2SD2107

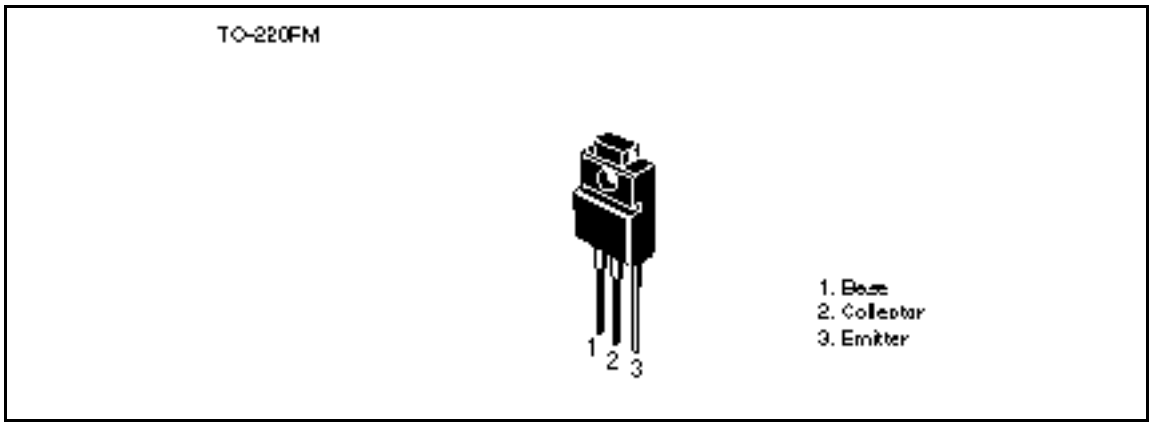
Silicon NPN Triple Diffused

HITACHI

Application

Low frequency power amplifier

Outline



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	70	V
Collector to emitter voltage	V_{CEO}	60	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	4	A
Collector peak current	$I_{C(peak)}$	8	A
Collector power dissipation	P_C	2	W
	P_C*[1]	25	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at T_C = 25°C.

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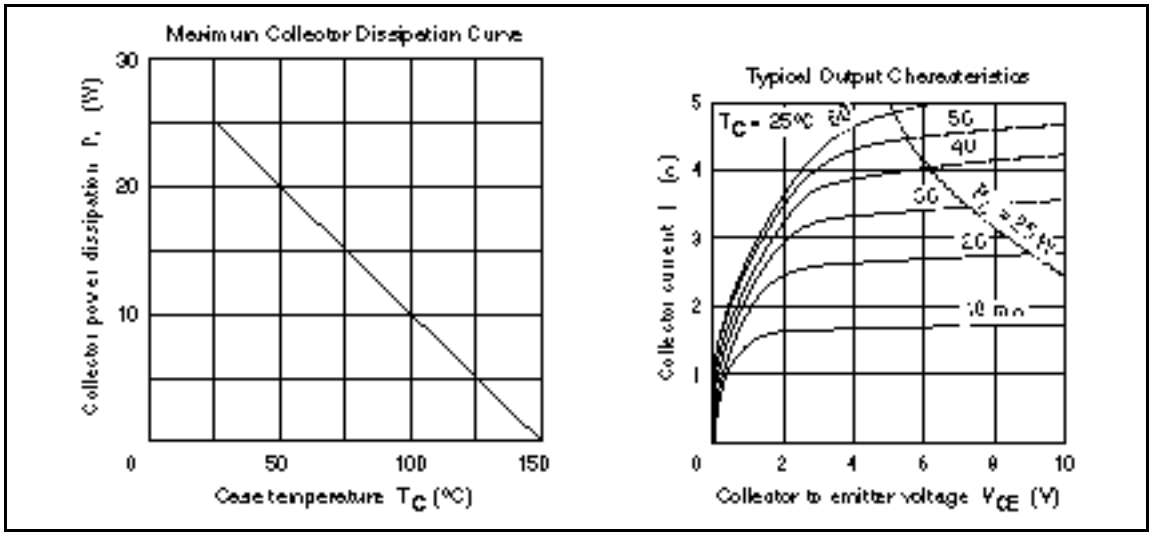
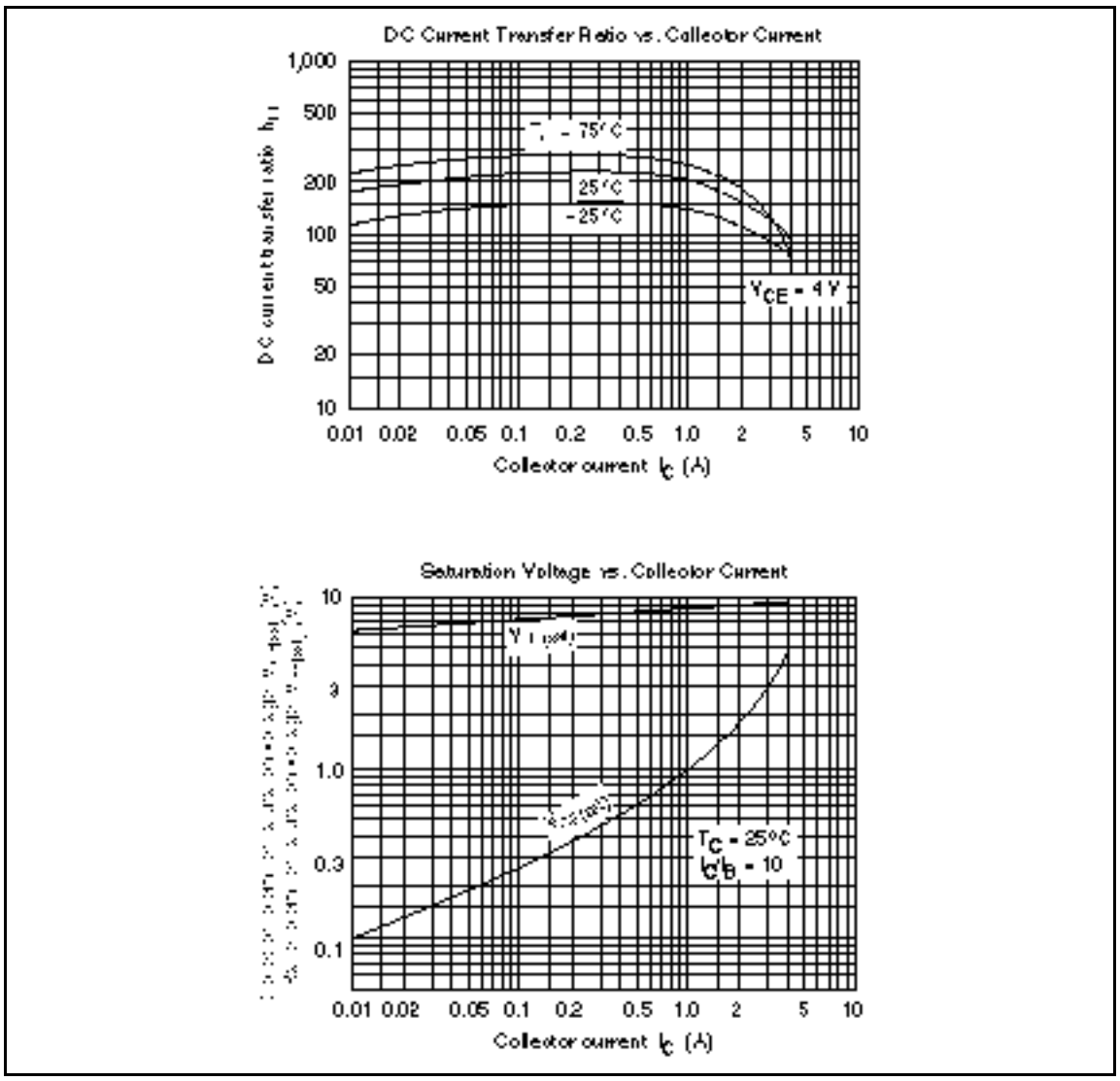
Electrical Characteristics (Ta = 25°C)

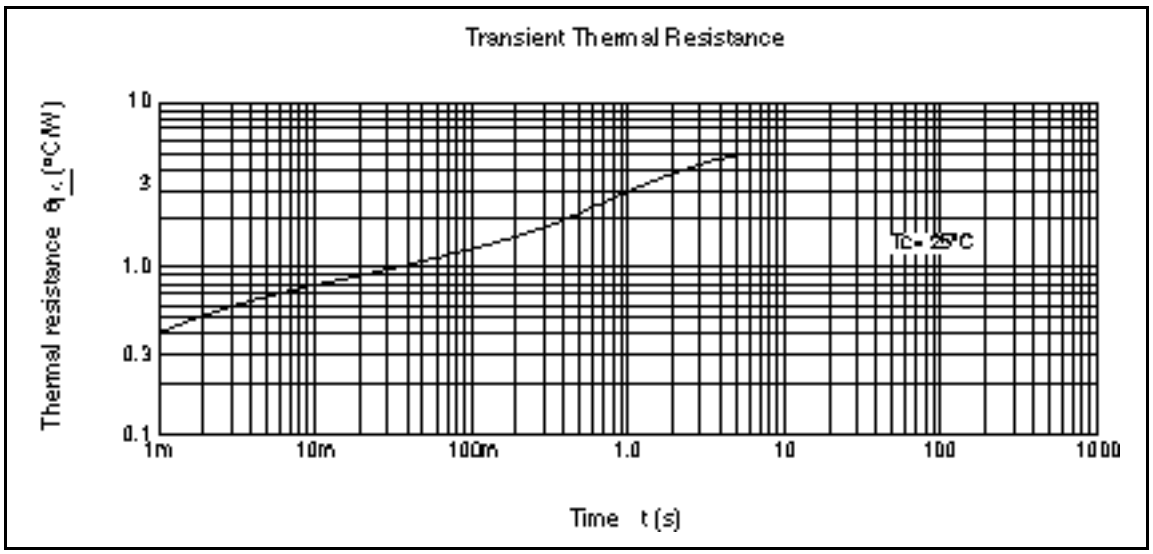
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	70	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	V	I_C = 50 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	10	µA	V_{CB} = 60 V, I_E = 0
	I_{CEO}	—	—	10		V_{CE} = 50 V, R_{BE} = ∞
DC current transfer ratio	h_{FE1}*2	60	—	200		V_{CE} = 4 V, I_C = 1 A*1
	h_{FE2}	35	—			V_{CE} = 4 V, I_C = 0.1 A*1
Base to emitter voltage	V_{BE}	—	—	1.0	V	V_{CE} = 4 V, I_C = 1 A*1
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	I_C = 2 A, I_B = 0.2 A*1
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	1.2	V	I_C = 2 A, I_B = 0.2 A*1

Notes: 1. Pulse test.
2. The 2SD2107 is grouped by h_{FE1} as follows.

B	C
60 to 120	100 to 200




DC Current Transfer Ratio vs. Collector Current
1,000
500
200
100
50
20
10
75°C
25°C
–25°C
V_{CE} = 4 V
0.01 0.02 0.05 0.1 0.2 0.5 1.0 2 5 10
Collector current I_C (A)
Saturation Voltage vs. Collector Current
10
3
1.0
0.3
0.1
T_C = 25°C
I_C/I_B = 10
0.01 0.02 0.05 0.1 0.2 0.5 1.0 2 5 10
Collector current I_C (A)


Transient Thermal Resistance
Thermal resistance θj-c (°C/W)
10
3
1.0
0.3
0.1
1m
10m
100m
1.0
10
100
1000
Tc = 25°C
Time t (s)

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HITACHI

Hitachi, Ltd.
Semiconductor & IC Div.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100, Japan
Tel: Tokyo (03) 3270-2111
Fax: (03) 3270-5109

For further information write to:

Hitachi America, Ltd.
Semiconductor & IC Div.
2000 Sierra Point Parkway
Brisbane, CA. 94005-1835
U.S.A.
Tel: 415-589-8300
Fax: 415-583-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Dornacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 0628-585000
Fax: 0628-778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071