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

## Cautions

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Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

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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# 2SD2107

Silicon NPN Triple Diffused

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# RENESAS

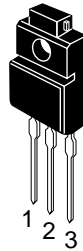
ADE-208-923 (Z)  
1st. Edition  
September 2000

## Application

Low frequency power amplifier

## Outline

TO-220FM



1. Base
2. Collector
3. Emitter

## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

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	$I_{C(\text{peak})}$	8	A
Collector power dissipation	$P_C$	2	W
	$P_C^{*1}$	25	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

Note: 1. Value at  $T_C = 25^\circ\text{C}$ .

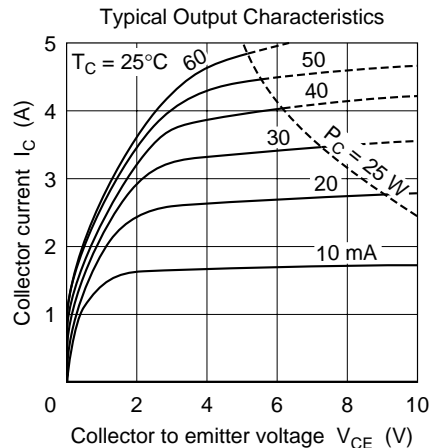
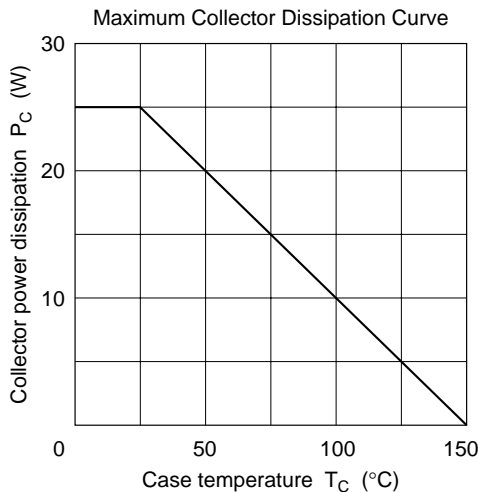
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	70	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	V	$I_C = 50 mA, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	10	$\mu A$	$V_{CB} = 60 V, I_E = 0$
	$I_{CEO}$	—	—	10		$V_{CE} = 50 V, R_{BE} = \infty$
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	$I_C = 2 A, I_B = 0.2 A^{*1}$

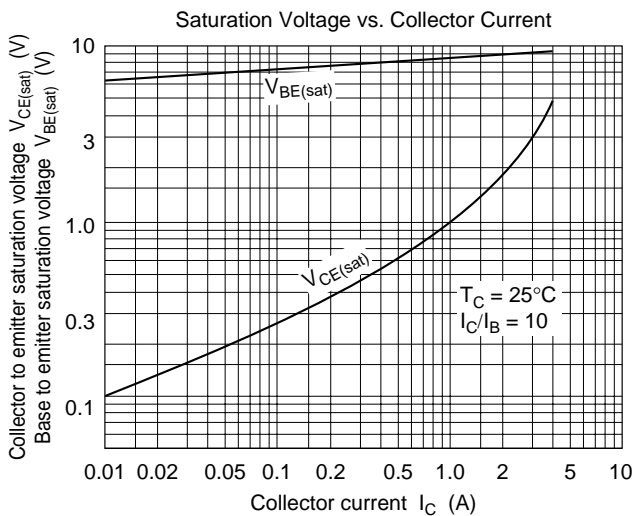
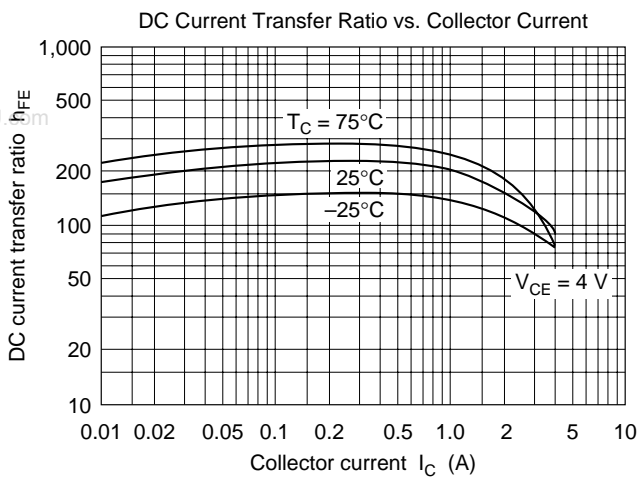
Notes: 1. Pulse test.

2. The 2SD2107 is grouped by  $h_{FE1}$  as follows.

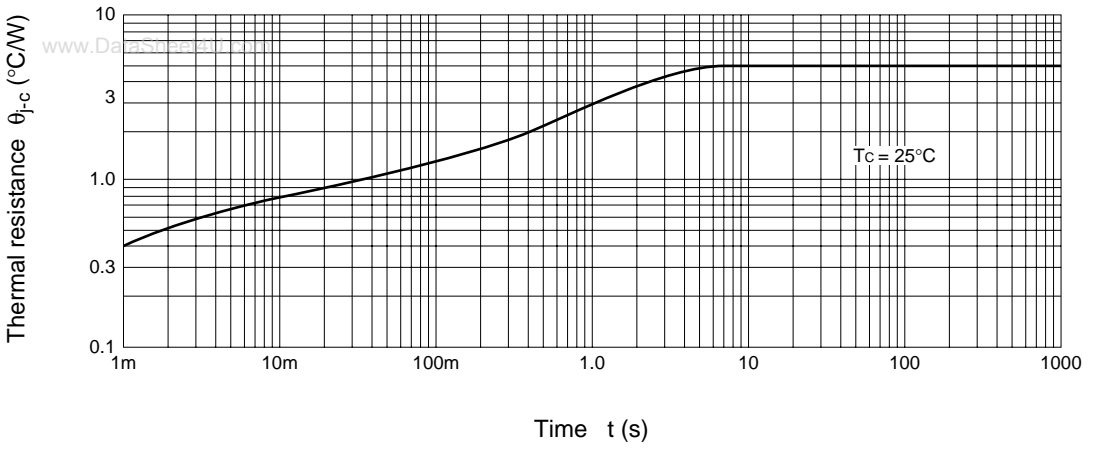
B	C
60 to 120	100 to 200



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Transient Thermal Resistance



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