

# 2SC5051

Silicon NPN Epitaxial

REJ03G0741-0300  
(Previous ADE-208-1131A)  
Rev.3.00  
Aug.10.2005

## Application

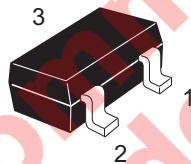
VHF / UHF wide band amplifier

## Features

- High gain bandwidth product  
 $f_T = 11 \text{ GHz Typ}$
- High gain, low noise figure  
 $PG = 14.5 \text{ dB Typ, NF} = 1.1 \text{ dB Typ at } f = 900 \text{ MHz}$

## Outline

RENESAS Package code: PTSP0003ZA-A  
(Package name: CMPAK<sup>®</sup>)



1. Emitter
2. Base
3. Collector

Note: Marking is "YZ-".

\*CMPAK is a trademark of Renesas Technology Corp.

Attention: This device is very sensitive to electro static discharge.

It is recommended to adopt appropriate cautions when handling this transistor.

## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	15	V
Collector to emitter voltage	$V_{CEO}$	8	V
Emitter to base voltage	$V_{EBO}$	1.5	V
Collector current	$I_C$	50	mA
Collector power dissipation	$P_C$	100	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

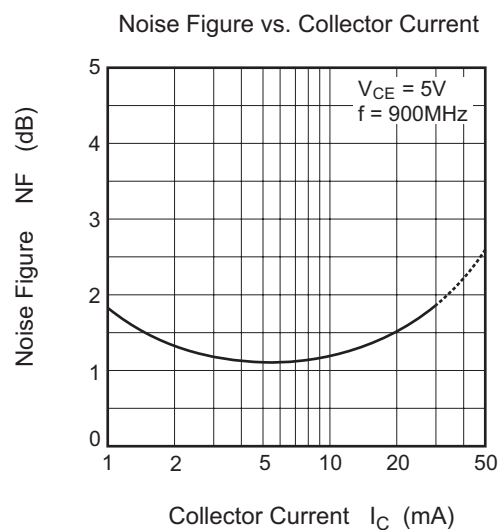
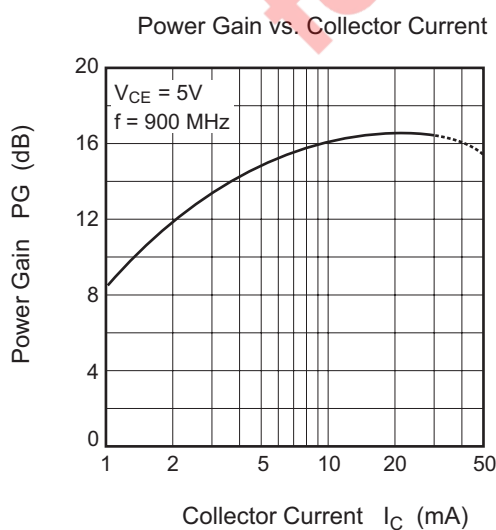
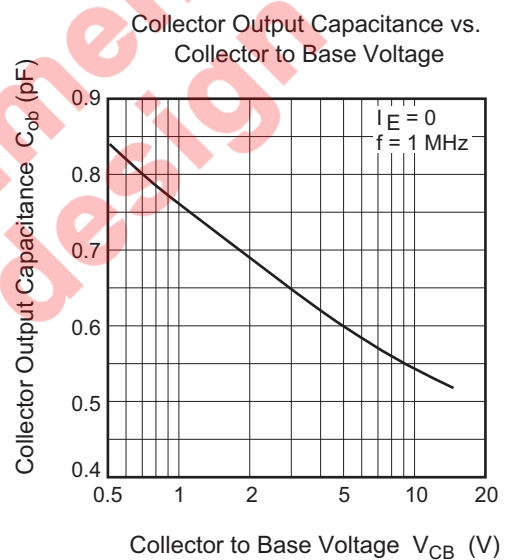
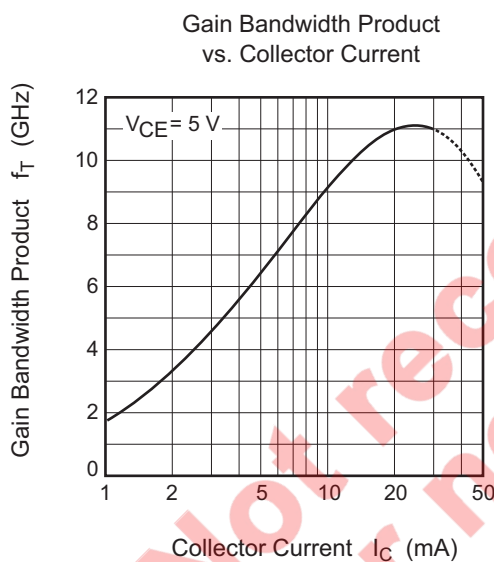
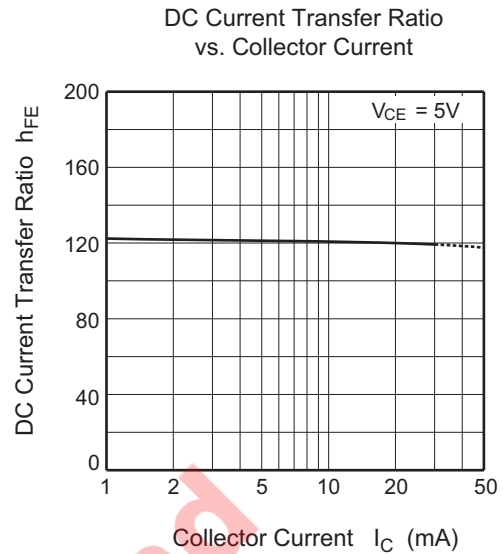
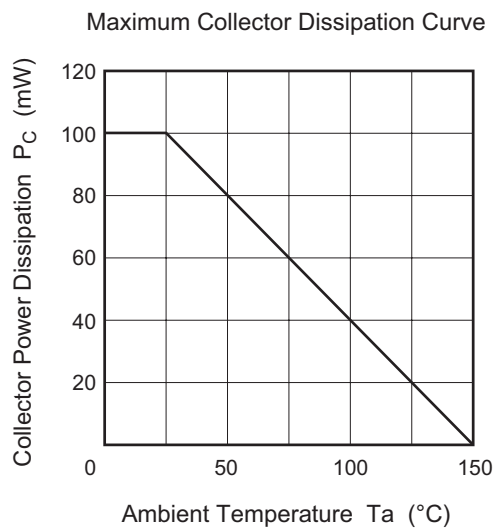
## Electrical Characteristics

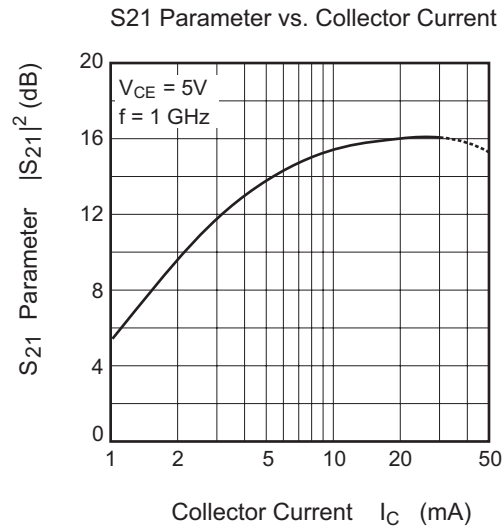
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector cutoff current	$I_{CBO}$	—	—	10	$\mu A$	$V_{CB} = 12\ V, I_E = 0$
	$I_{CEO}$	—	—	1	mA	$V_{CE} = 8\ V, R_{BE} = \infty$
Emitter cutoff current	$I_{EBO}$	—	—	10	$\mu A$	$V_{EB} = 1.5\ V, I_C = 0$
DC current transfer ratio	$h_{FE}$	50	120	250		$V_{CE} = 5\ V, I_C = 20\ mA$
Collector output capacitance	$C_{ob}$	—	0.65	1.15	pF	$V_{CB} = 5\ V, I_E = 0, f = 1\ MHz$
Gain bandwidth product	$f_T$	8.0	11.0	—	GHz	$V_{CE} = 5\ V, I_C = 20\ mA$
S21 Parameter	$ S_{21} ^2$	—	14.0	—	dB	$V_{CE} = 5\ V, I_C = 20\ mA, f = 1000\ MHz$
Power gain	PG	11.5	14.5	—	dB	$V_{CE} = 5\ V, I_C = 20\ mA, f = 900\ MHz$
Noise figure	NF	—	1.1	2.0	dB	$V_{CE} = 5\ V, I_C = 5\ mA, f = 900\ MHz$

Not recommended  
for new design

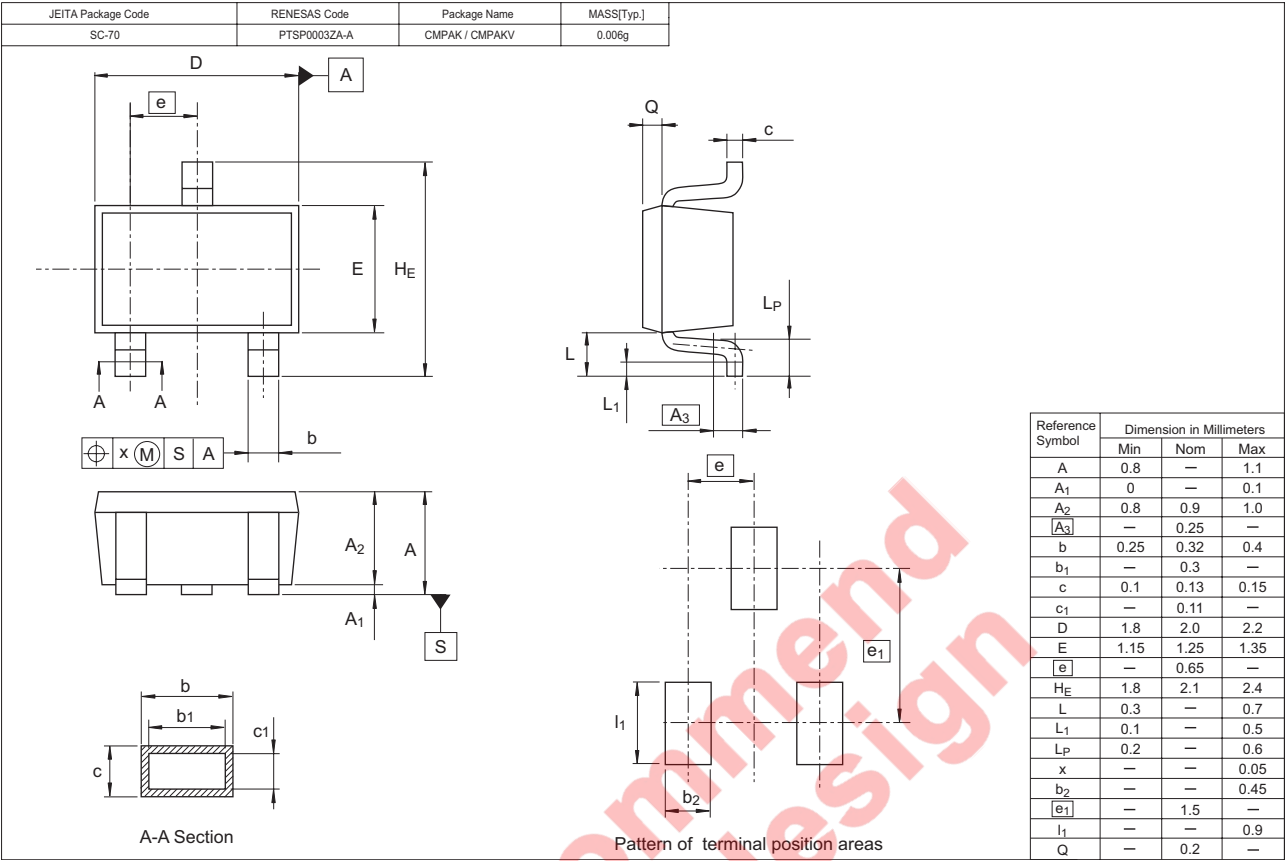
## Main Characteristics





Not recommended  
for new design

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC5051YZ-TR-E	3000	φ 178 mm Reel, 8 mm Emboss Taping

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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