2SD2105

Silicon NPN Triple Diffused

HITACHI

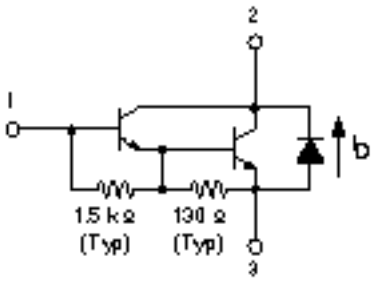
Application

Low frequency power amplifier

Outline

TO-220FM

1. Base
2. Collector
3. Emitter



Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	120	V
Collector to emitter voltage	V_{CEO}	120	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	10	A
Collector peak current	$I_{C(peak)}$	15	A
Collector power dissipation	P_C	2	W
	P_C*[1]	30	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C
C to E diode forward current	I_D*[1]	10	A

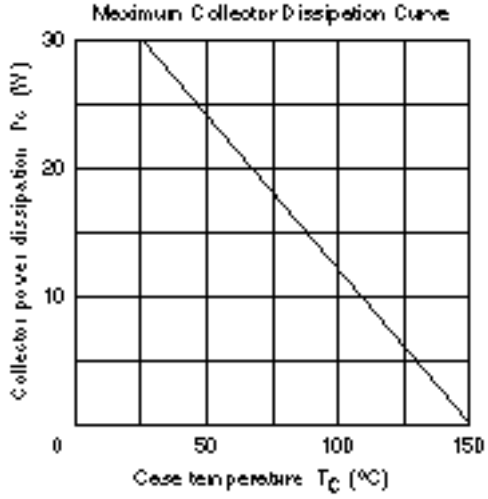
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

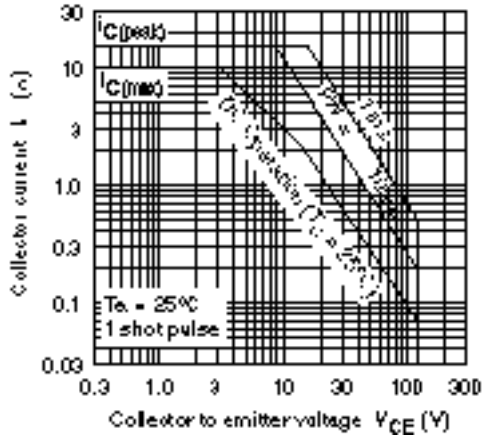
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	120	—	—	V	I_C = 0.1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	—	—	V	I_C = 25 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	10	µA	V_{CB} = 100 V, I_E = 0
	I_{CEO}	—	—	10		V_{CE} = 100 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	1000	—	20000		V_{CE} = 3 V, I_C = 5 A*[1]
Collector to emitter saturation	$V_{CE(sat)1}$	—	—	1.5	V	I_C = 5 A, I_B = 10 mA*[1]
voltage	$V_{CE(sat)2}$	—	—	3.0		I_C = 10 A, I_B = 100 mA*[1]
Base to emitter saturation	$V_{BE(sat)1}$	—	—	2.0	V	I_C = 5 A, I_B = 10 mA*[1]
voltage	$V_{BE(sat)2}$	—	—	3.5		I_C = 10 A, I_B = 100 mA*[1]
C to E diode forward current	V_D	—	—	3.0	V	I_D = 10 A*[1]

Note: 1. Pulse test.

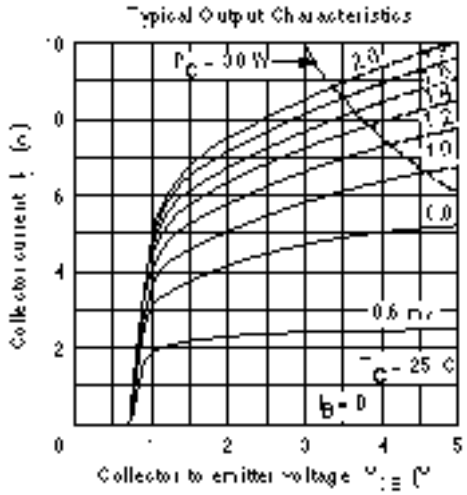
Maximum Collector Dissipation Curve



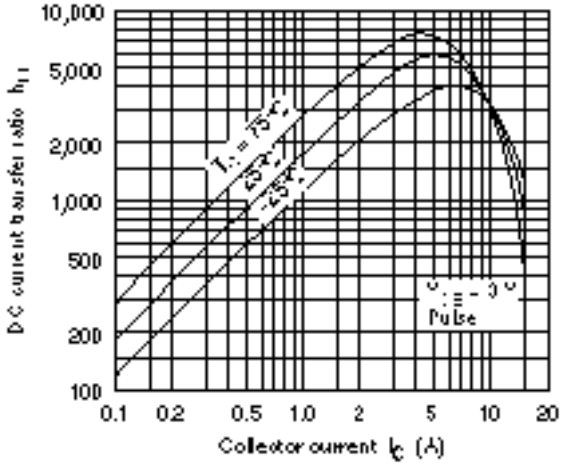
Area of Safe Operation

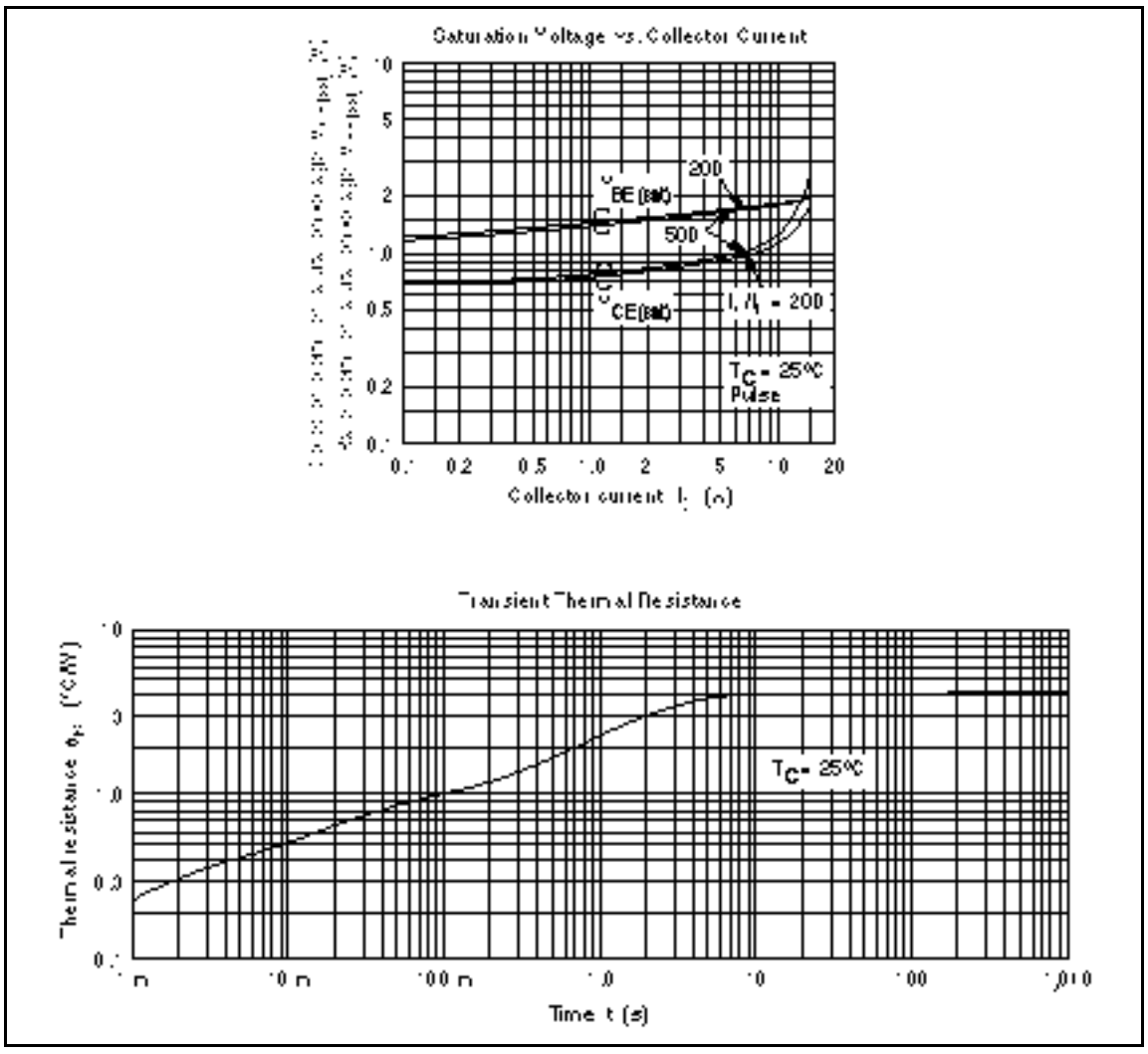


Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current




Saturation Voltage vs. Collector Current
200
500
I_B1 = 200
T_C = 25°C
Pulse
Collector current I_C (A)
Transient Thermal Resistance
T_C = 25°C
Time t (s)

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