To all our customers

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Renesas Technology Home Page: http://www.renesas.com

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

Cautions

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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2SC1213, 2SC1213A

Silicon NPN Epitaxial

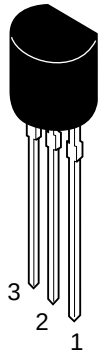
ADE-208-1048 (Z)
1st. Edition
Mar. 2001

Application

- Low frequency amplifier
- Complementary pair with 2SA673 and 2SA673A

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SC1213	2SC1213A	Unit
Collector to base voltage	V_{CBO}	35	50	V
Collector to emitter voltage	V_{CEO}	35	50	V
Emitter to base voltage	V_{EBO}	4	4	V
Collector current	I_C	500	500	mA
Collector power dissipation	P_C	400	400	mW
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

Electrical Characteristics (Ta = 25°C)

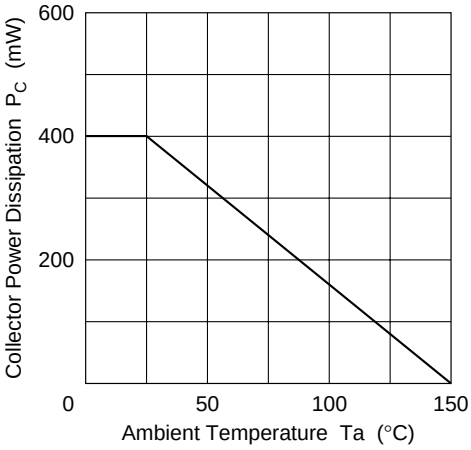
		2SC1213			2SC1213A				
Item	Symbol	Min	Typ	Max	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	35	—	—	50	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	35	—	—	50	—	—	V	I_C = 1 mA, R_{BE} =
Emitter to base breakdown voltage	$V_{(BR)EBO}$	4	—	—	4	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.5	—	—	0.5	µA	V_{CB} = 20 V, I_E = 0
DC current tarnsfer ratio	h_{FE}*[1]	60	—	320	60	—	320		V_{CE} = 3 V, I_C =10 mA
	h_{FE}	10	—	—	10	—	—		V_{CE} = 3 V, I_C = 500 mA*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.2	0.6	—	0.2	0.6	V	I_C = 150 mA, I_B = 15 mA*[2]
Base to emitter voltage	V_{BE}	—	0.64	—	—	0.64	—	V	V_{CE} = 3 V, I_C = 10 mA

Notes: 1. The 2SC1213 and 2SC1213A are grouped by h_{FE} as follows.

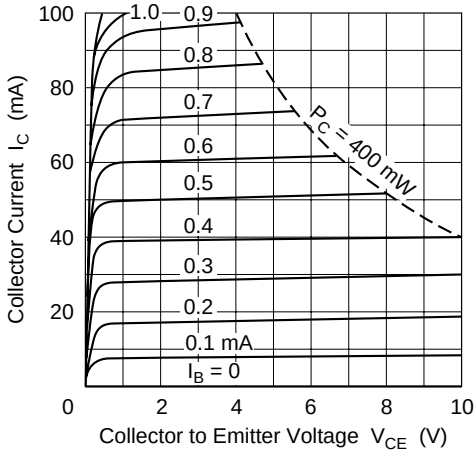
2. Pulse test

B	C	D
60 to 120	100 to 200	160 to 320

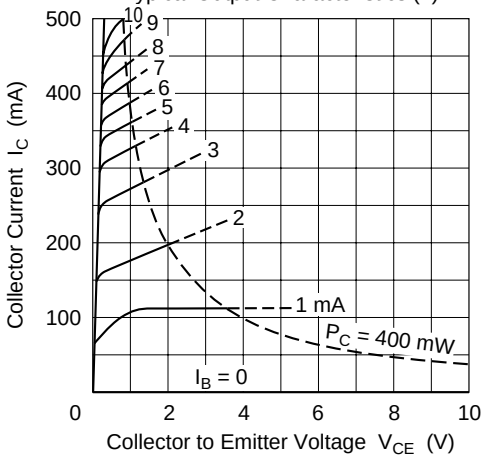
Maximum Collector Dissipation Curve



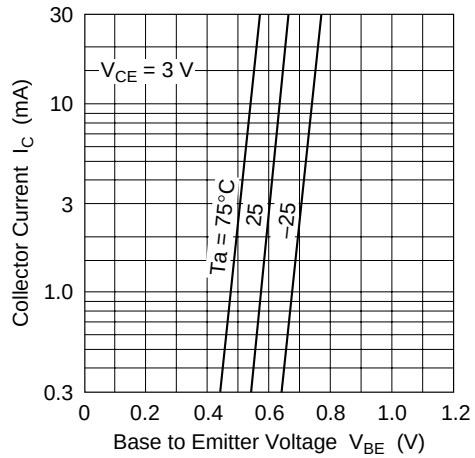
Typical Output Characteristics (1)



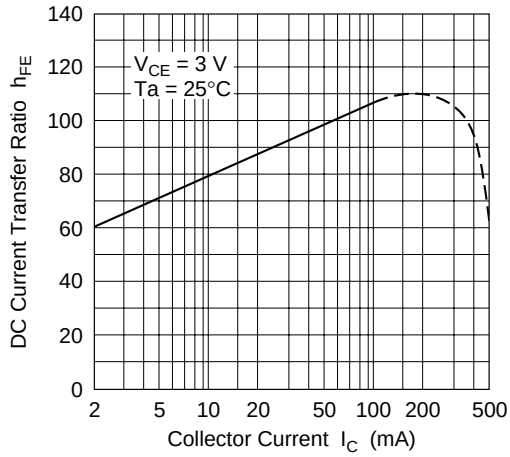
Typical Output Characteristics (2)



Typical Transfer Characteristics



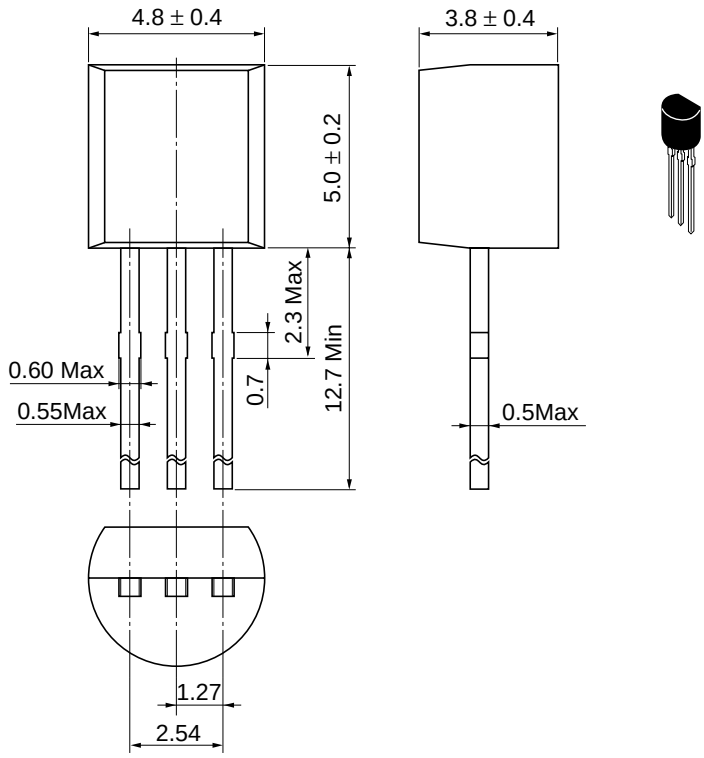
DC Current Transfer Ratio vs.
Collector Current



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

Cautions

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