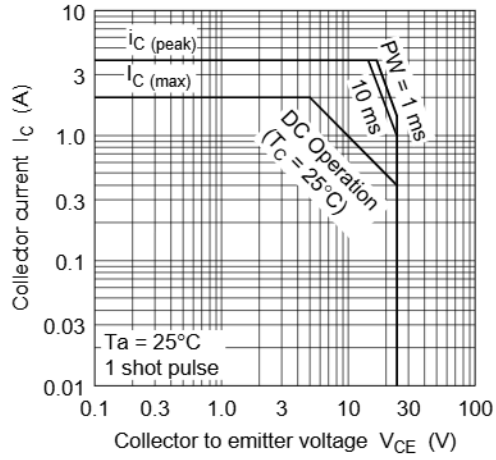
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CEO}$	24	—	32	V	I_C = 1 mA, I_E = 0
Collector to emitter sustain voltage	$V_{CEO(sus)}$	25	—	33	V	I_C = 1 A, L = 20 mH, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 5 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	1	∝A	V_{CB} = 20 V, I_E = 0
	I_{CEO}	—	—	5	∝A	V_{CE} = 20 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	7000	—	30000		V_{CE} = 2 V, I_C = 0.5 A*[1]
	h_{FE}	2000	—	—	—	V_{CE} = 2 V, I_C = 2 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	I_C = 2 A, I_B = 2 mA*[1]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	2.0	V	I_C = 2 A, I_B = 2 mA*[1]
C to E diode forward voltage	V_D	—	—	2.0	V	I_D = 2 A*[1]

Note: 1. Pulse test.

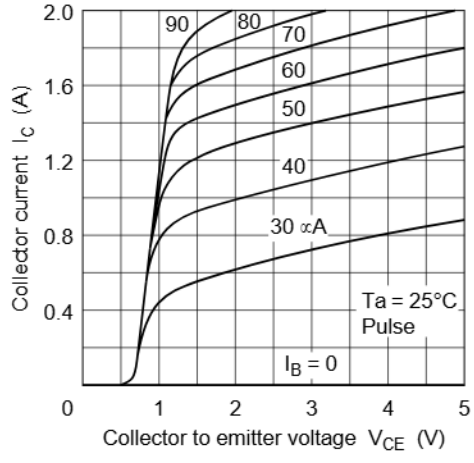
Maximum Collector Dissipation Curve



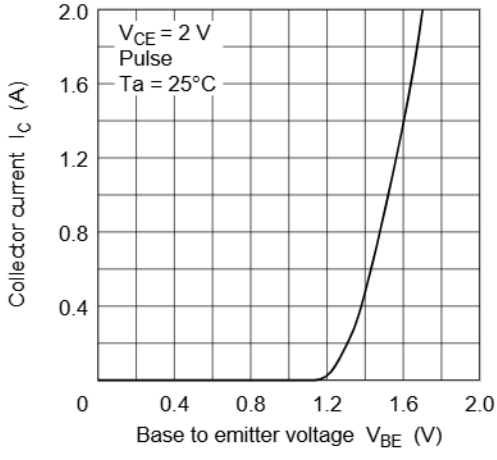
Area of Safe Operation



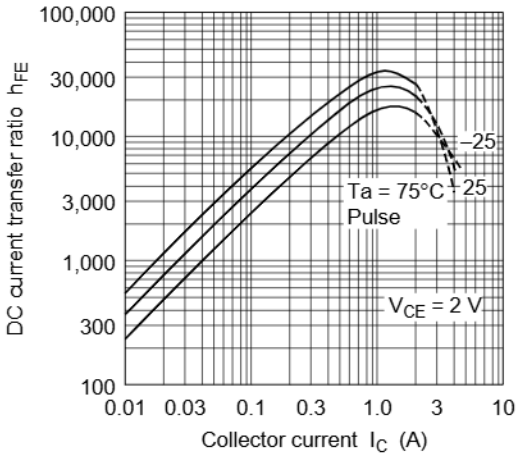
Typical Output Characteristics



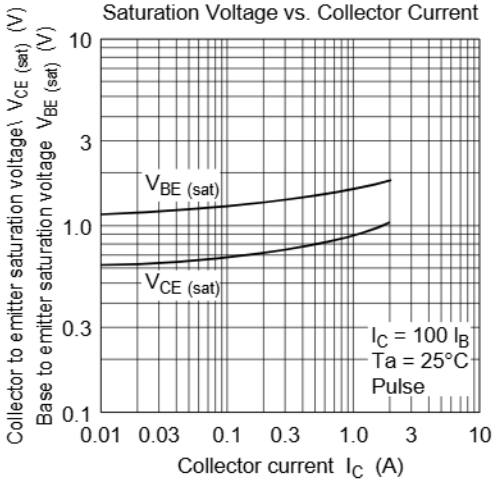
Typical Transfer Characteristics



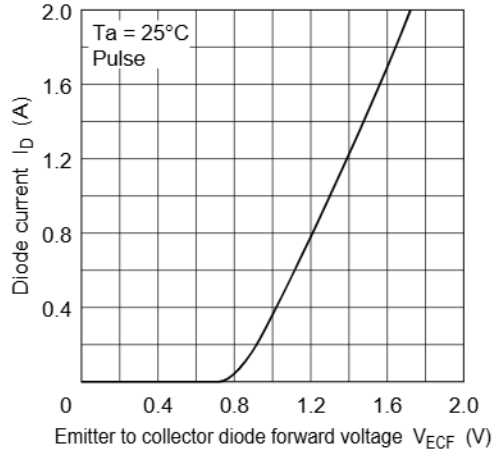
DC Current Transfer Ratio
vs. Collector Current



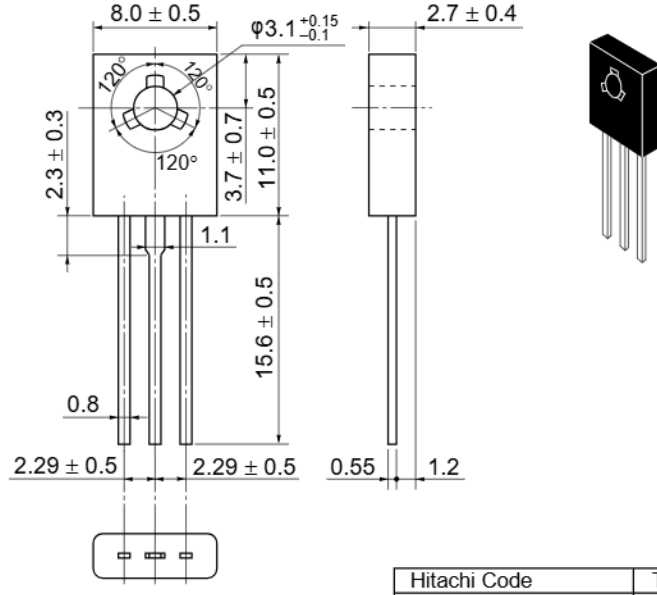
Saturation Voltage vs. Collector Current



Typical Characteristics of
Emitter to Collector Diode



Unit: mm



Hitachi Code	TO-126 Mod
JEDEC	—
EIAJ	—
Weight (reference value)	0.67 g

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