To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SB1389

Silicon PNP Triple Diffused

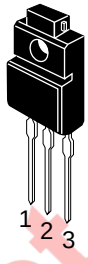
ADE-208-869 (Z)
1st. Edition
September 2000

Application

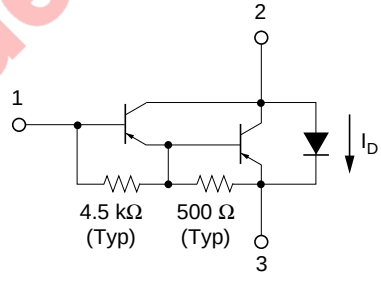
Low frequency power amplifier

Outline

TO-220FM



1. Base
2. Collector
3. Emitter



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–60	V
Collector to emitter voltage	V_{CEO}	–60	V
Emitter to base voltage	V_{EBO}	–7	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
C to E diode forward current	I_D*1	4	A

Note: 1. Value at T_C = 25°C.

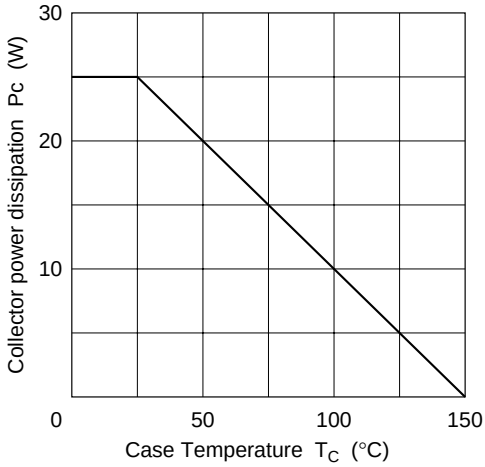
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–60	—	—	V	I_C = –0.1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–60	—	—	V	I_C = –25 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–7	—	—	V	I_E = –50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–10	µA	V_{CB} = –50 V, I_E = 0
	I_{CEO}	—	—	–10		V_{CE} = –50 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	1000	—	20000		V_{CE} = –3 V, I_C = –2 A*1
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	—	–1.5	V	I_C = –2 A, I_B = –4 mA*1
	$V_{CE(sat)2}$	—	—	–3.0		I_C = –4 A, I_B = –40 mA*1
Base to emitter saturation voltage	$V_{BE(sat)1}$	—	—	–2.0	V	I_C = –2 A, I_B = –4 mA*1
	$V_{BE(sat)2}$	—	—	–3.5		I_C = –4 A, I_B = –40 mA*1
C to E diode forward voltage	V_D	—	—	3.0	V	I_D = 4 A*1

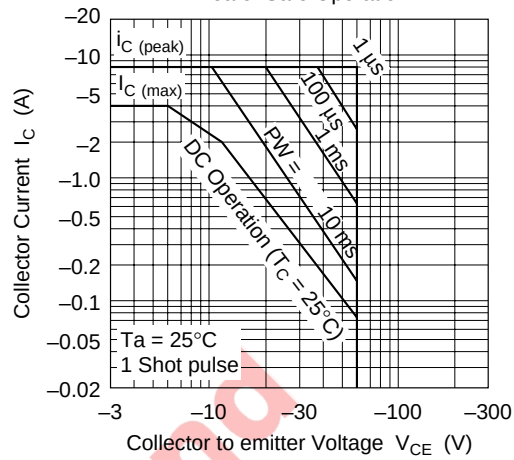
Note: 1. Pulse test.

See switching characteristic curve of 2SB1101.

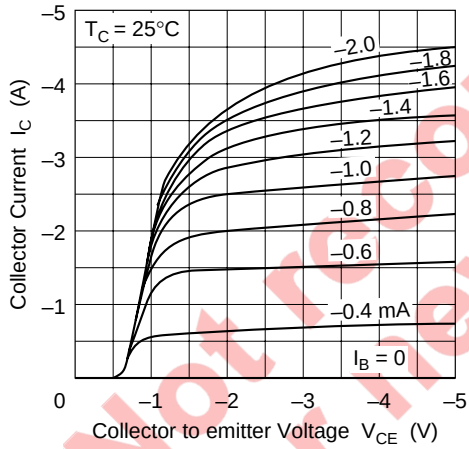
Maximum Collector Dissipation Curve



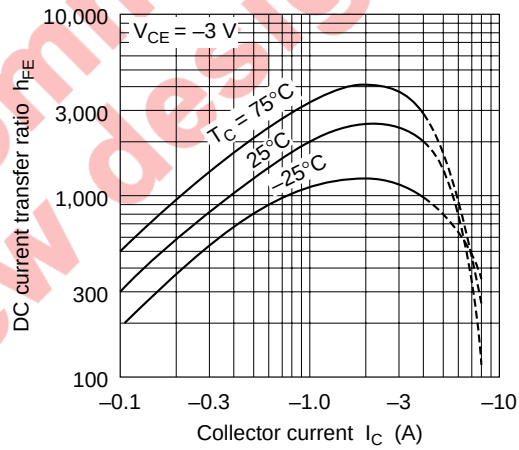
Area of Safe Operation

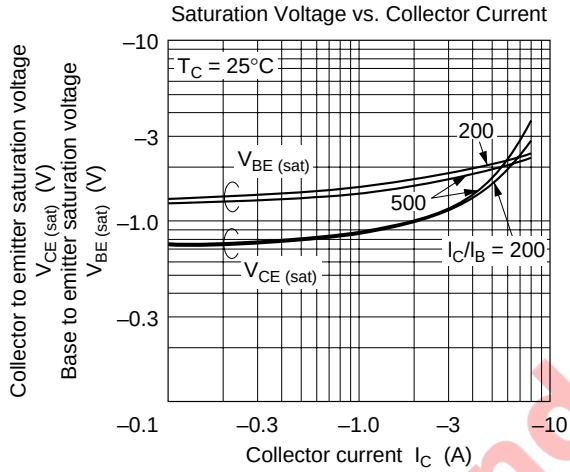


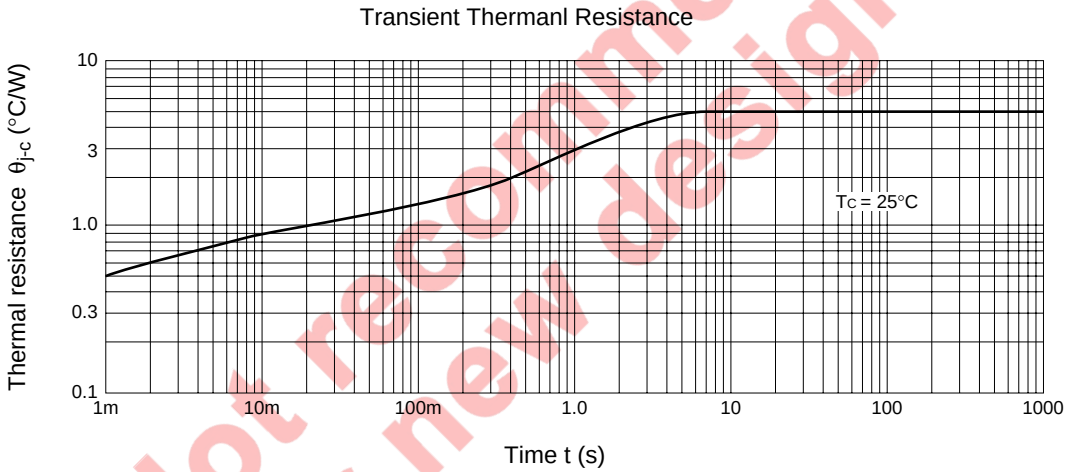
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current







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