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# 2SC1775, 2SC1775A

Silicon NPN Epitaxial

# HITACHI

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

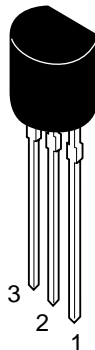
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## Application

- 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)

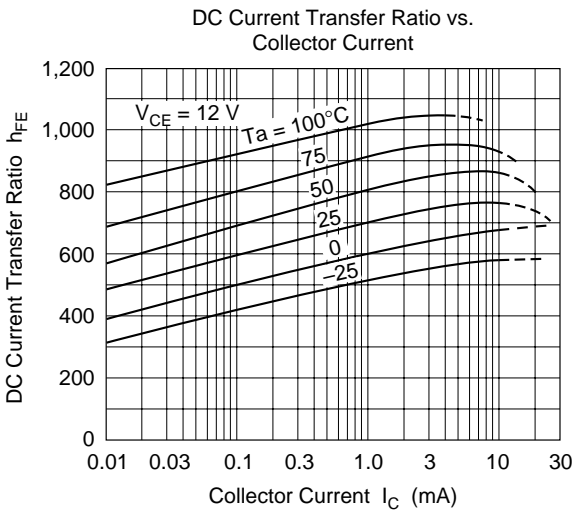
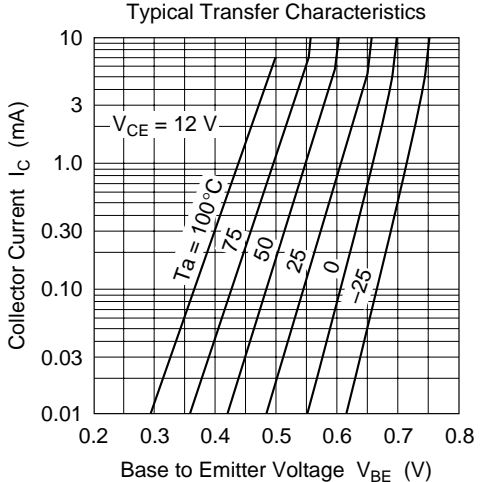
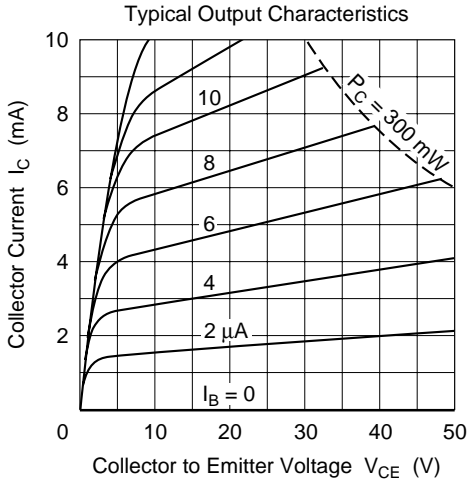
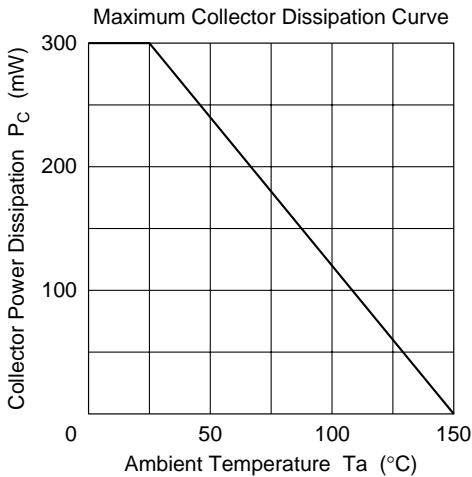
Item	Symbol	2SC1775	2SC1775A	Unit
Collector to base voltage	$V_{CBO}$	90	120	V
Collector to emitter voltage	$V_{CEO}$	90	120	V
Emitter to base voltage	$V_{EBO}$	5	5	V
Collector current	$I_C$	50	50	mA
Collector power dissipation	$P_C$	300	300	mW
Junction temperature	$T_j$	150	150	°C
Storage temperature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

## Electrical Characteristics (Ta = 25°C)

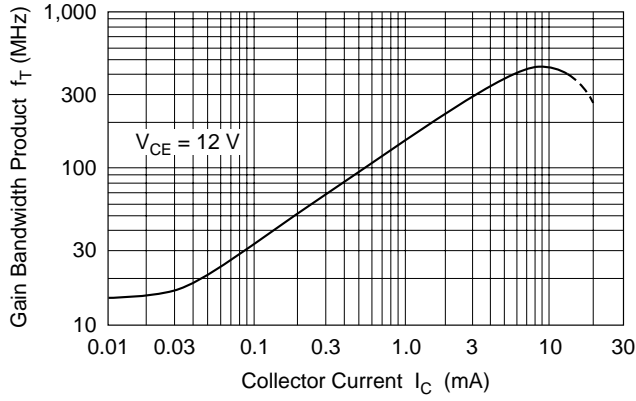
Item	Symbol	2SC1775			2SC1775A			Unit	Test conditions	
		Min	Typ	Max	Min	Typ	Max			
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	90	—	—	120	—	—	V	$I_C = 1 \text{ mA}$ , $R_{BE} = \infty$	
Collector cutoff current	$I_{CBO}$	—	—	0.5	—	—	—	$\mu\text{A}$	$V_{CB} = 75 \text{ V}$ , $I_E = 0$	
		—	—	—	—	—	0.5	$\mu\text{A}$	$V_{CB} = 100 \text{ V}$ , $I_E = 0$	
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.

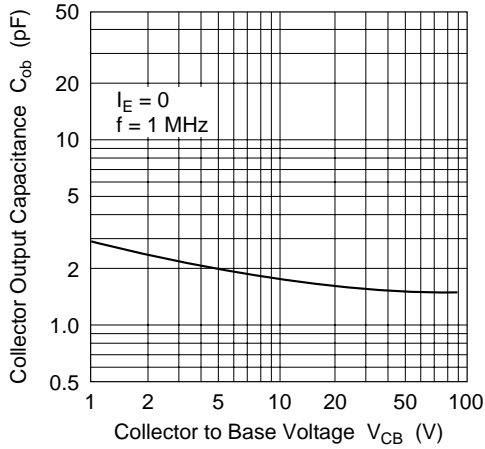
E	F
400 to 800	600 to 1200



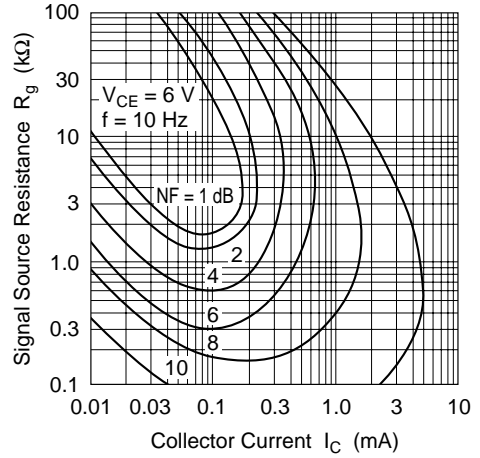
Gain Bandwidth Product vs. Collector Current

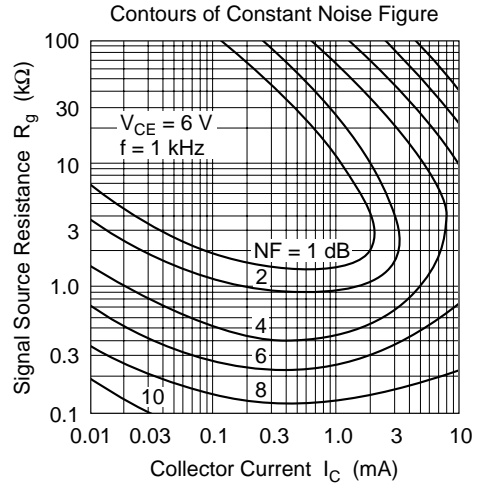
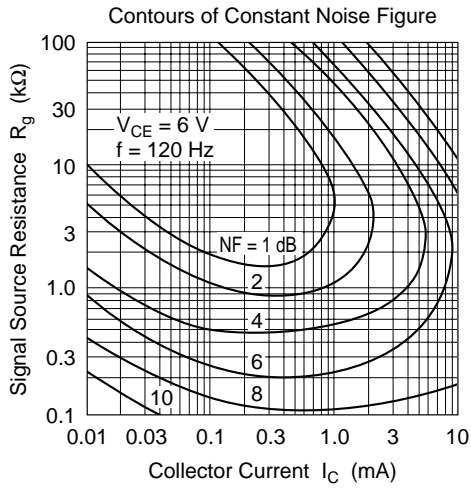


Collector Output Capacitance vs. Collector to Base Voltage



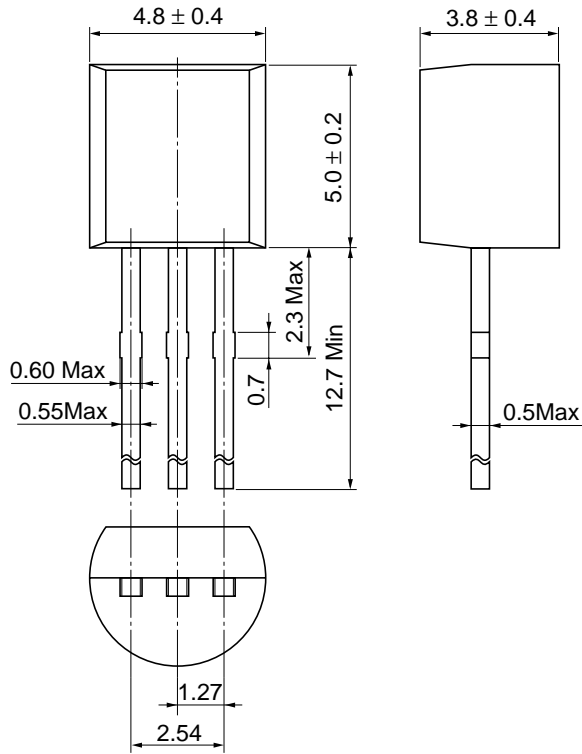
Contours of Constant Noise Figure





## Package Dimensions

As of January, 2001  
Unit: mm



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

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