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# 2SC1213, 2SC1213A

Silicon NPN Epitaxial

# HITACHI

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

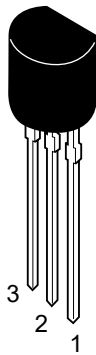
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## Application

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

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

## 2SC1213, 2SC1213A

### 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	$T_j$	150	150	°C
Storage temperature	$T_{stg}$	-55 to +150	-55 to +150	°C

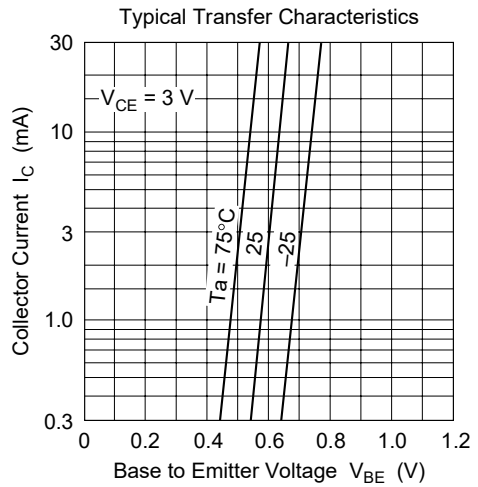
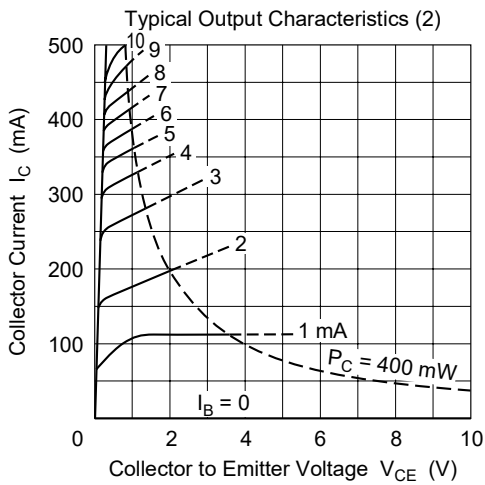
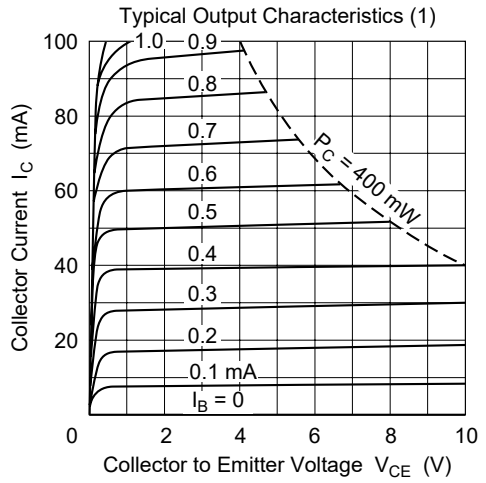
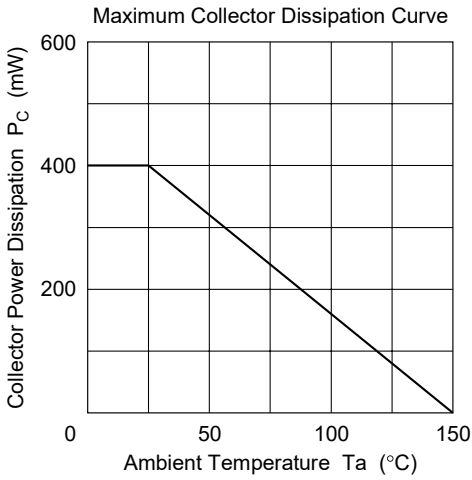
### Electrical Characteristics (Ta = 25°C)

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

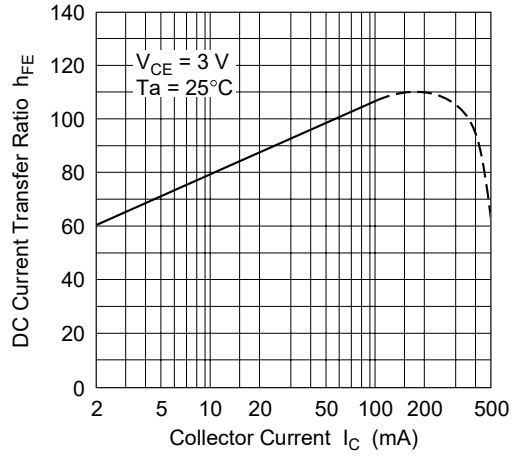
Notes: 1. The 2SC1213 and 2SC1213A are grouped by  $h_{FE}$  as follows.

2. Pulse test

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

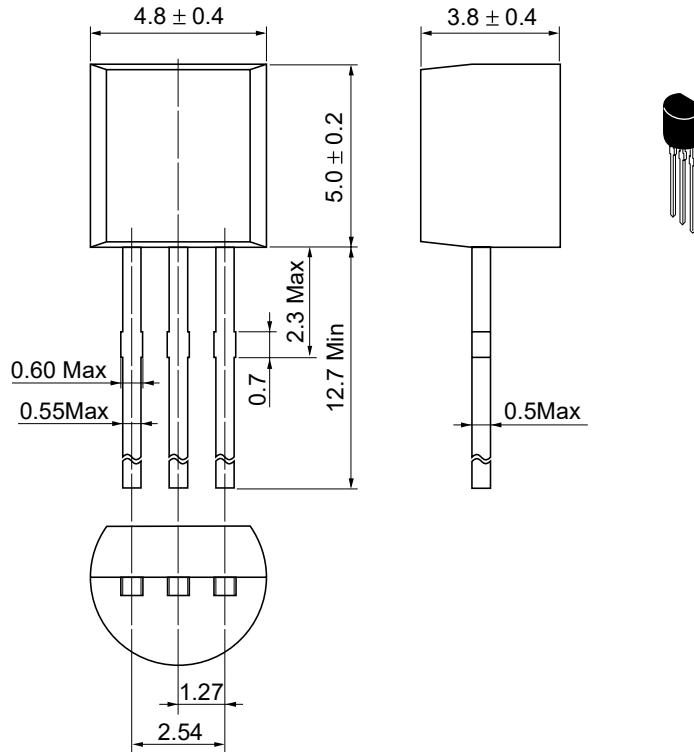


DC Current Transfer Ratio vs.  
Collector Current



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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