2SD1922

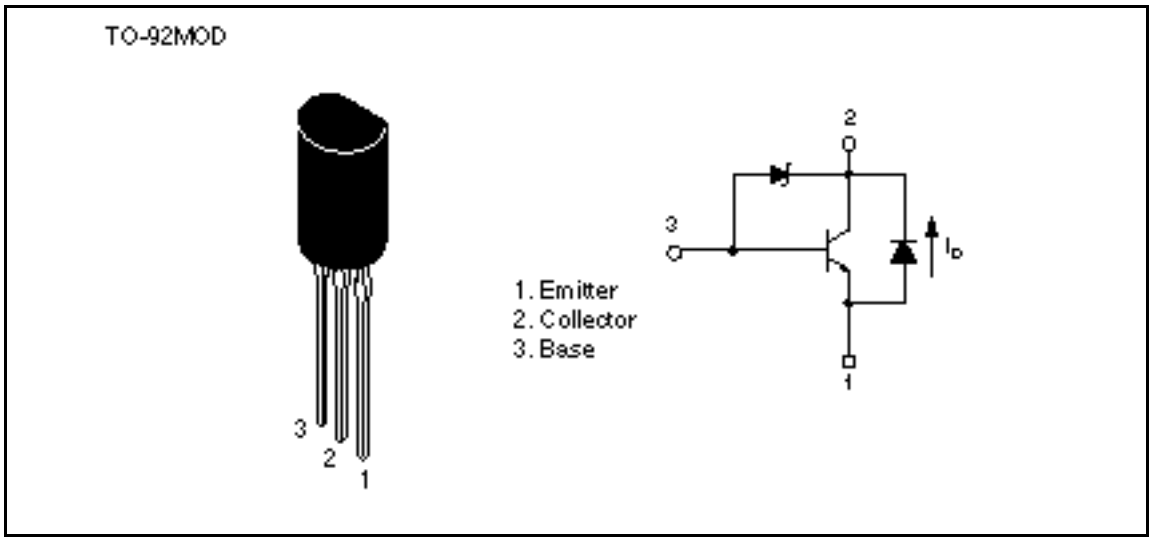
Silicon NPN Epitaxial

HITACHI

Application

Low frequency power amplifier

Outline



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	25	V
Collector to emitter voltage	V_{CEO}	25	V
Emitter to base voltage	V_{EBO}	6	V
Collector current	I_C	0.8	A
Collector peak current	$ic_{(peak)}$	1.5	A
E to C diode forward current	I_D	0.8	A
Collector power dissipation	P_C	0.9	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

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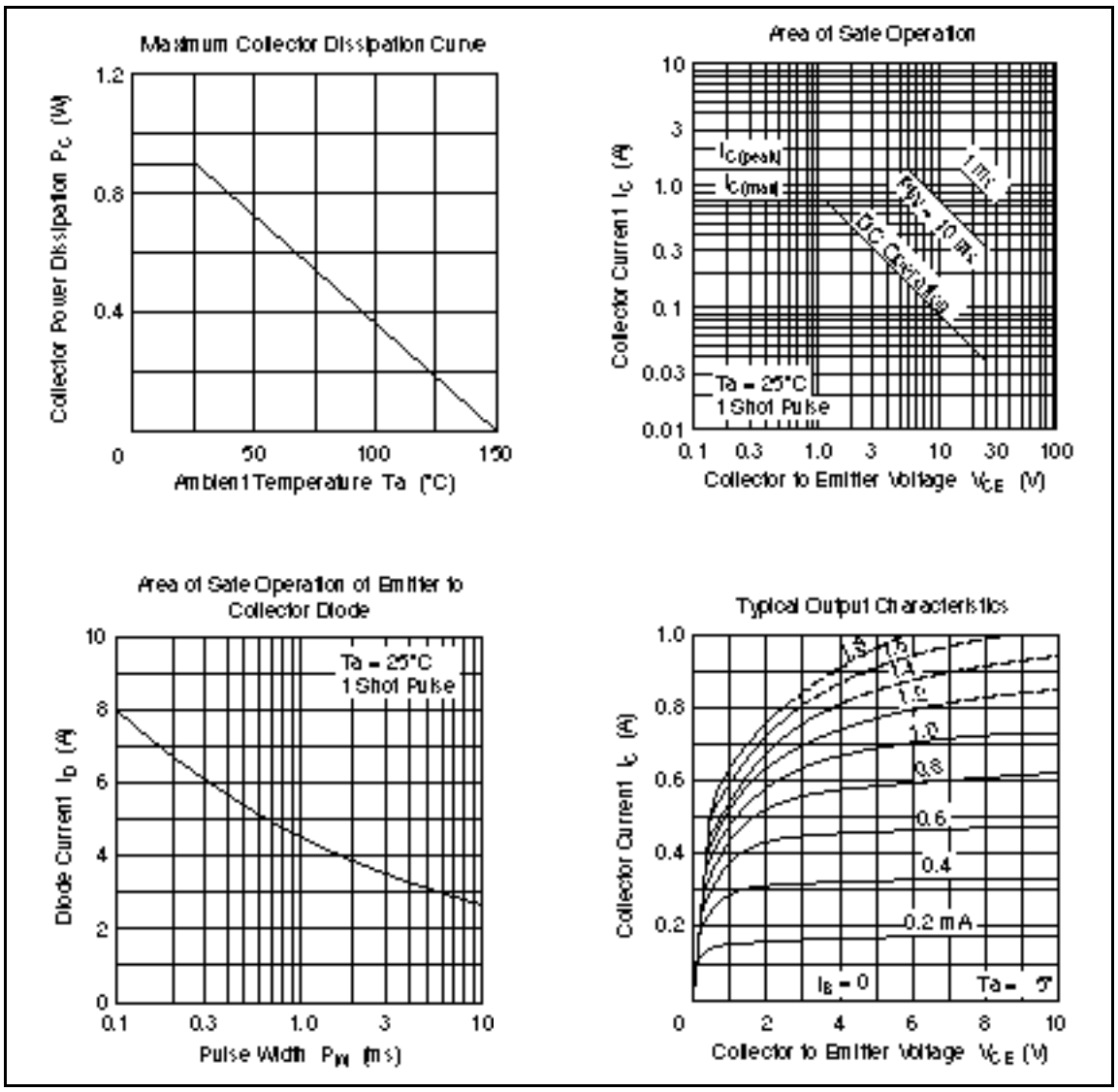
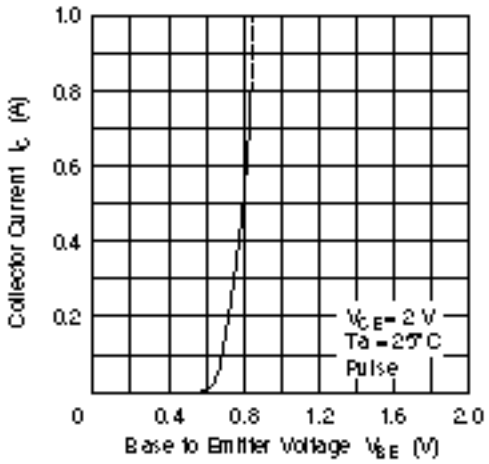
Electrical Characteristics (Ta = 25°C)

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	$V_{(BR)CEO}$	25	—	35	V	I_C = 1 mA, R_{BE} = ∞
Collector to emitter sustaining voltage	$V_{CEO(sus)}$	25	—	35	V	I_C = 0.8 A, R_{BE} = ∞, L = 20 mH
Emitter to base breakdown voltage	$V_{(BR)EBO}$	6	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.2	µA	V_{CB} = 20 V, I_E = 0
	I_{CEO}	—	—	0.5	µA	V_{CE} = 20 V, R_{BE} = ∞
Emitter cutoff current	I_{EBO}	—	—	0.2	µA	V_{EB} = 5 V, I_C = 0
DC current transfer ratio	h_{FE}	250	—	1200		V_{CE} = 2 V, I_C = 0.1 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	I_C = 0.8 A, I_B = 80 mA*[1]
E to C diode forward voltage	V_D	—	—	1.1	V	I_D = 0.8 A*[1]

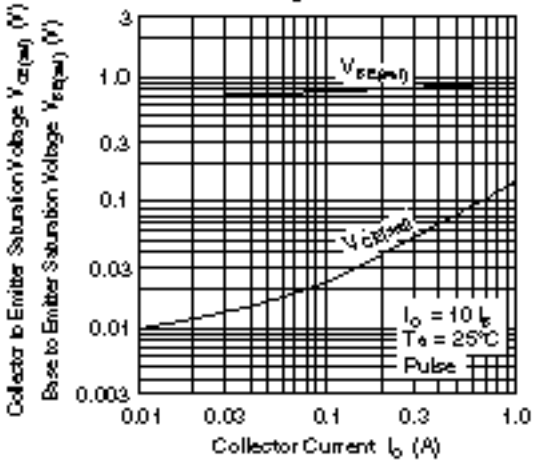
Note: 1. Pulse test


Maximum Collector Dissipation Curve
Collector Power Dissipation P_C (W)
1.2
0.8
0.4
0
50
100
150
Ambient Temperature Ta (°C)
Area of Safe Operation
Collector Current I_C (A)
10
3
1.0
0.3
0.1
0.03
0.01
$I_{C(peak)}$
$I_{C(max)}$
1 ms
Pw = 10 ms
DC Operation
Ta = 25°C
1 Shot Pulse
0.1
0.3
1.0
3
10
30
100
Collector to Emitter Voltage V_{CE} (V)
Area of Safe Operation of Emitter to Collector Diode
Diode Current I_D (A)
10
8
6
4
2
0
Ta = 25°C
1 Shot Pulse
0.1
0.3
1.0
3
10
Pulse Width P_W (ms)
Typical Output Characteristics
Collector Current I_C (A)
1.0
0.8
0.6
0.4
0.2
1.5
1.2
1.0
0.8
0.6
0.4
0.2 mA
I_B = 0
Ta = 75°C
0
2
4
6
8
10
Collector to Emitter Voltage V_{CE} (V)

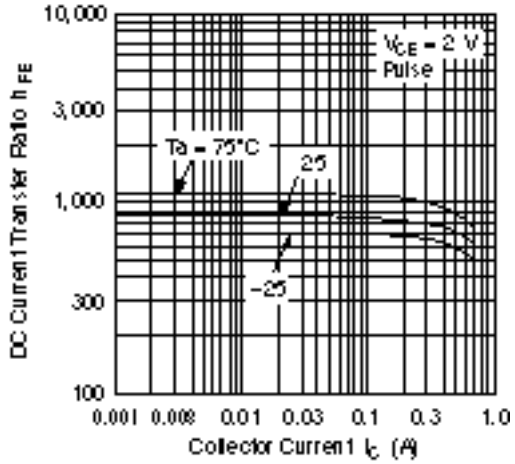
Typical Transfer Characteristics



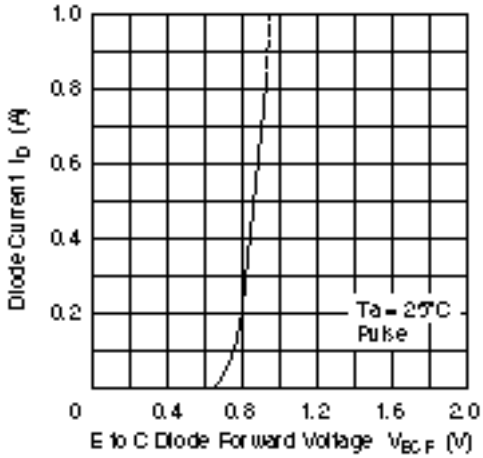
Saturation Voltage vs. Collector Current

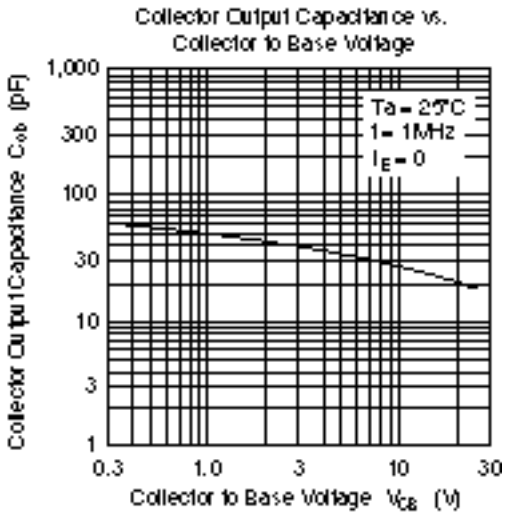


DC Current Transfer Ratio vs. Collector Current



Typical Characteristics of Emitter to Collector Diode




Collector Output Capacitance vs.
Collector to Base Voltage
Collector Output Capacitance C_{ob} (pF)
1,000
300
100
30
10
3
1
0.3
1.0
3
10
30
Ta = 25°C
f = 1MHz
I_E = 0
Collector to Base Voltage V_{CB} (V)

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