2SD1527

Silicon NPN Triple Diffused

HITACHI

Application

High voltage power amplifier

Outline

TO-220AB

1. Base
2. Collector (Flange)
3. Emitter

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	1000	V
Collector to emitter voltage	V_{CEO}	1000	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	0.5	A
Collector power dissipation	P_C	1.8	W
	P_C*[1]	25	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at T_C = 25°C.

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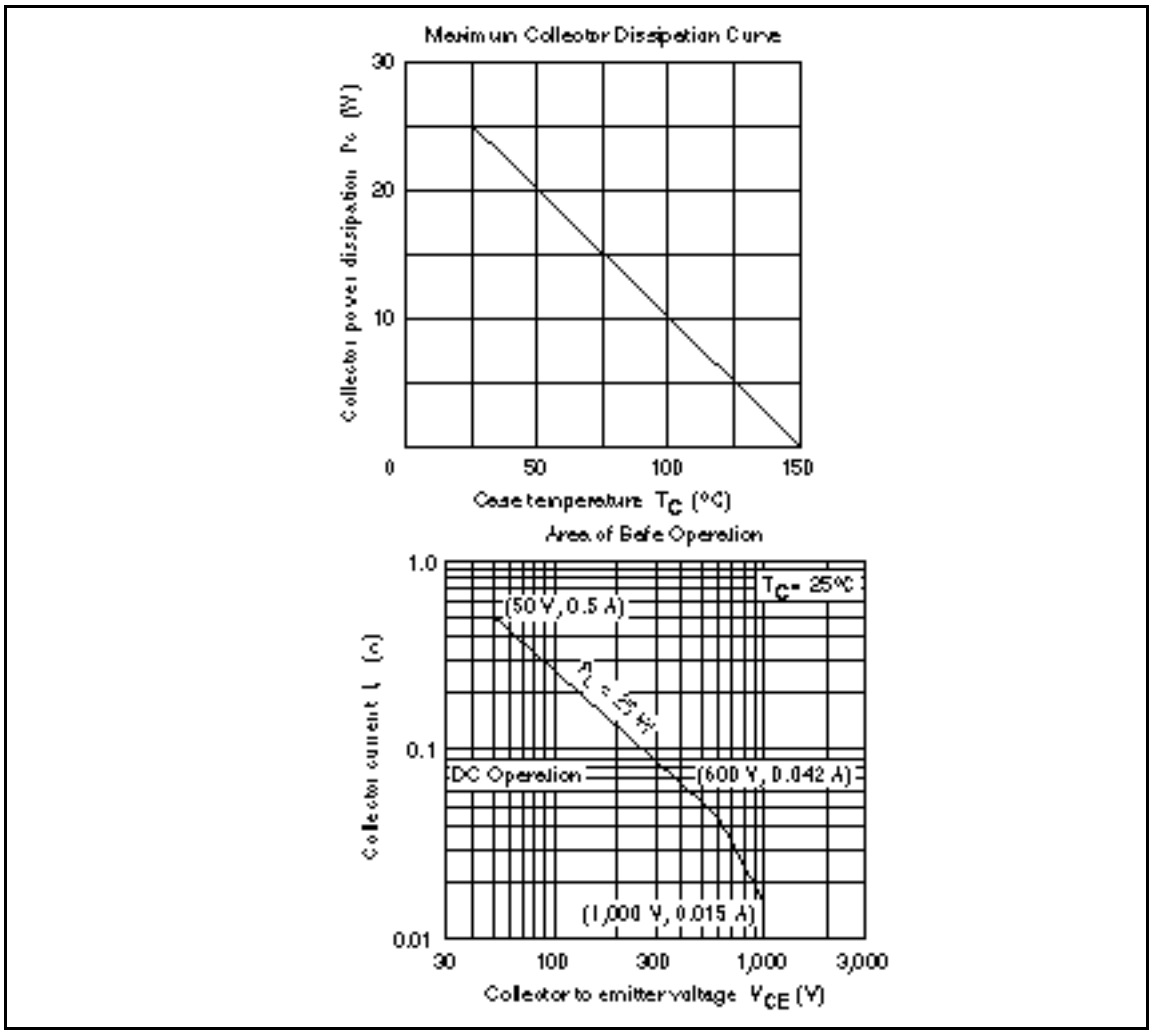
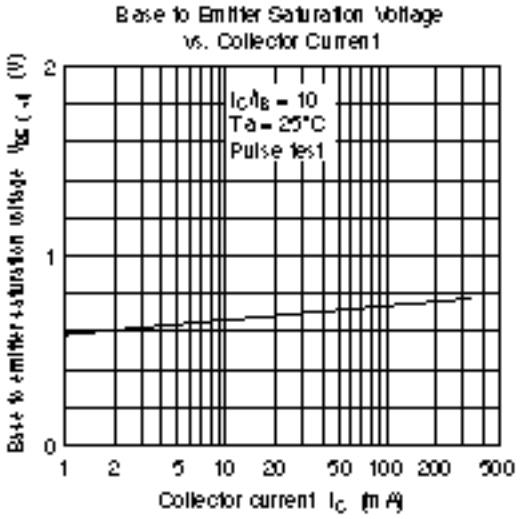
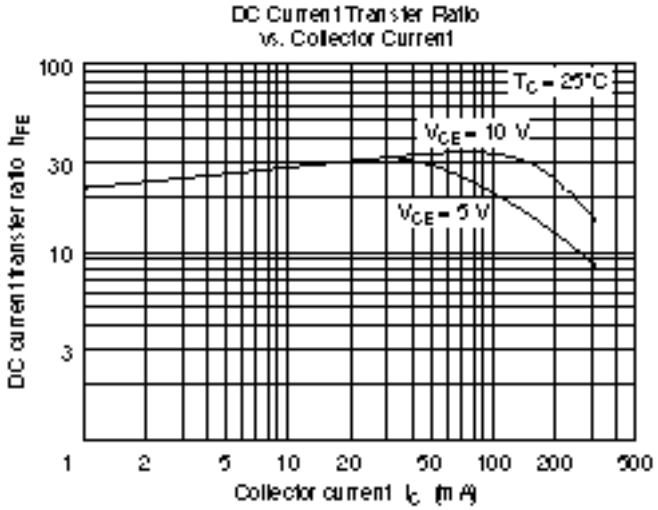
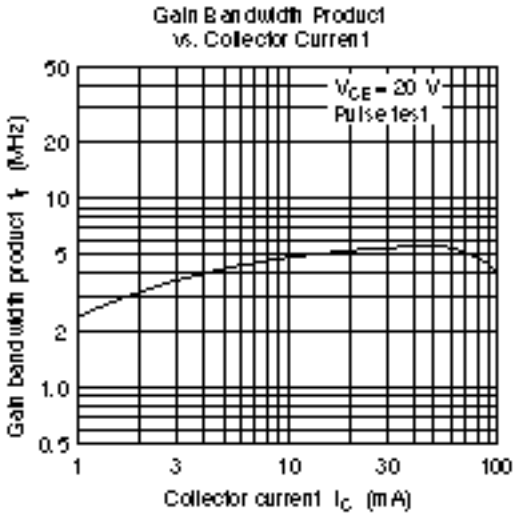
Electrical Characteristics (Ta = 25°C)

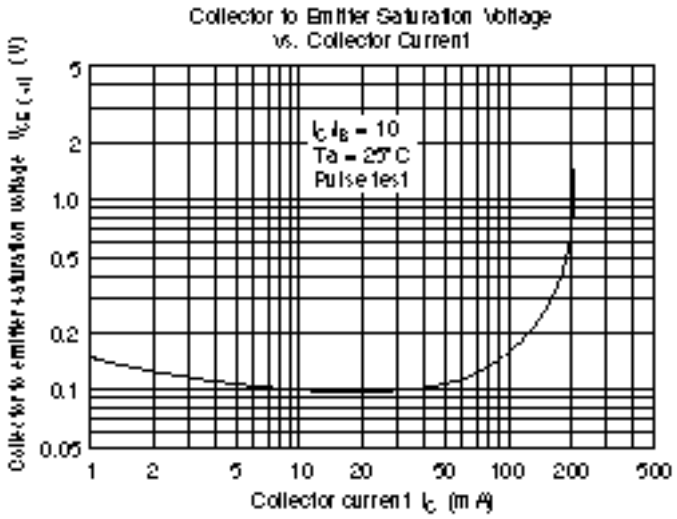
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	1000	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	I_E = 1 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	10	µA	V_{CB} = 800 V, I_E = 0
DC current transfer ratio	h_{FE1}	10	—	—		V_{CE} = 5 V, I_C = 10 mA
	h_{FE2}	10	—	—		V_{CE} = 5 V, I_C = 100 mA
Base to emitter voltage	V_{BE}	—	—	1.2	V	V_{CE} = 5 V, I_C = 100 mA
Collector to emitter saturation voltage	$V_{CE (sat)}$	—	—	5	V	I_C = 300 mA, I_B = 60 mA
Gain bandwidth product	f_T	—	5	—	MHz	V_{CE} = 20 V, I_C = 50 mA
Collector output capacitance	Cob	—	5	—	pF	V_{CB} = 100 V, I_E = 0, f = 1 MHz

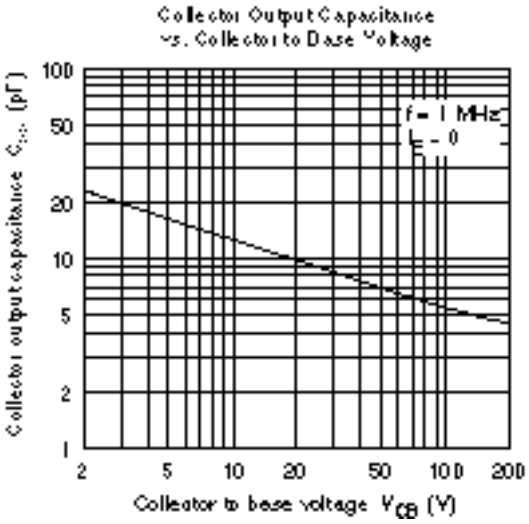



Base to Emitter Saturation Voltage
vs. Collector Current
I_C/I_B = 10
Ta = 25°C
Pulse test
Collector current I_C (mA)


DC Current Transfer Ratio
vs. Collector Current
T_C = 25°C
V_{CE} = 10 V
V_{CE} = 5 V
DC current transfer ratio h_{FE}
Collector current I_C (mA)


Gain Bandwidth Product
vs. Collector Current
V_{CE} = 20 V
Pulse test
Gain bandwidth product f_T (MHz)
50
20
10
5
2
1.0
0.5
1
3
10
30
100
Collector current I_C (mA)


Collector to Emitter Saturation Voltage
vs. Collector Current
I_C / I_B = 10
Ta = 25°C
Pulse test
5
2
1.0
0.5
0.2
0.1
0.05
1
2
5
10
20
50
100
200
500
Collector current I_C (mA)


Collector Output Capacitance
vs. Collector to Base Voltage
f = 1 MHz
I_E = 0
Collector output capacitance C_ob (pF)
100
50
20
10
5
2
1
2
5
10
20
50
100
200
Collector to base voltage V_CB (V)

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