

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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## 2SA836

Silicon PNP Epitaxial

REJ03G0629-0200  
 (Previous ADE-208-316)  
 Rev.2.00  
 Aug.10.2005

### Application

Low frequency low noise amplifier

### Outline

RENESAS Package code: PRSS0003DA-A  
 (Package name: TO-92 (1))



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

### Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	-55	V
Collector to emitter voltage	$V_{CEO}$	-55	V
Emitter to base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-100	mA
Emitter current	$I_E$	100	mA
Collector power dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

## Electrical Characteristics

(Ta = 25°C)

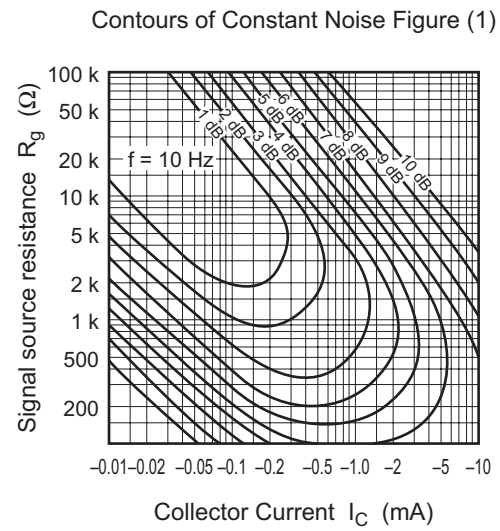
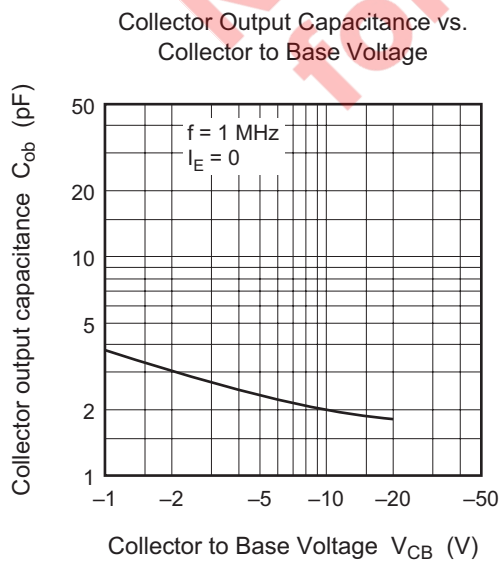
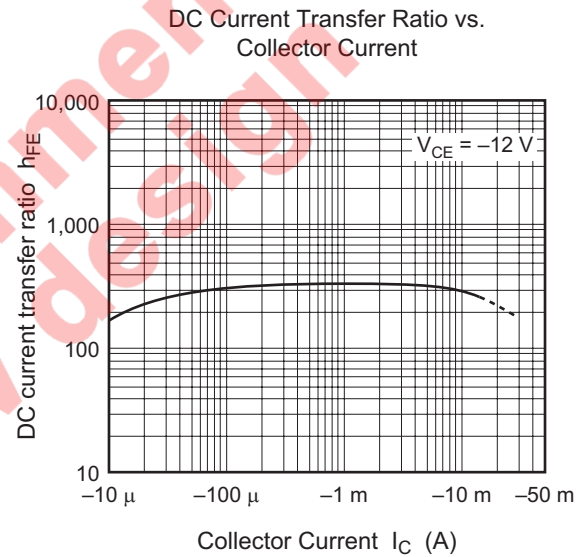
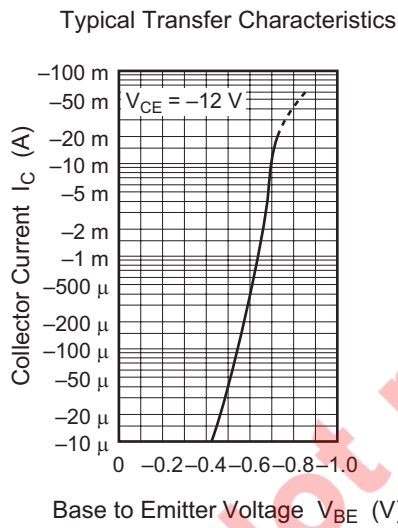
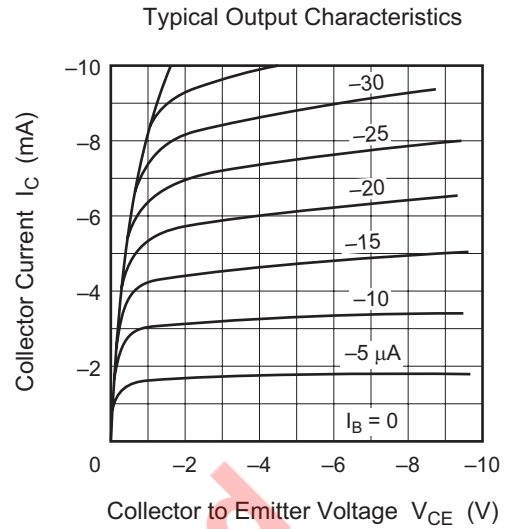
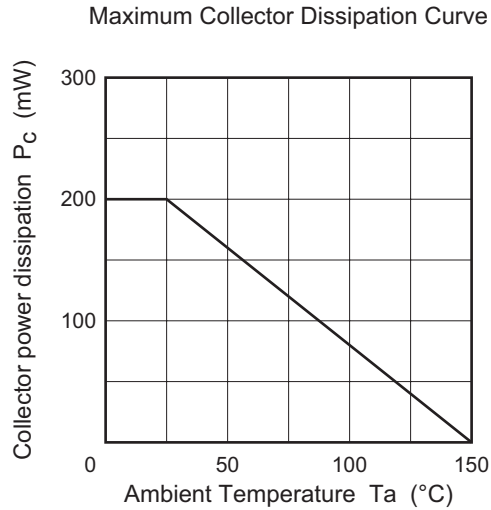
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	-55	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-55	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	V	$I_E = -10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	-100	nA	$V_{CB} = -18 \text{ V}, I_E = 0$
Emitter cutoff current	$I_{EBO}$	—	—	-50	nA	$V_{EB} = -2 \text{ V}, I_C = 0$
DC current transfer ratio	$h_{FE}^{*1}$	160	—	500		$V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	-0.1	-0.5	V	$I_C = -10 \text{ mA}, I_B = -1 \text{ mA}$
Base to emitter voltage	$V_{BE}$	—	-0.66	-0.75	V	$V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$
Gain bandwidth product	$f_T$	—	200	—	MHz	$V_{CE} = -12 \text{ V}, I_E = -2 \text{ mA}$
Collector output capacitance	$C_{ob}$	—	2.0	—	pF	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Noise figure	NF	—	1	5	dB	$V_{CE} = -6 \text{ V},$ $f = 10 \text{ Hz}$
		—	0.5	1	dB	$I_C = -0.1 \text{ mA},$ $R_g = 10 \text{ k}\Omega$ $f = 1 \text{ kHz}$

Note: 1. The 2SA836 is grouped by  $h_{FE}$  as follows.

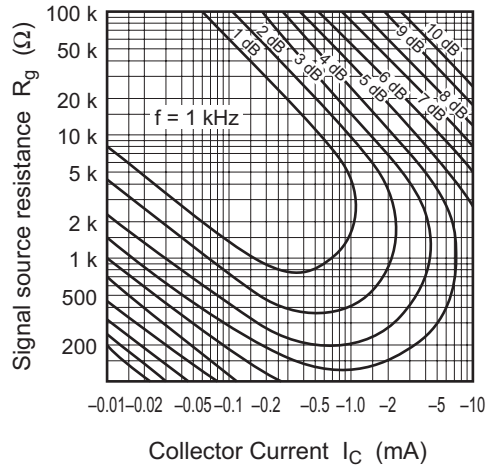
C	D
160 to 320	250 to 500

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Main Characteristics

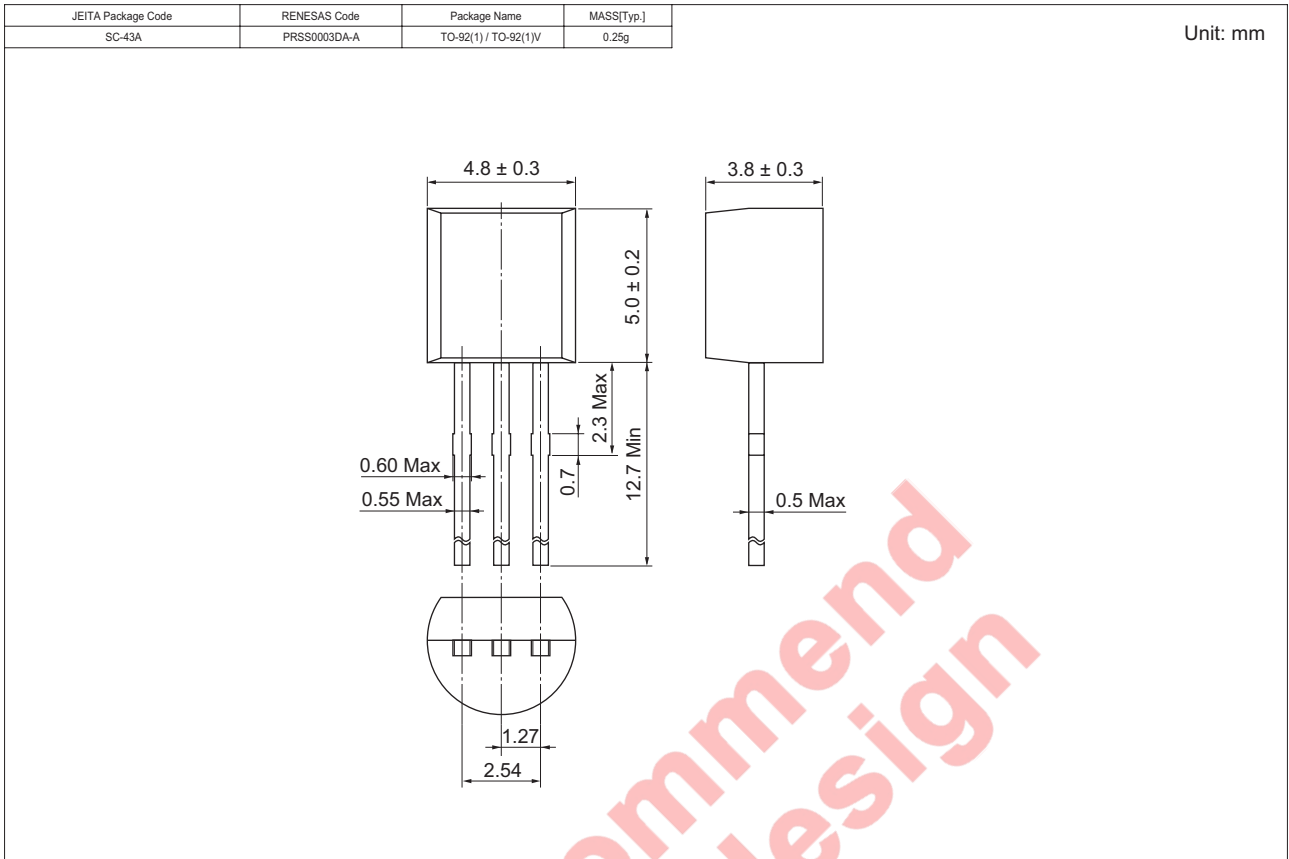


Contours of Constant Noise Figure (2)



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### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SA836CTZ 2SA836DTZ	2500	Hold Box, Radial Taping

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