2SD467

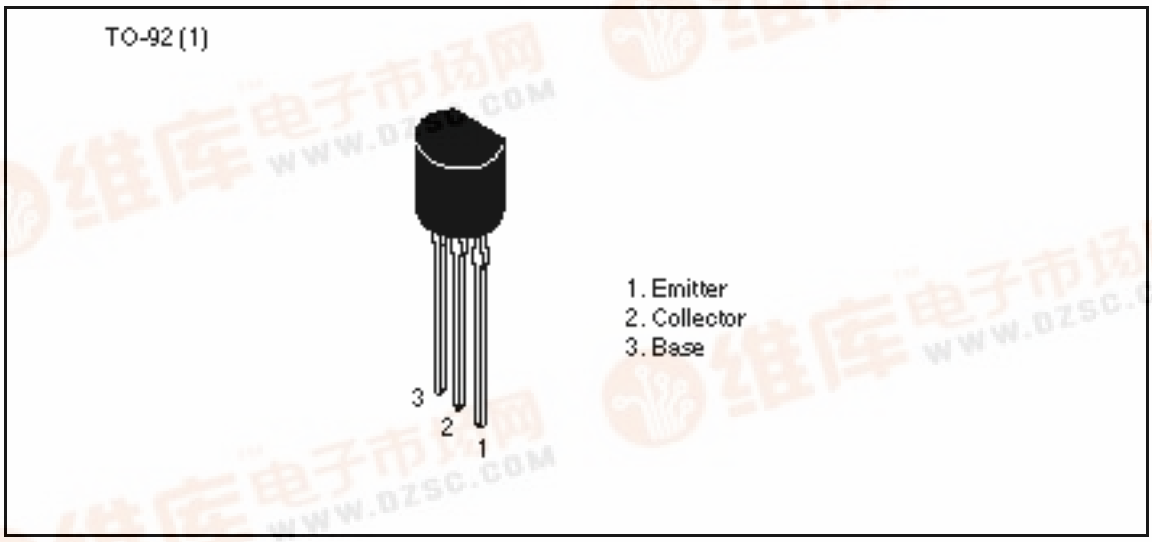
Silicon NPN Epitaxial

HITACHI

Application

- Low frequency power amplifier
- Complementary pair with 2SB561

Outline



2SD467

Absolute Maximum Ratings (Ta = 25°C)

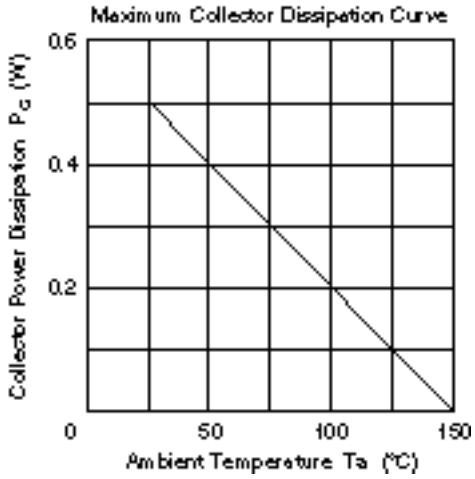
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	25	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	0.7	A
Collector peak current	$i_{C(peak)}$	1.0	A
Collector power dissipation	P_C	0.5	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

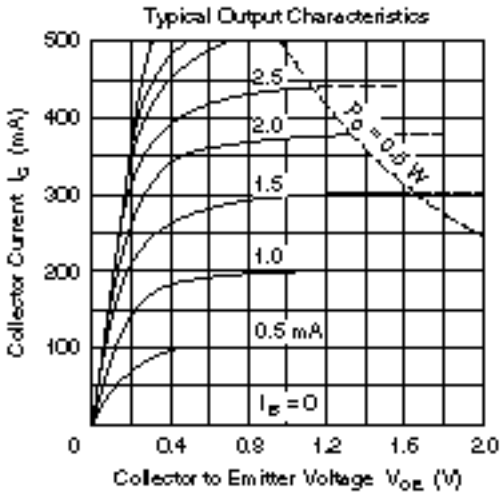
Electrical Characteristics (Ta = 25°C)

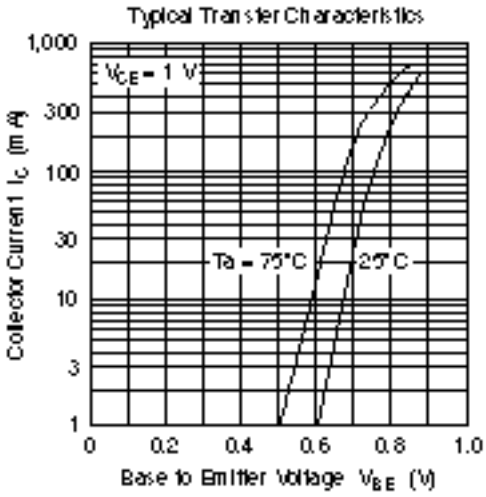
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	25	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	1.0	µA	V_{CB} = 20 V, I_E = 0
DC current transfer ratio	h_{FE}*[1]	85	—	240		V_{CE} = 1 V, I_C = 0.15 A (Pulse test)
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.19	0.5	V	I_C = 0.5 A, I_B = 0.05 A (Pulse test)
Base to emitter voltage	V_{BE}	—	0.76	1.0	V	V_{CE} = 1 V, I_C = 0.15 A (Pulse test)
Gain bandwidth product	f_T	—	280	—	MHz	V_{CE} = 1 V, I_C = 0.15 A (Pulse test)
Collector output capacitance	Cob	—	12	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz

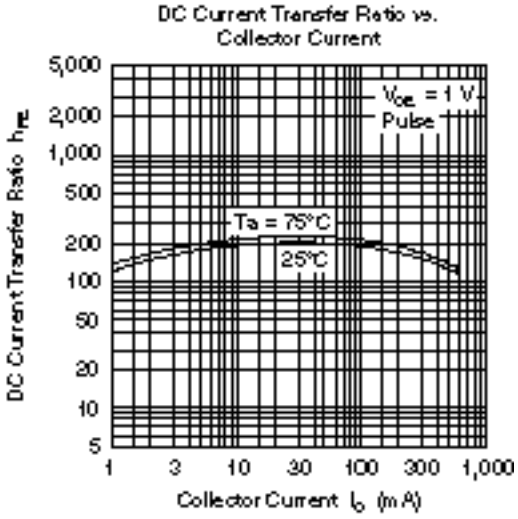
Note: 1. The 2SD467 is grouped by h_{FE} as follows.

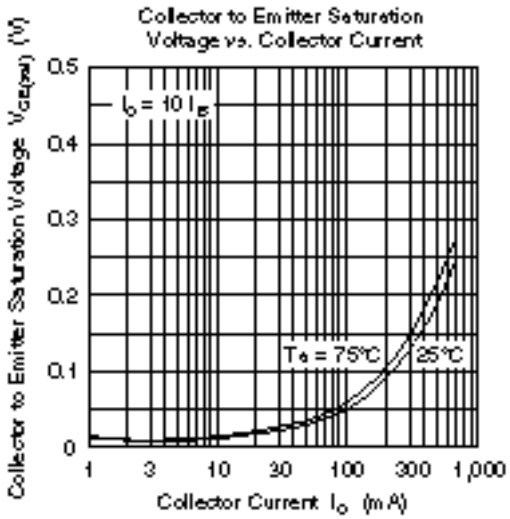
B	C
85 to170	120 to 240

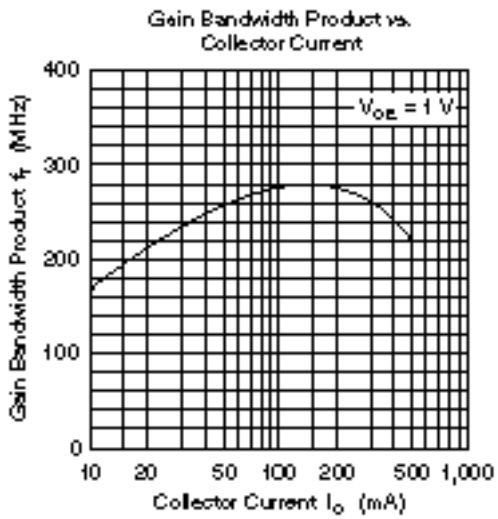

Maximum Collector Dissipation Curve
Collector Power Dissipation P_C (W)
0.6
0.4
0.2
0
50
100
150
Ambient Temperature Ta (°C)

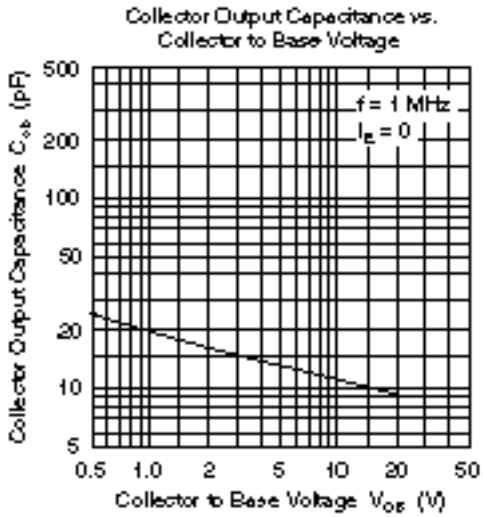

Typical Output Characteristics
Collector Current I_C (mA)
500
400
300
200
100
0
0.4
0.8
1.2
1.6
2.0
2.5
2.0
1.5
1.0
0.5 mA
$I_B = 0$
$P_C = 0.5$ W
Collector to Emitter Voltage V_{CE} (V)


Typical Transfer Characteristics
Collector Current I_C (mA)
1,000
300
100
30
10
3
1
$V_{CE} = 1$ V
Ta = 75°C
25°C
0
0.2
0.4
0.6
0.8
1.0
Base to Emitter Voltage V_{BE} (V)


DC Current Transfer Ratio vs.
Collector Current
DC Current Transfer Ratio h_{FE}
5,000
2,000
1,000
500
200
100
50
20
10
5
$V_{CE} = 1$ V
Pulse
Ta = 75°C
25°C
1
3
10
30
100
300
1,000
Collector Current I_C (mA)


Collector to Emitter Saturation Voltage vs. Collector Current
Collector to Emitter Saturation Voltage $V_{CE(sat)}$ (V)
$I_C = 10 I_B$
T_a = 75°C
25°C
0.5
0.4
0.3
0.2
0.1
0
1
3
10
30
100
300
1,000
Collector Current I_C (mA)


Gain Bandwidth Product vs. Collector Current
Gain Bandwidth Product f_T (MHz)
V_{CE} = 1 V
400
300
200
100
0
10
20
50
100
200
500
1,000
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
500
200
100
50
20
10
5
0.5
1.0
2
5
10
20
50
Collector to Base Voltage V_{CB} (V)

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