
2SC1775, 2SC1775A

Silicon NPN Epitaxial

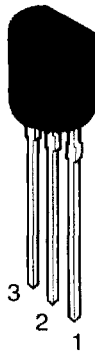
HITACHI

Application

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

Outline

TO-92 (1)



- 1. Emitter
- 2. Collector
- 3. Base

Absolute Maximum Ratings (Ta = 25°C)

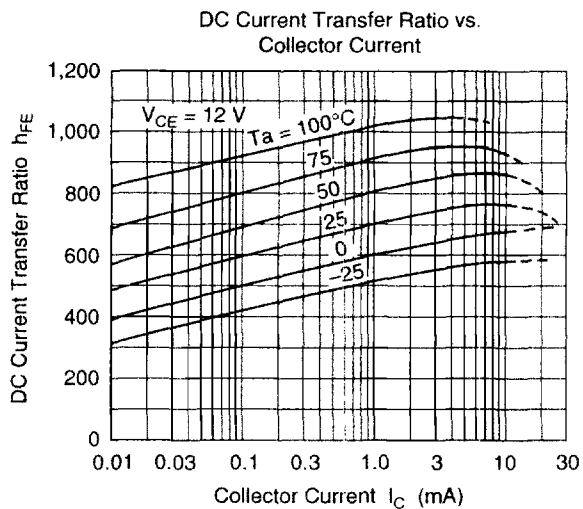
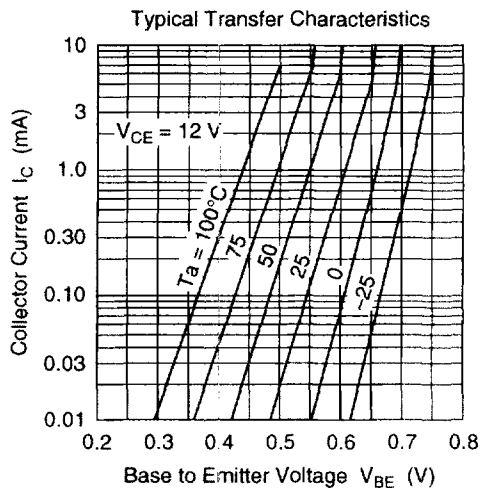
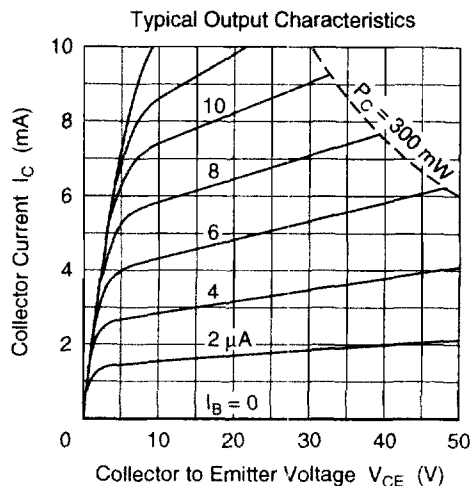
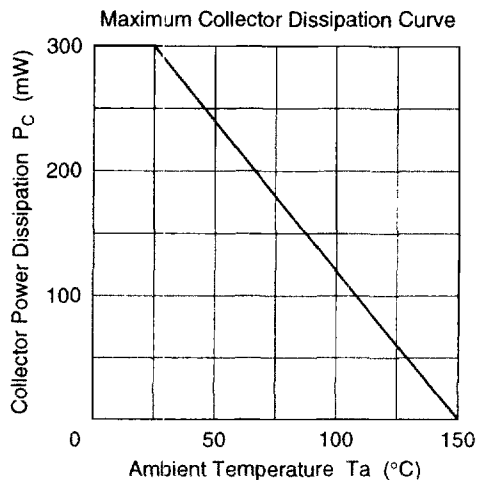
Item	Symbol	2SC1775	2SC1775A	Unit
Collector to base voltage	V_{CBO}	90	120	V
Collector to emitter voltage	V_{CEO}	90	120	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	50	50	mA
Collector power dissipation	P_C	300	300	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55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

Electrical Characteristics (Ta = 25°C)

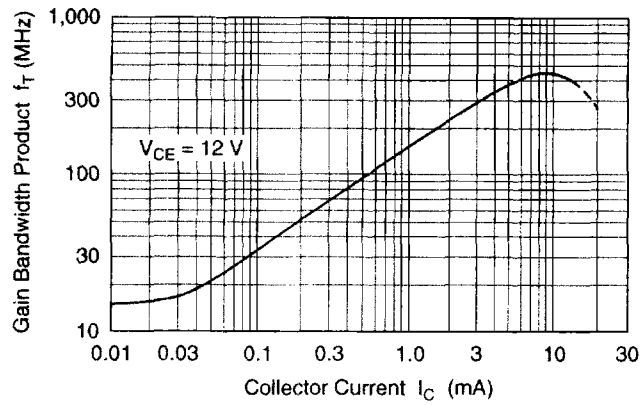
Item	Symbol	2SC1775			2SC1775A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	90	—	—	120	—	—	V	$I_C = 1 \text{ mA}$, $R_{BE} = \infty$
Collector cutoff current	I_{CBO}	—	—	0.5	—	—	—	μA	$V_{CB} = 75 \text{ V}$, $I_E = 0$
		—	—	—	—	—	0.5	μA	$V_{CB} = 100 \text{ V}$, $I_E = 0$
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	$V_{CE} = 6 \text{ V}$, $I_C = 50 \text{ μA}$, $R_g = 50 \text{ k}\Omega$
		—	—	1.5	—	—	1.5	dB	$f = 1 \text{ kHz}$

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

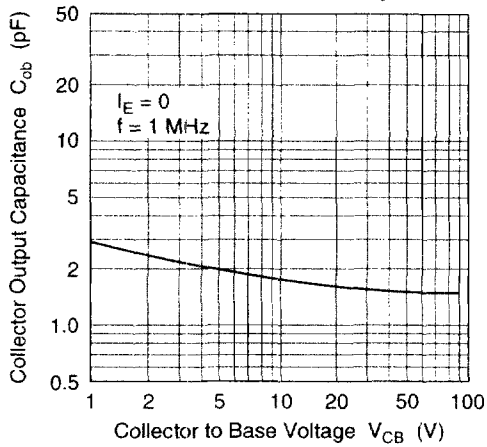
E	F
400 to 800	600 to 1200



Gain Bandwidth Product vs.
Collector Current



Collector Output Capacitance vs.
Collector to Base Voltage



Contours of Constant Noise Figure

