

2SC1345

Silicon NPN Epitaxial

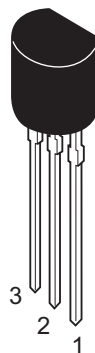
REJ03G0687-0300
(Previous ADE-208-1052A)
Rev.3.00
Sep.10.2005

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}	50	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	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	$V_{(BR)CEO}$	50	—	—	V	$I_C = 1\ mA, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10\ \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 18\ V, I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	$V_{EB} = 2\ V, I_C = 0$
DC current transfer ratio	h_{FE}^{*1}	250	—	1200		$V_{CE} = 12\ V, I_C = 2\ mA$
Base to emitter voltage	V_{BE}	—	—	0.75	V	$V_{CE} = 12\ V, I_C = 2\ mA$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_C = 10\ mA, I_B = 1\ mA$
Gain bandwidth product	f_T	—	230	—	MHz	$V_{CE} = 12\ V, I_C = 2\ mA$
Collector output capacitance	C_{ob}	—	—	3.5	pF	$V_{CB} = 10\ V, I_E = 0, f = 1\ MHz$
Noise figure	NF	—	—	8	dB	$V_{CE} = 6\ V, I_C = 0.1\ mA, f = 10\ Hz, R_g = 10\ k\Omega$
		—	—	1	dB	$V_{CE} = 6\ V, I_C = 0.1\ mA, f = 1\ kHz, R_g = 10\ k\Omega$

Note: 1. The 2SC1345 is grouped by h_{FE} as follows.

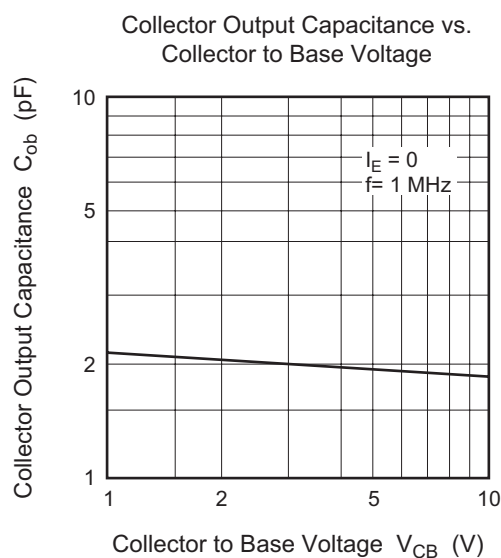
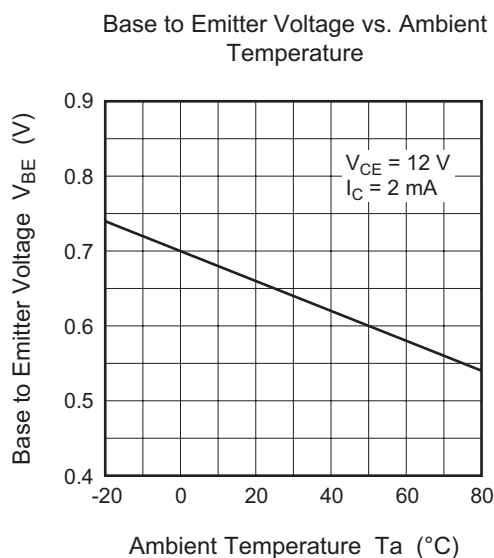
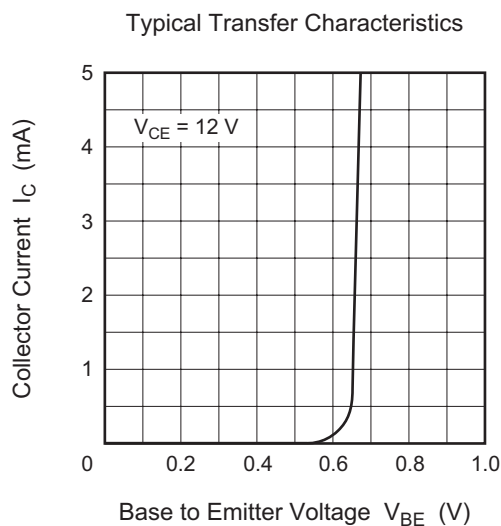
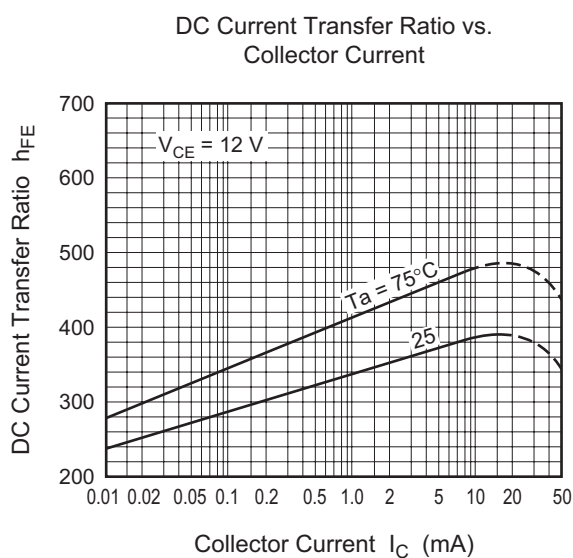
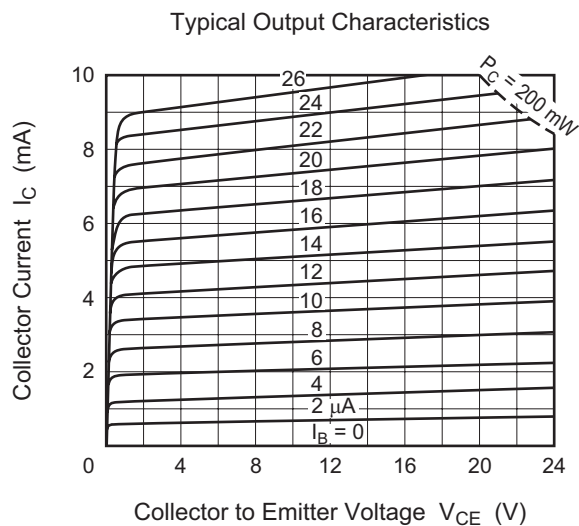
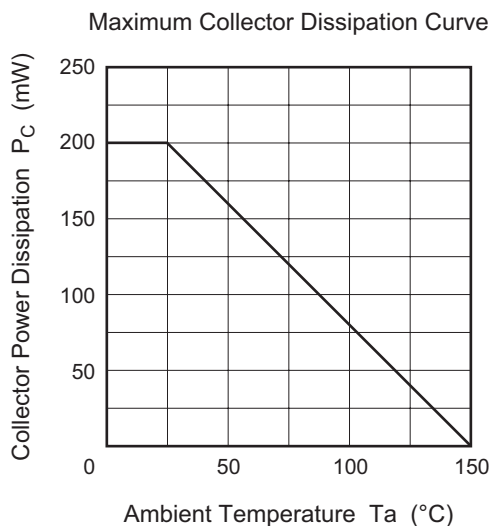
D	E	F
250 to 500	400 to 800	600 to 1200

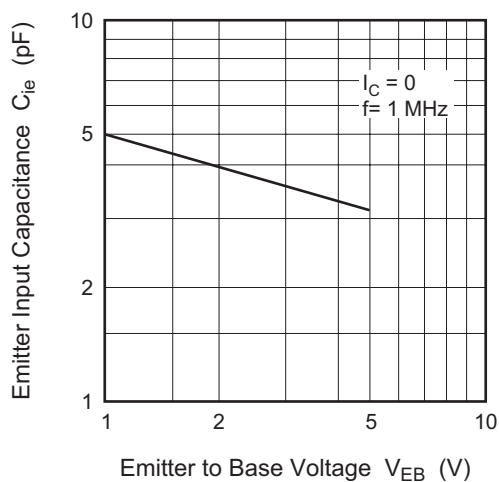
Small Signal h Parameters

(V_{CE} = 5V, I_C = 0.1 mA, f = 270 Hz, Ta = 25°C, Emitter common)

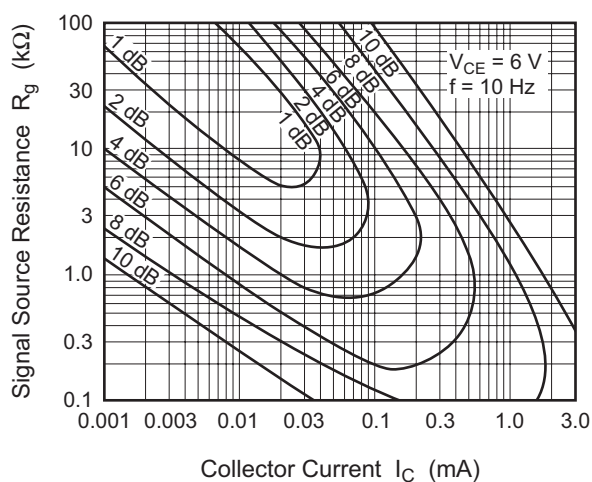
Item	Symbol	D	E	F	Unit
Input impedance	h_{ie}	110	170	240	k Ω
Voltage feedback ratio	h_{re}	9.5	14.5	16	$\times 10^{-4}$
Current transfer ratio	h_{fe}	340	540	825	
Output admittance	h_{oe}	12.0	12.5	13.5	μS

Main Characteristics

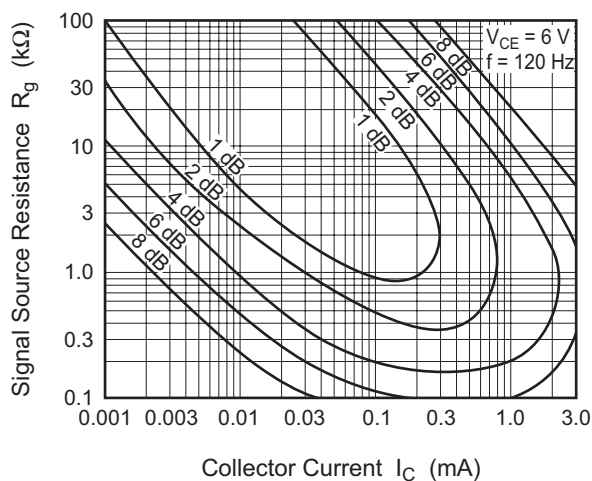


Emitter Input Capacitance vs.
Emitter to Base Voltage

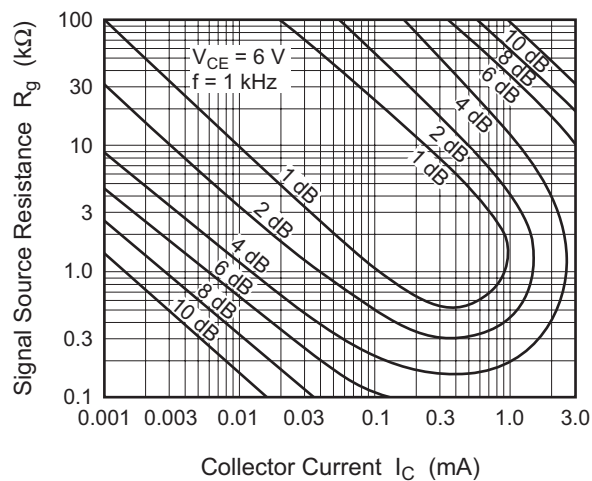
Contours of Constant Noise Figure



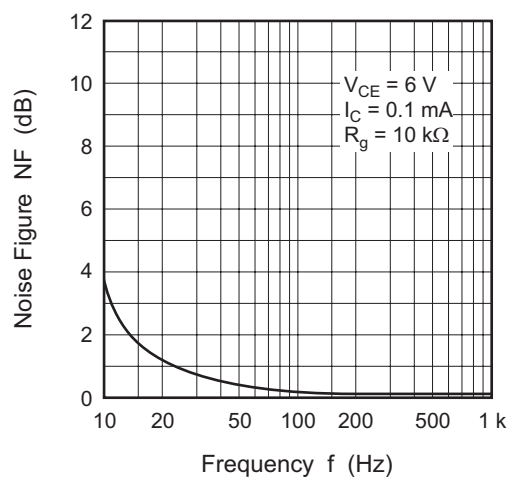
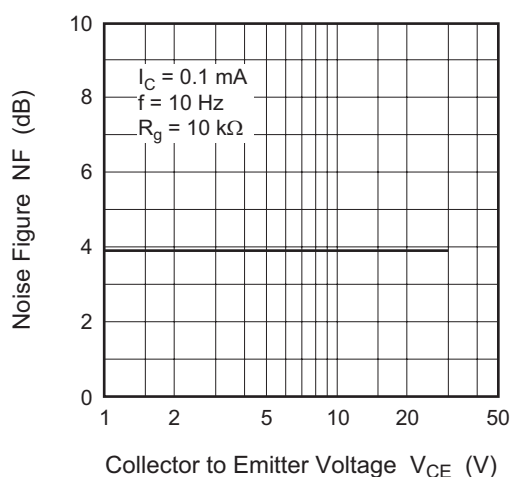
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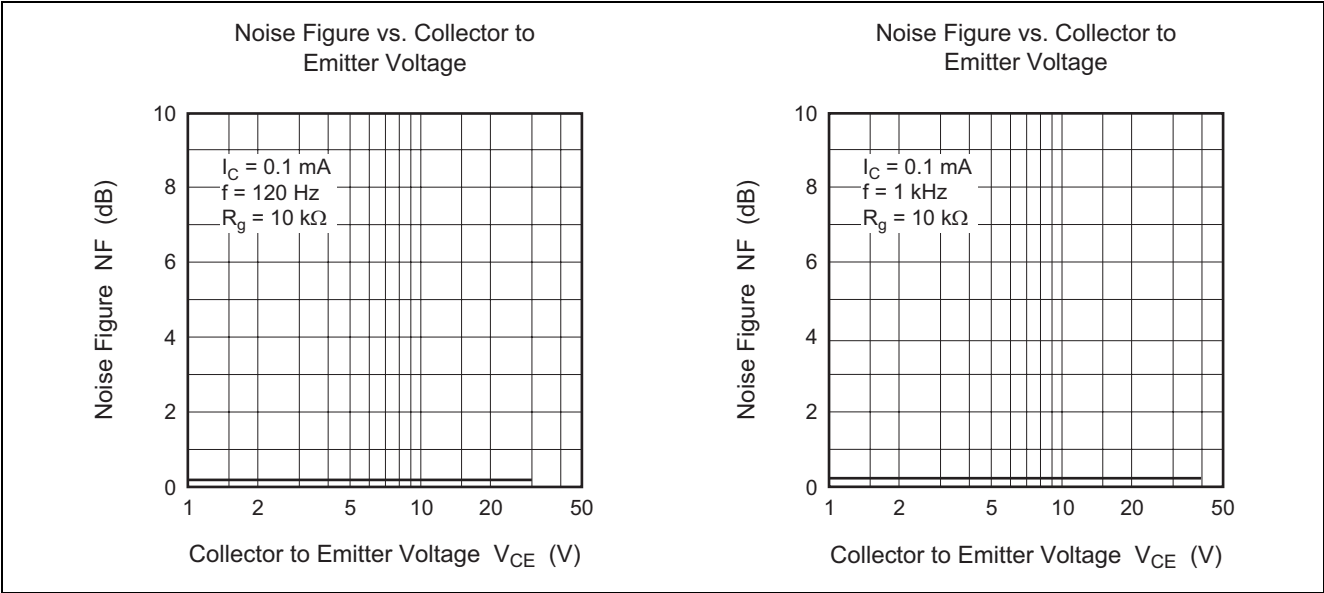


Contours of Constant Noise Figure

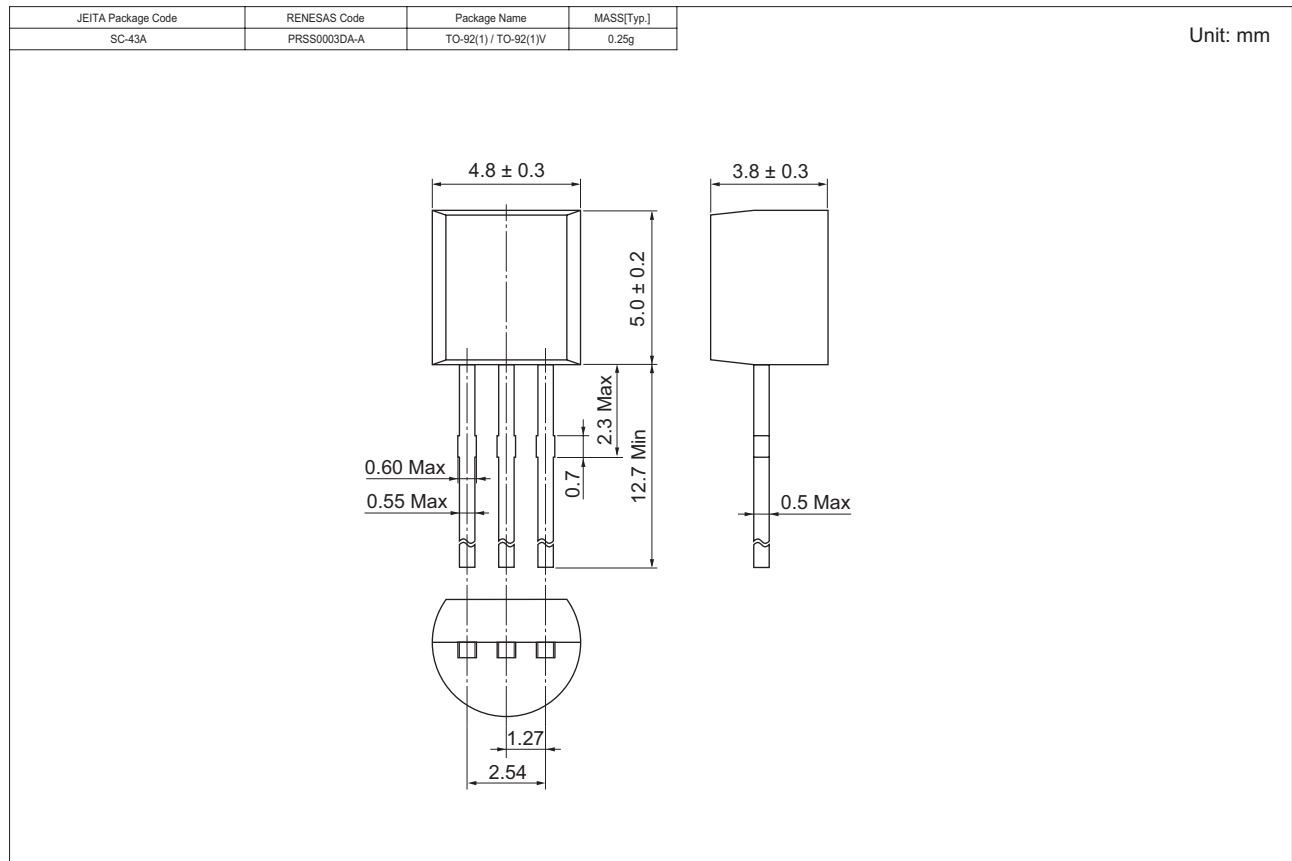


Noise Figure vs. Frequency

Noise Figure vs. Collector to
Emitter Voltage



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC1345ETZ-E	2500	Hold Box, Radial Taping
2SC1345FTZ-E		

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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