2SD787, 2SD788

Silicon NPN Epitaxial

HITACHI

Application

- Low frequency power amplifier
- Complementary pair with 2SB738 and 2SB739

Outline

TO-92MOD

1. Emitter
2. Collector
3. Base

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

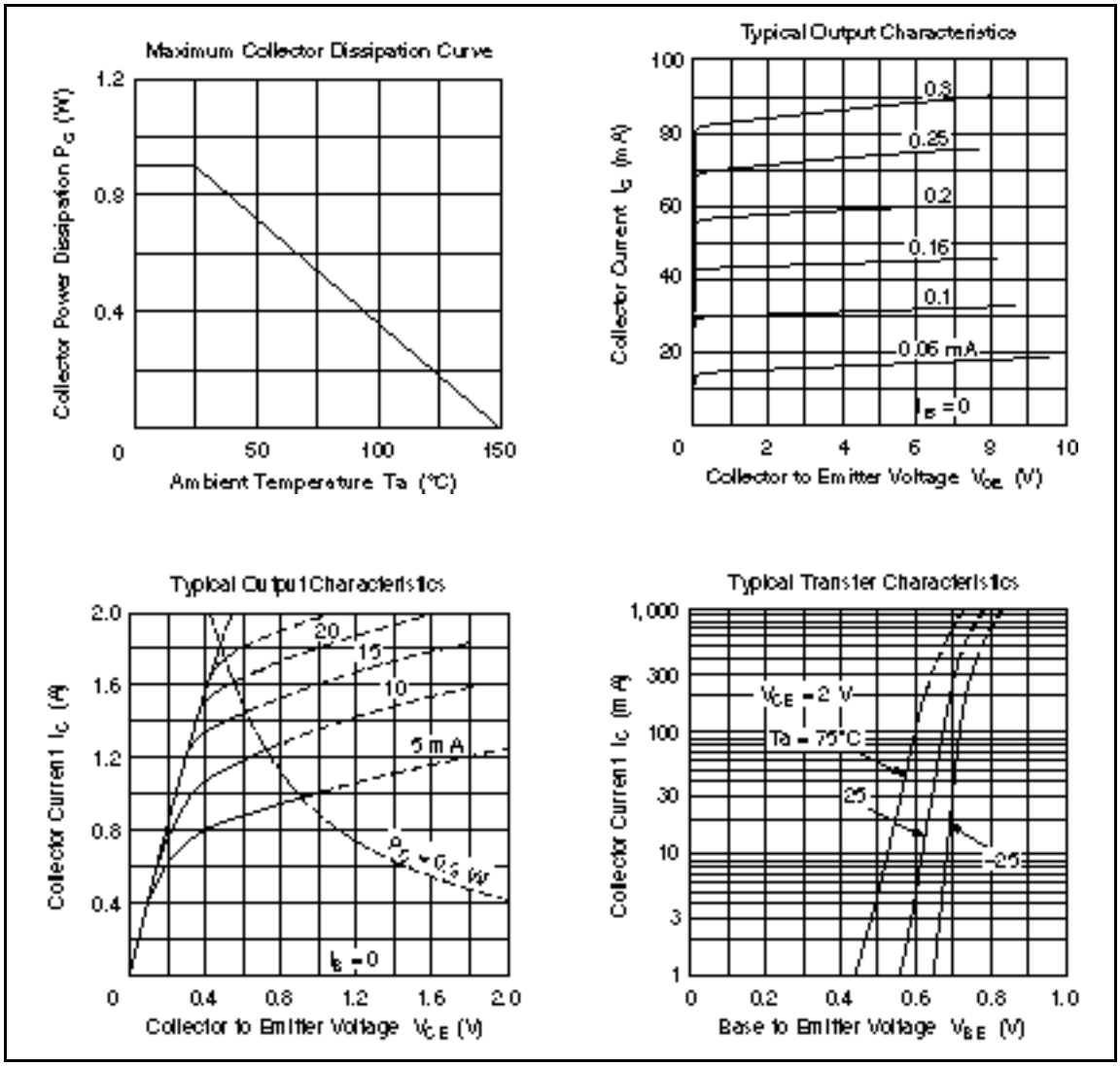
Item	Symbol	2SD787	2SD788	Unit
Collector to base voltage	V_{CBO}	20	20	V
Collector to emitter voltage	V_{CEO}	16	20	V
Emitter to base voltage	V_{EBO}	6	6	V
Collector current	I_C	2	2	A
Collector power dissipation	P_C	0.9	0.9	W
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–50 to +150	°C

Electrical Characteristics (Ta = 25°C)

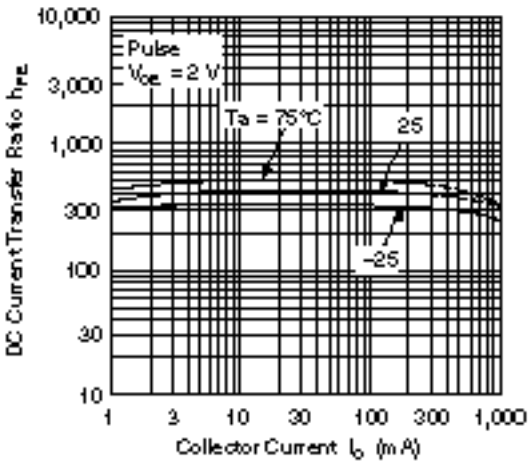
		2SD787			2SD788				
Item	Symbol	Min	Typ	Max	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	20	—	—	20	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	16	—	—	20	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	6	—	—	6	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	2	—	—	2	µA	V_{CB} = 16 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	0.2	—	—	0.2	µA	V_{EB} = 6 V, I_C = 0
DC current transfer ratio	h_{FE}*[1]	100	—	800	100	—	800		V_{CE} = 2 V, I_C = 0.1 A
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	—	—	0.3	V	I_C = 1 A, I_B = 0.1 A
Gain bandwidth product	f_T	—	100	—	—	100	—	MHz	V_{CE} = 2 V, I_C = 10 mA
Collector output capacitance	Cob	—	20	—	—	20	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz

Note: 1. The 2SD787 and 2SD788 are grouped by h_{FE} as follows.

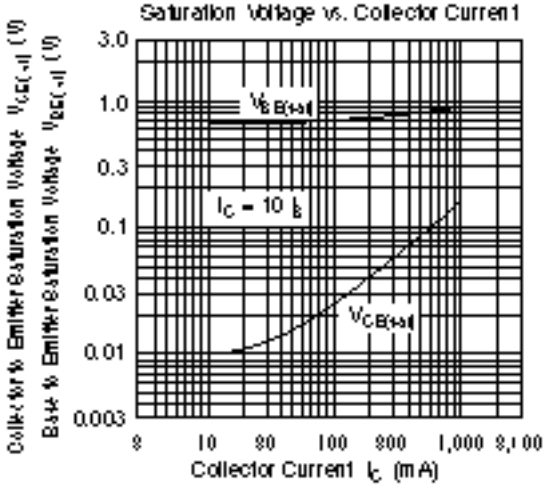
B	C	D	E
100 to 200	160 to 320	250 to 500	400 to 800


Maximum Collector Dissipation Curve
Collector Power Dissipation P_C (W)
1.2
0.8
0.4
0
50
100
150
Ambient Temperature Ta (°C)
Typical Output Characteristics
Collector Current I_C (mA)
100
80
60
40
20
0.3
0.25
0.2
0.15
0.1
0.05 mA
$I_B = 0$
0
2
4
6
8
10
Collector to Emitter Voltage V_{CE} (V)
Typical Output Characteristics
Collector Current I_C (A)
2.0
1.6
1.2
0.8
0.4
20
15
10
5 mA
$P_C = 0.3$ W
$I_B = 0$
0
0.4
0.8
1.2
1.6
2.0
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} = 2 V
Ta = 75°C
25
−25
0
0.2
0.4
0.6
0.8
1.0
Base to Emitter Voltage V_{BE} (V)

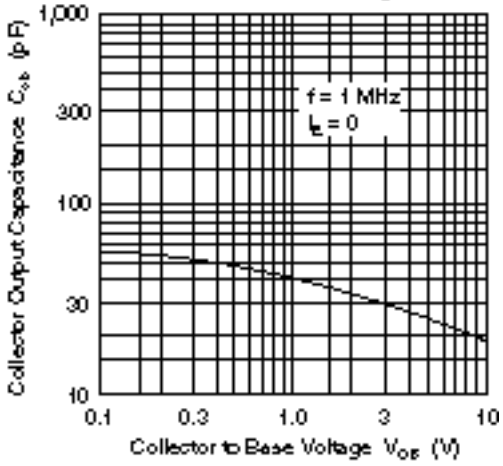
DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage



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