

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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2SC1775, 2SC1775A

Silicon NPN Epitaxial

RENESAS

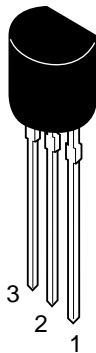
ADE-208-1056 (Z)
1st. Edition
Mar. 2001

Application

- Low frequency low noise amplifier
- Complementary pair with 2SA872/A

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

2SC1775, 2SC1775A

Absolute Maximum Ratings (Ta = 25°C)

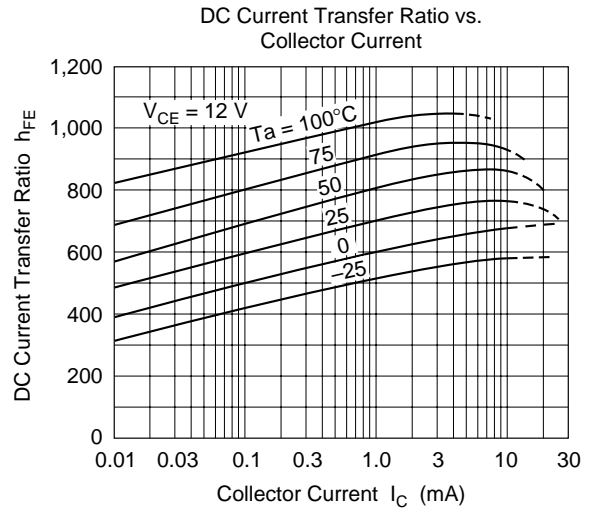
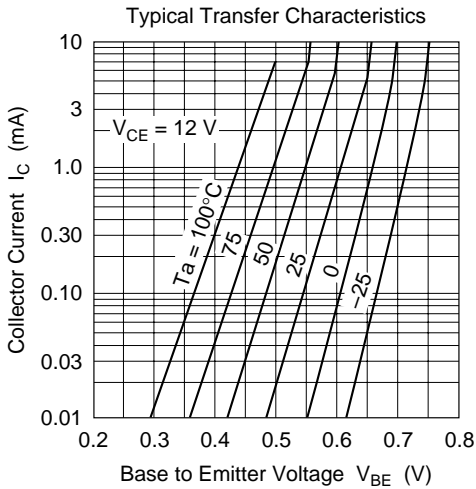
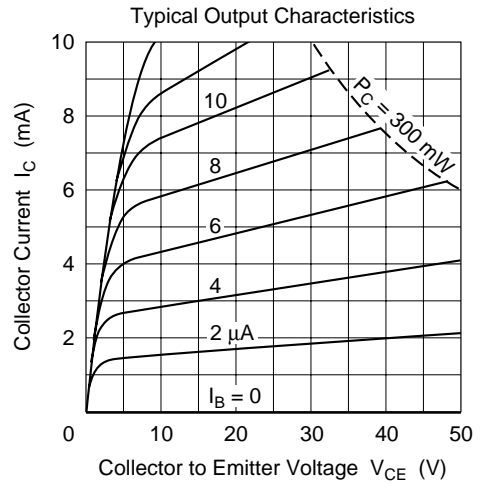
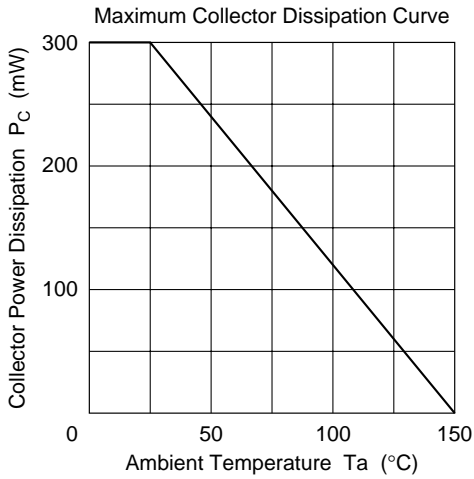
Item	Symbol	2SC1775	2SC1775A	Unit
Collector to base voltage	V_{CBO}	90	120	V
Collector to emitter voltage	V_{CEO}	90	120	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	50	50	mA
Collector power dissipation	P_C	300	300	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-50 to +150	°C

Electrical Characteristics (Ta = 25°C)

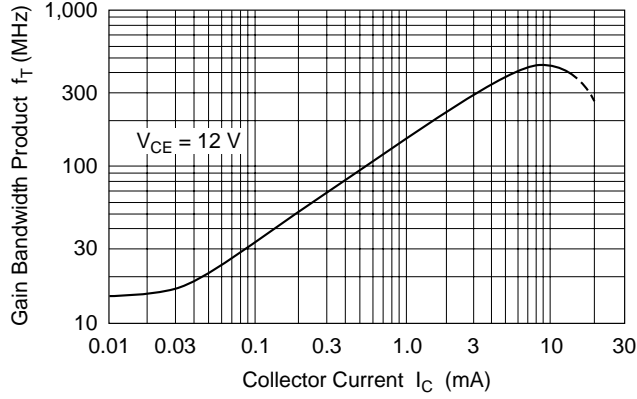
Item	Symbol	2SC1775			2SC1775A			Unit	Test conditions	
		Min	Typ	Max	Min	Typ	Max			
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	90	—	—	120	—	—	V	$I_C = 1 \text{ mA}$, $R_{BE} =$	
Collector cutoff current	I_{CBO}	—	—	0.5	—	—	—	μA	$V_{CB} = 75 \text{ V}$, $I_E = 0$	
		—	—	—	—	—	0.5	μA	$V_{CB} = 100 \text{ V}$, $I_E = 0$	
DC current transfer ratio	h_{FE1}^{*1}	400	—	1200	400	—	1200		$V_{CE} = 12 \text{ V}$, $I_C = 2 \text{ mA}$	
	h_{FE2}	160	—	—	160	—	—		$V_{CE} = 12 \text{ V}$, $I_C = 0.1 \text{ mA}$	
Base to emitter voltage	V_{BE}	—	—	0.75	—	—	0.75	V	$V_{CE} = 12 \text{ V}$, $I_C = 2 \text{ mA}$	
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	—	—	0.5	V	$I_C = 10 \text{ mA}$, $I_B = 1 \text{ mA}$	
Gain bandwidth product	f_T	—	200	—	—	200	—	MHz	$V_{CE} = 12 \text{ V}$, $I_C = 2 \text{ mA}$	
Collector output capacitance	C_{ob}	—	1.6	—	—	1.6	—	pF	$V_{CB} = 25 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$	
Noise figure	NF	—	—	5.0	—	—	5.0	dB	$V_{CE} = 6 \text{ V}$, $I_C = 50 \mu\text{A}$, $R_g = 50 \text{ k}\Omega$	$f = 10 \text{ Hz}$
		—	—	1.5	—	—	1.5	dB		$f = 1 \text{ kHz}$

Note: 1. The 2SC1775/A is grouped by h_{FE1} as follows.

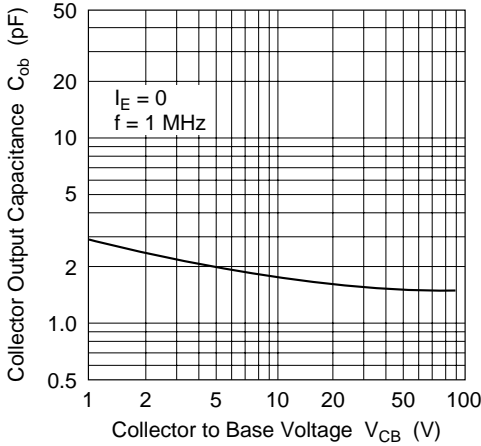
E	F
400 to 800	600 to 1200



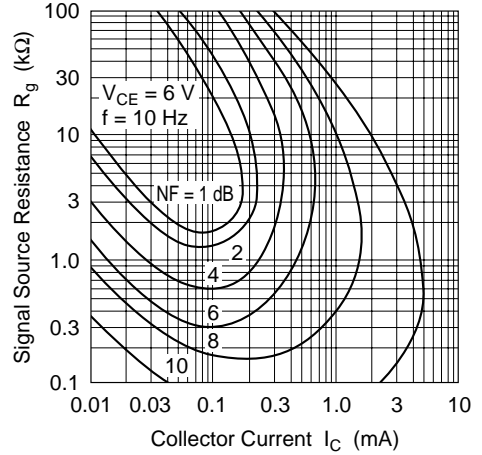
Gain Bandwidth Product vs. Collector Current

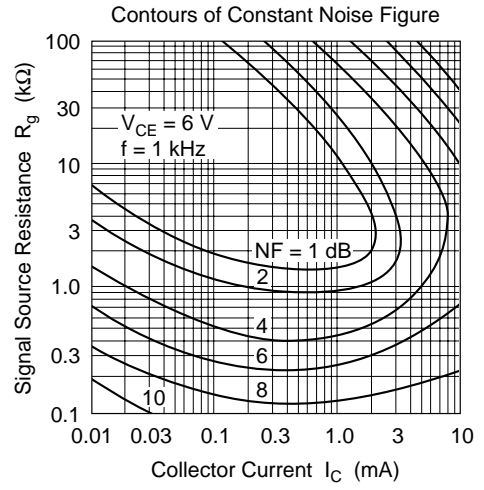
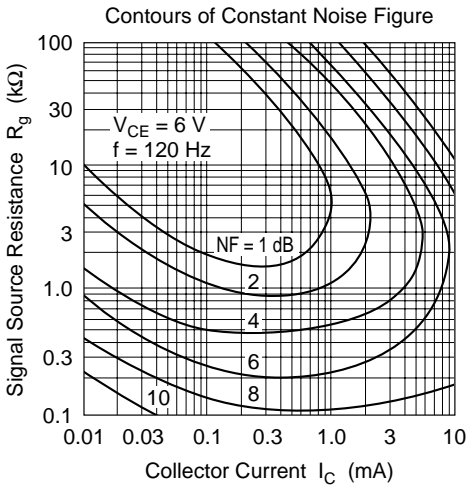


Collector Output Capacitance vs. Collector to Base Voltage



Contours of Constant Noise Figure

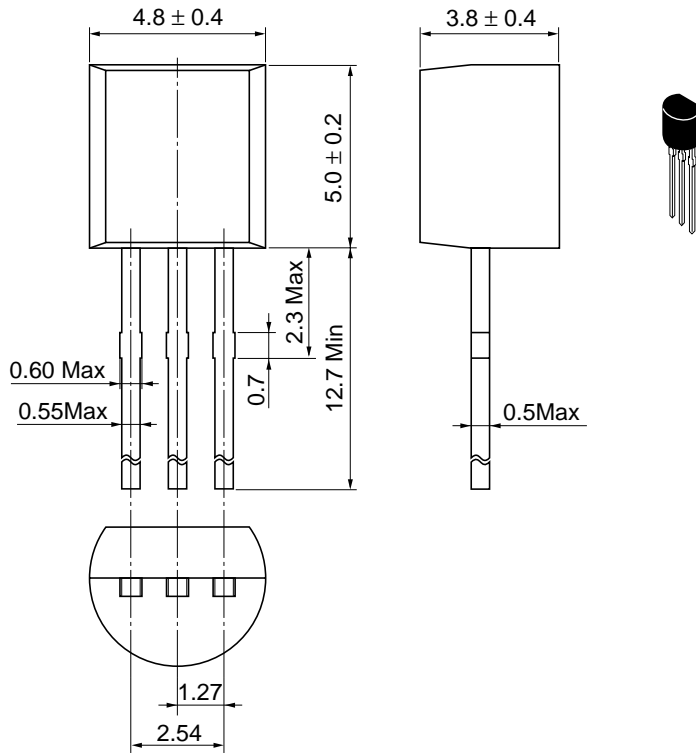




Package Dimensions

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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