2SC4702

Silicon NPN Epitaxial

HITACHI

Application

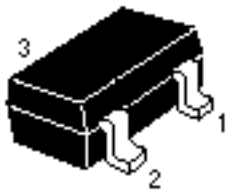
High voltage amplifier

Features

- High breakdown voltage
  V_{CEO} = 300 V
- Small Cob
  Cob = 1.5 pF Typ.

Outline

MPAK



1. Emitter
2. Base
3. Collector

Hitachi semiconductor

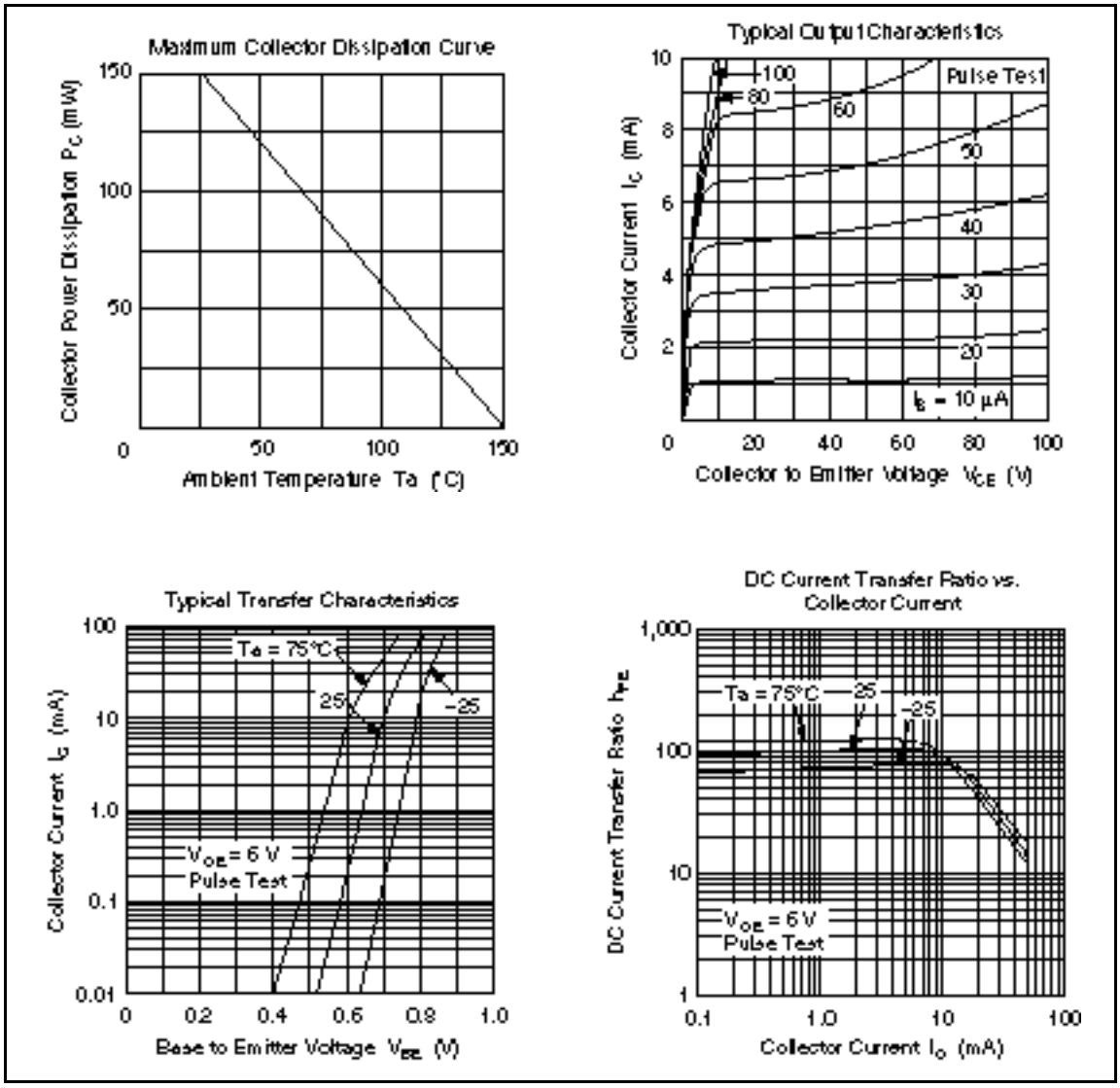
Absolute Maximum Ratings (Ta = 25°C)

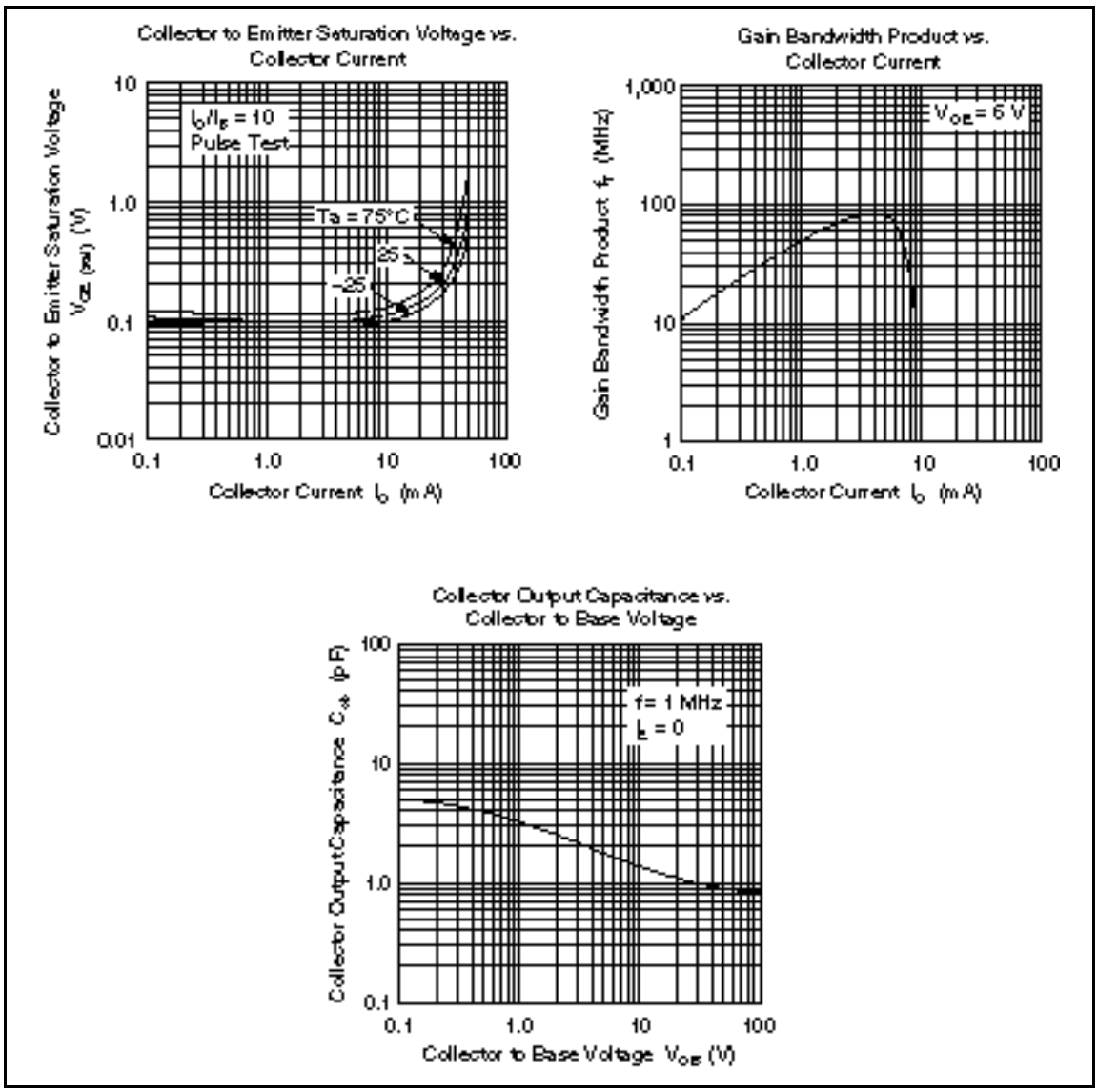
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	300	V
Collector to emitter voltage	V_{CEO}	300	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	300	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	300	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.1	µA	V_{CB} = 250 V, I_E = 0
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	I_C = 30 mA, I_B = 3 mA
DC current transfer ratio	h_{FE}	60	—	150		V_{CE} = 6 V, I_C = 2 mA
Gain bandwidth product	f_T	—	80	—	MHz	V_{CE} = 6 V, I_C = 5 mA
Collector output capacitance	Cob	—	1.5	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz

Note: Marking is “XV–”.


Maximum Collector Dissipation Curve
Collector Power Dissipation P_C (mW)
150
100
50
0
50
100
150
Ambient Temperature Ta (°C)
Typical Output Characteristics
Collector Current I_C (mA)
10
8
6
4
2
0
20
40
60
80
100
Pulse Test
100
80
60
50
40
30
20
I_B = 10 µA
Collector to Emitter Voltage V_{CE} (V)
Typical Transfer Characteristics
Collector Current I_C (mA)
100
10
1.0
0.1
0.01
0
0.2
0.4
0.6
0.8
1.0
Ta = 75°C
25
–25
V_{CE} = 6 V
Pulse Test
Base to Emitter Voltage V_{BE} (V)
DC Current Transfer Ratio vs.
Collector Current
DC Current Transfer Ratio h_{FE}
1,000
100
10
1
0.1
1.0
10
100
Ta = 75°C
25
–25
V_{CE} = 6 V
Pulse Test
Collector Current I_C (mA)


Collector to Emitter Saturation Voltage vs. Collector Current
Collector to Emitter Saturation Voltage V_{CE} (sat) (V)
I_C/I_B = 10
Pulse Test
Ta = 75°C
25
−25
10
1.0
0.1
0.01
0.1
1.0
10
100
Collector Current I_C (mA)
Gain Bandwidth Product vs. Collector Current
Gain Bandwidth Product f_T (MHz)
V_{CE} = 6 V
1,000
100
10
1
0.1
1.0
10
100
Collector Current I_C (mA)
Collector Output Capacitance vs. Collector to Base Voltage
Collector Output Capacitance C_{ob} (pF)
f = 1 MHz
I_E = 0
100
10
1.0
0.1
0.1
1.0
10
100
Collector to Base Voltage V_{CB} (V)

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