

To all our customers

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

## Cautions

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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# 2SA1390

Silicon PNP Epitaxial

**RENESAS**

ADE-208-1017 (Z)

1st. Edition

Mar. 2001

## Application

Low frequency amplifier

## Outline

SPAK



1. Emitter
2. Collector
3. Base

## Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	-35	V
Collector to emitter voltage	$V_{CEO}$	-35	V
Emitter to base voltage	$V_{EBO}$	-4	V
Collector current	$I_C$	-500	mA
Collector power dissipation	$P_C$	300	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

## Electrical Characteristics (Ta = 25°C)

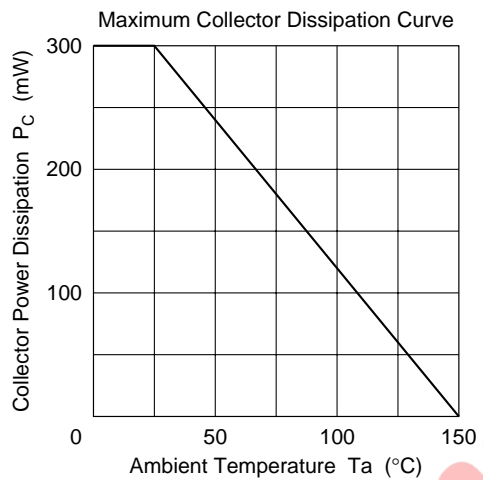
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	-35	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-35	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-4	—	—	V	$I_E = -10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	-0.5	$\mu A$	$V_{CB} = -20 \text{ V}, I_E = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	-0.2	-0.6	V	$I_C = -150 \text{ mA}, I_B = -15 \text{ mA}^{*2}$
DC current transfer ratio	$h_{FE1}^{*1}$	60	—	320		$V_{CE} = -3 \text{ V}, I_C = -10 \text{ mA}$
DC current transfer ratio	$h_{FE2}$	10	—	—		$V_{CE} = -3 \text{ V}, I_C = -500 \text{ mA}^{*2}$
Base to emitter voltage	$V_{BE}$	—	-0.64	—	V	$V_{CE} = -3 \text{ V}, I_C = -10 \text{ mA}$

Notes: 1. The 2SA1390 is grouped by  $h_{FE1}$  as follows.

2. Pulse test

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

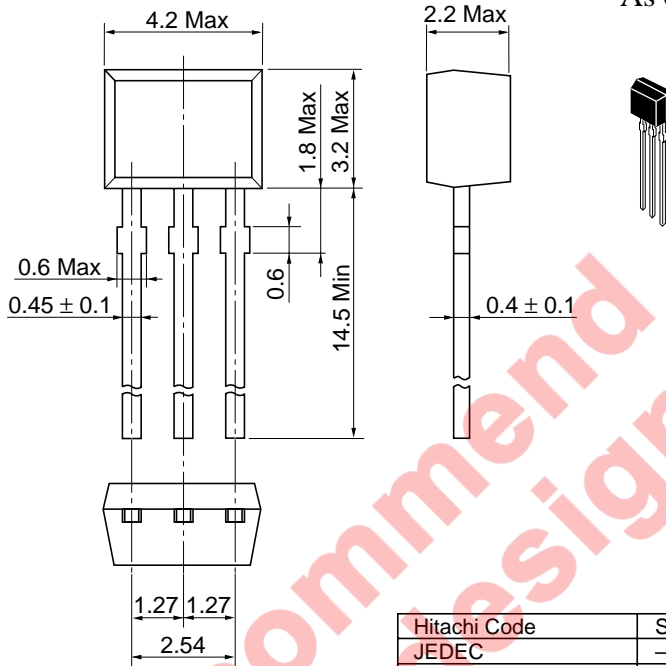
See characteristic curves of 2SA673.



Not recommend  
for new design

Package Dimensions

As of January, 2001  
Unit: mm



Hitachi Code	SPAK
JEDEC	—
EIAJ	—
Mass (reference value)	0.10 g

Not recommend  
for new design

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