To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SC5851

Silicon NPN Epitaxial

ADE-208-1480 (Z)

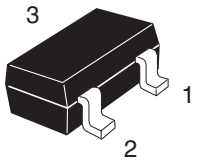
Rev.0
Feb. 2002

Features

- High frequency amplifier

Outline

CMPAK



1. Emitter
2. Base
3. Collector

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	30	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	100	mA
Collector power dissipation	P_C*	150	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +125	°C

*Value on the glass epoxy board (10 mm x 10 mm x 0.7 mm)

Electrical Characteristics

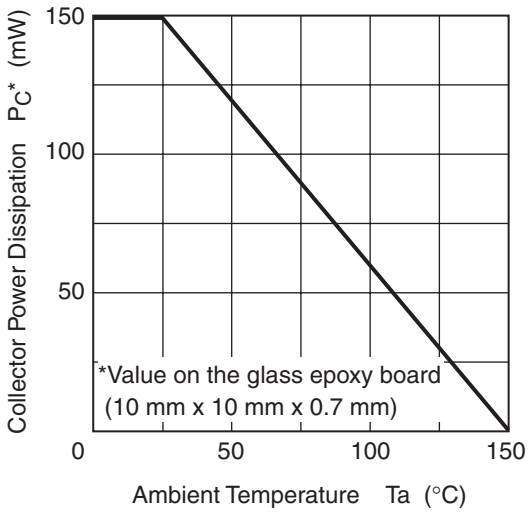
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.5	µA	V_{CB} = 20 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]	35	—	200	—	V_{CE} = 12 V, I_C = 2 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.1	V	I_C = 10 mA, I_B = 1 mA
Base to emitter voltage	V_{BE}	—	—	0.75	V	V_{CE} = 12 V, I_C = 2 mA
Gain bandwidth product	f_T	—	230	—	MHz	V_{CE} = 12 V, I_C = 2 mA
Collector output capacitance	C_{ob}	—	1.6	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz
Noise figure	NF	—	5.5	—	dB	V_{CE} = 6 V, I_C = 1 mA, f = 100 MHz, Rg = 100 Ω

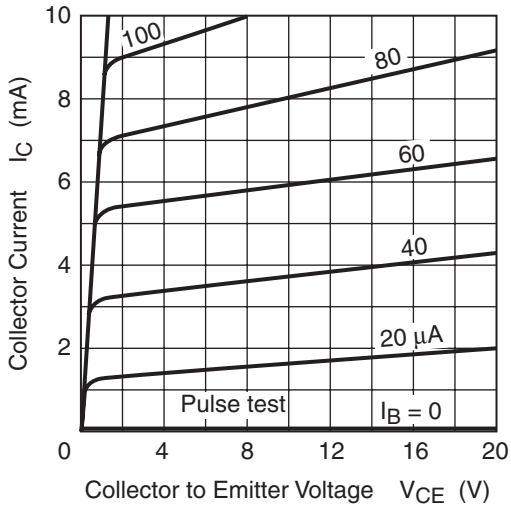
Notes: 1. The 2SC5851 is grouped by h_{FE} as follows.

Grade	A	B	C
Mark	FA	FB	FC
h_{FE}	35 to 75	60 to 120	100 to 200

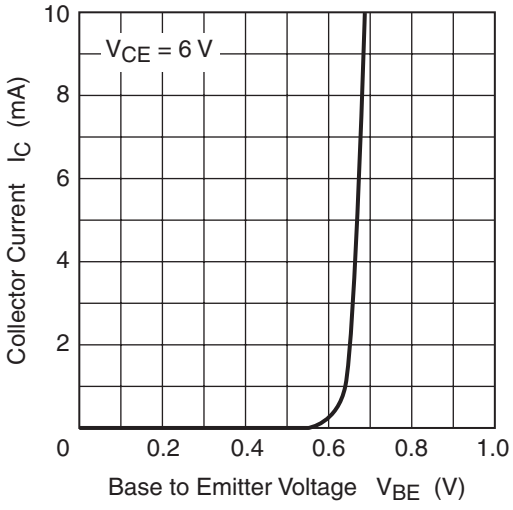
Maximum Collector Dissipation Curve



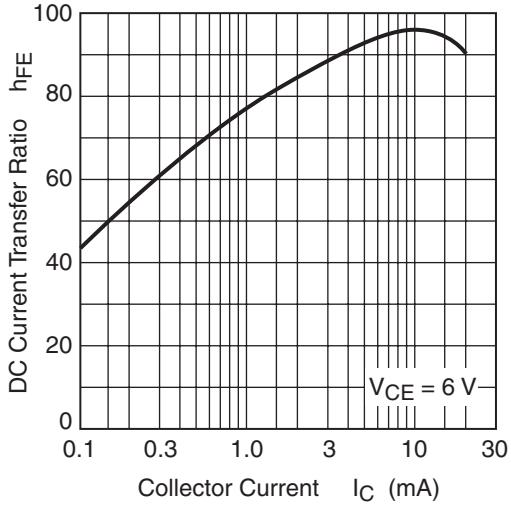
Typical Output Characteristics



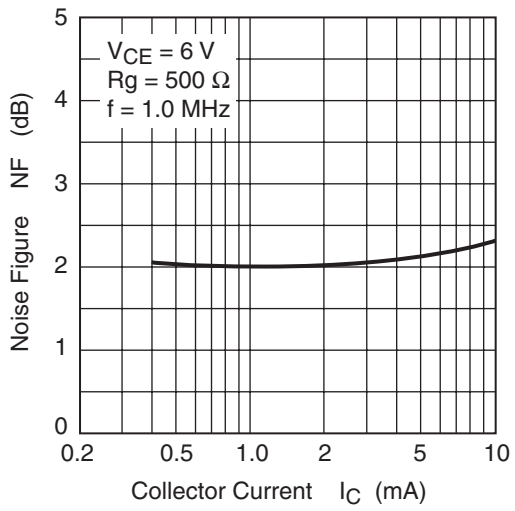
Typical Transfer Characteristics



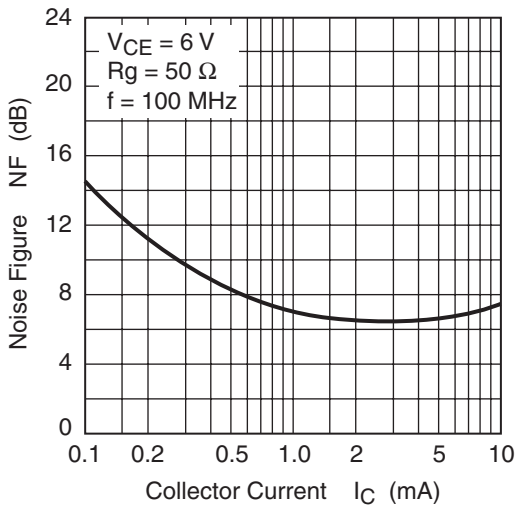
DC Current Transfer Ratio vs. Collector Current



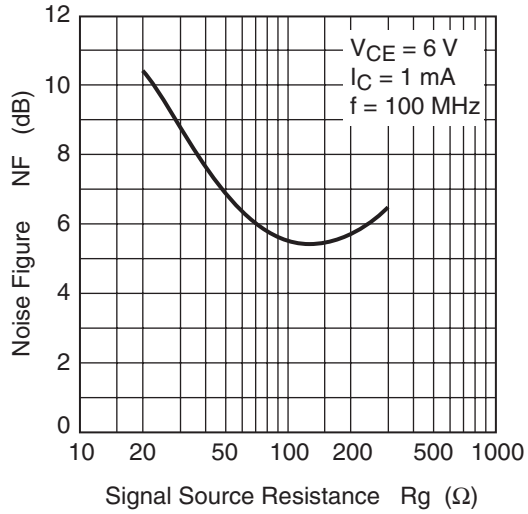
Noise Figure vs. Collector Current



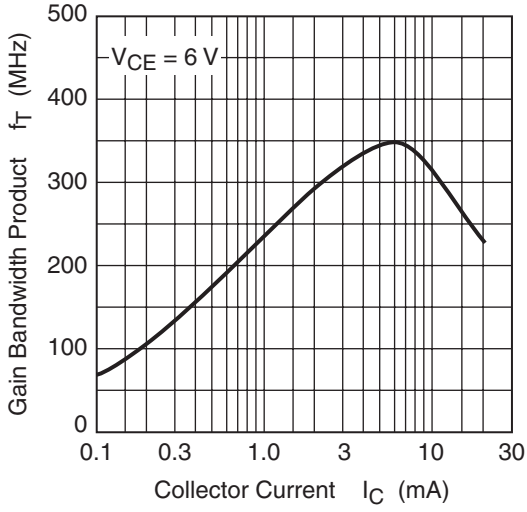
Noise Figure vs. Collector Current



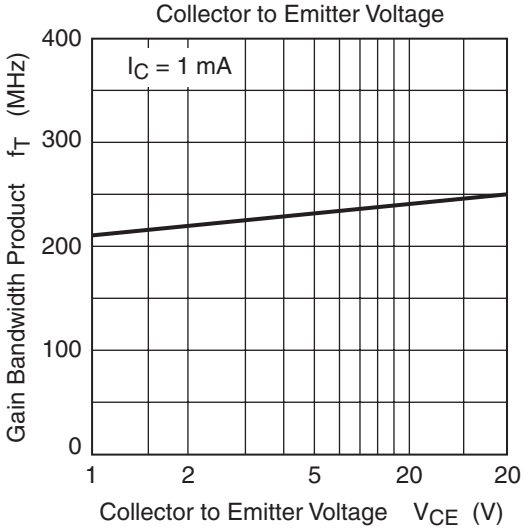
Noise Figure vs.
Signal Source Resistance



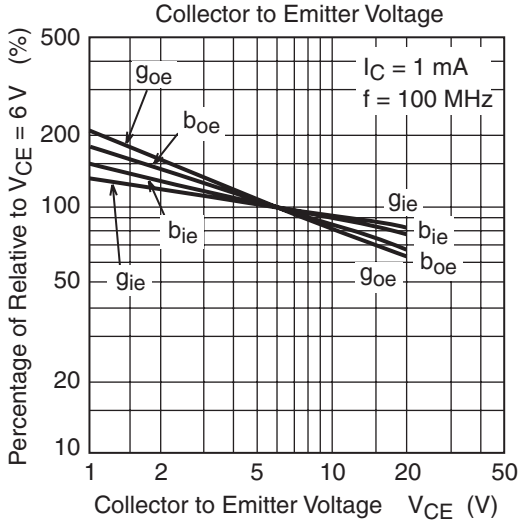
Gain Bandwidth Product vs.
Collector Current



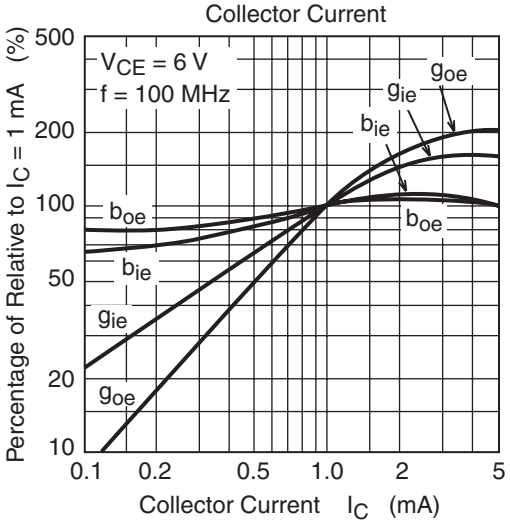
Gain Bandwidth Product vs.
Collector to Emitter Voltage



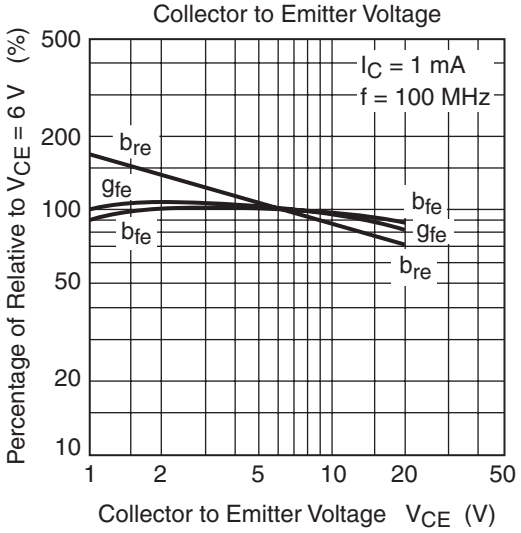
Input/Output Admittance vs.
Collector to Emitter Voltage

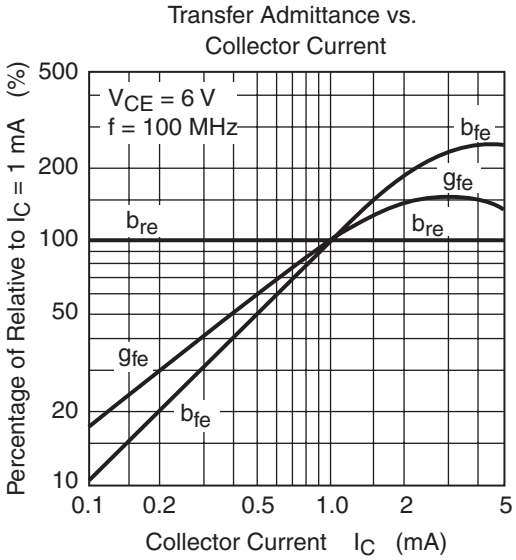


Input/Output Admittance vs.
Collector Current



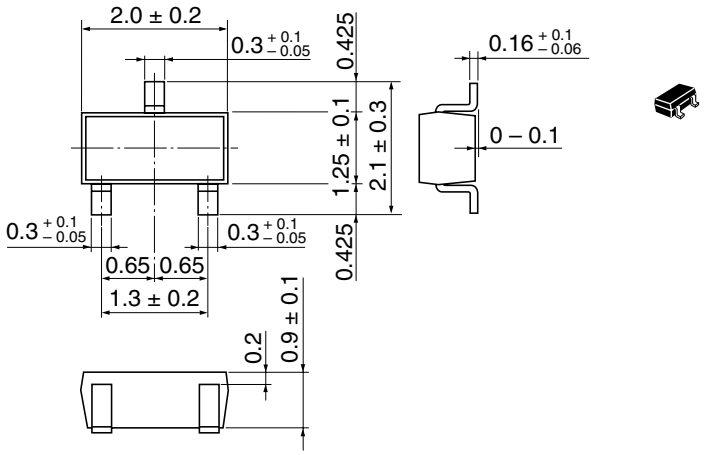
Transfer Admittance vs.
Collector to Emitter Voltage





Package Dimensions

As of July, 2001
Unit: mm



Hitachi Code	CMPAK
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.006 g

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