Ordering number:EN4652

FC151

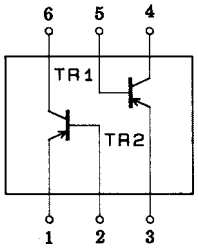
PNP Epitaxial Planar Silicon Composite Transistor

High-Frequency Amp, Current Mirror Circuit Applications

Features

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC151 is formed with two chips, being equivalent to the 2SA1669, placed in one package.
- Excellent in thermal equilibrium and pair capability.

Electrical Connection

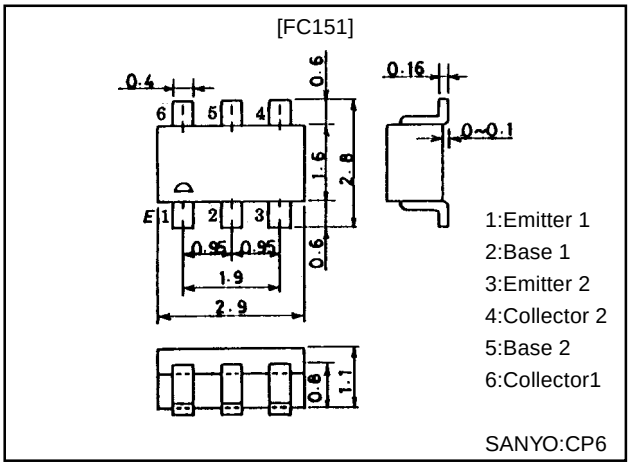


1:Emitter 1
2:Base 1
3:Emitter 2
4:Collector 2
5:Base 2
6:Collector1

Package Dimensions

unit:mm

2103A



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–20	V
Collector-to-Emitter Voltage	V_{CEO}		–15	V
Emitter-to-Base Voltage	V_{EBO}		–3	V
Collector Current	I_C		–50	mA
Collector Dissipation	P_C	1 unit	200	mW
Total Dissipation	P_T		300	mW
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

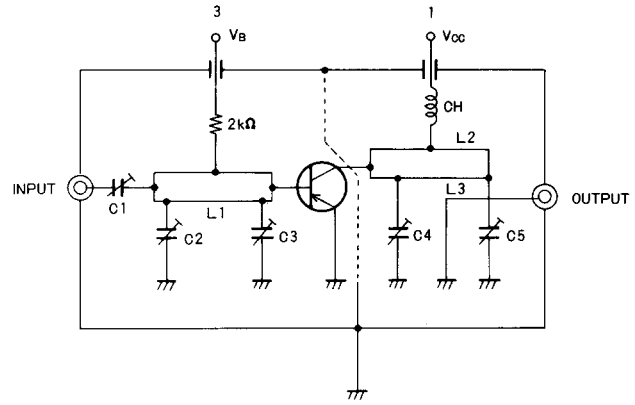
Parameter	Symbol	Conditons	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–15V, I_E=0			–0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–2V, I_E=0			–0.1	μA
DC Current Gain	h_{FE}	V_{CE}=–10V, I_C=–5mA	20		100	
DC Current Gain Ratio	h_{FE}(small/large)	V_{CE}=–10V, I_C=–5mA	0.7	0.93		
B-E Voltage Difference	V_{BE}(large-small)	V_{CE}=–10V, I_C=–5mA		3.0	15	mV
Gain-Bandwidth Product	f_T	V_{CE}=–10V, I_C=–5mA	1.5	3.0		GHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		1.0	1.5	pF
Forward Transfer Gain	| S21e |	V_{CE}=–10V, I_C=–5mA, f=0.9GHz	5			dB
Noise Figure	NF	V_{CE}=–10V, I_C=–3mA, f=0.9GHz		2.0		dB

Note:The specifications shown above are for each individual transistor. However, the specifications of h_{FE}(small/large) and h_{FE}(large-small) are for pair capability

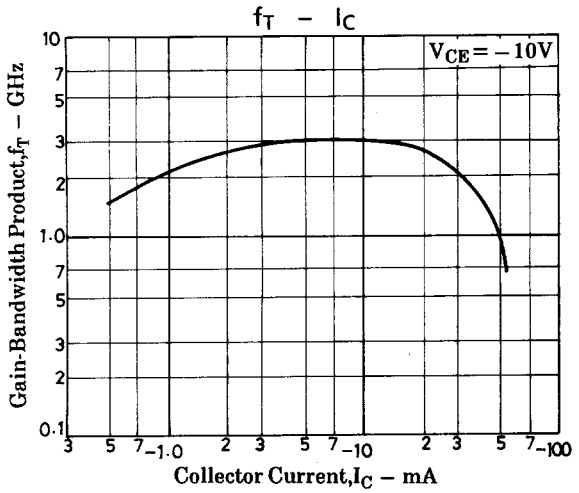
Marking:151

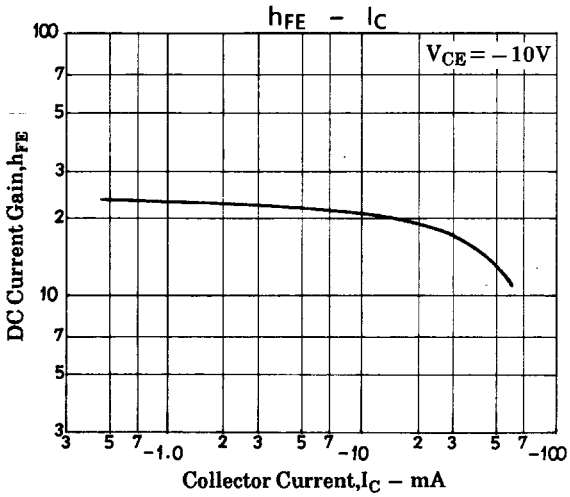
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

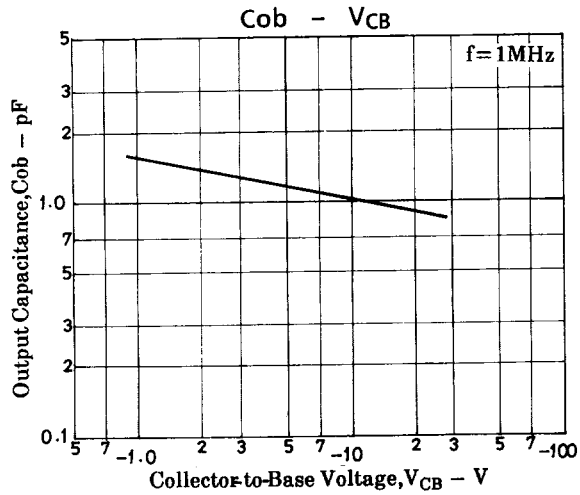
NF Test Circuit

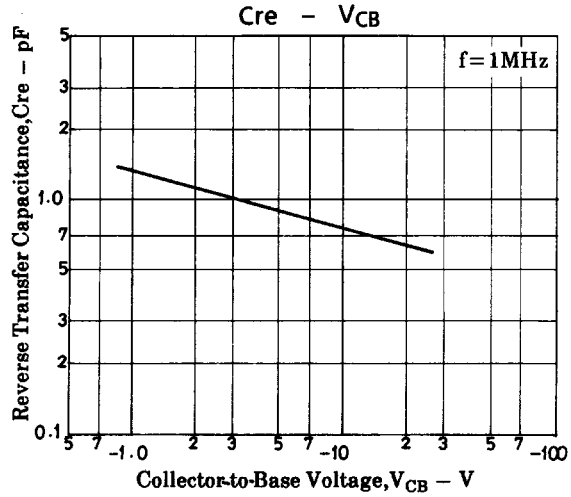


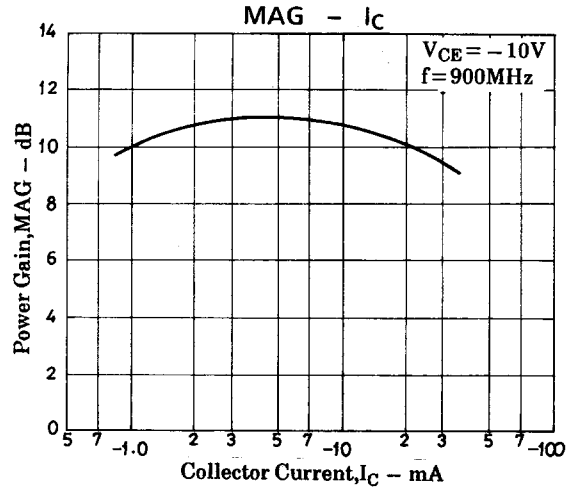
	900MHz
C1	~5pF
C2	~10pF
C3	~10pF
C4	~10pF
C5	~10pF
L1	W≒1.5mm, l≒25mm strip line
L2	W≒4mm, l≒25mm strip line
L3	0.5φ, l≒40mm
CH	2t+bead core

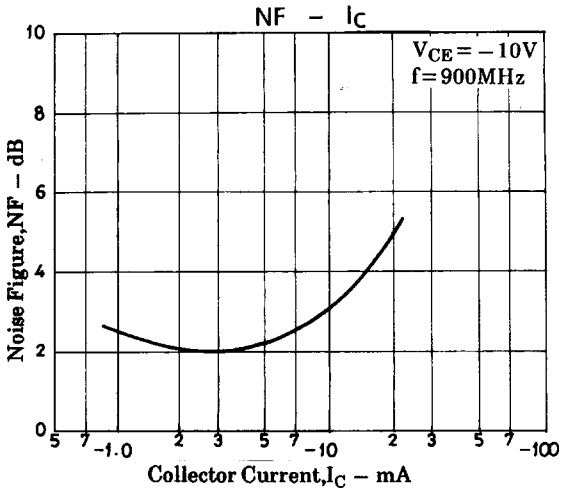


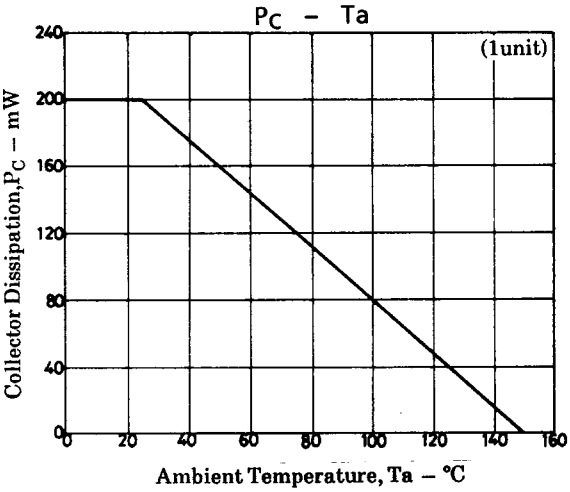






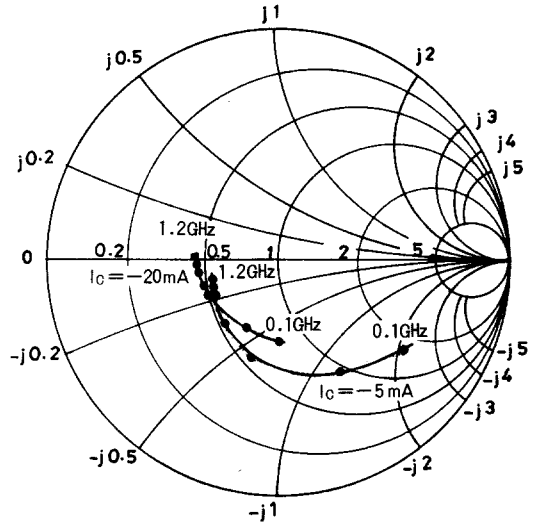




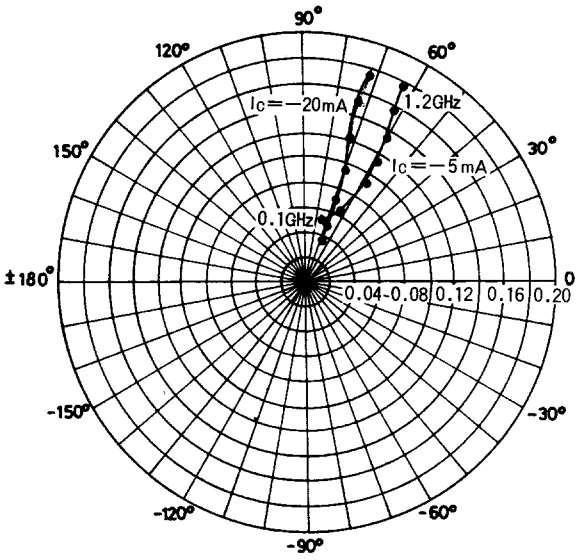


S Parameter

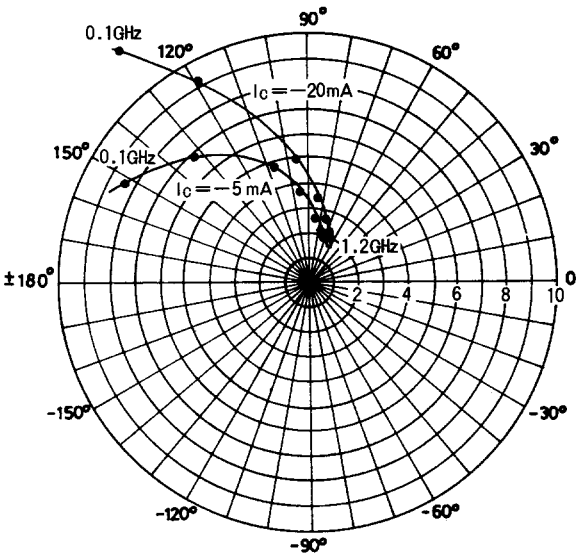
S11e : $V_{CE} = -10V$
f = 100MHz, 200 to 1200MHz (200MHz step)



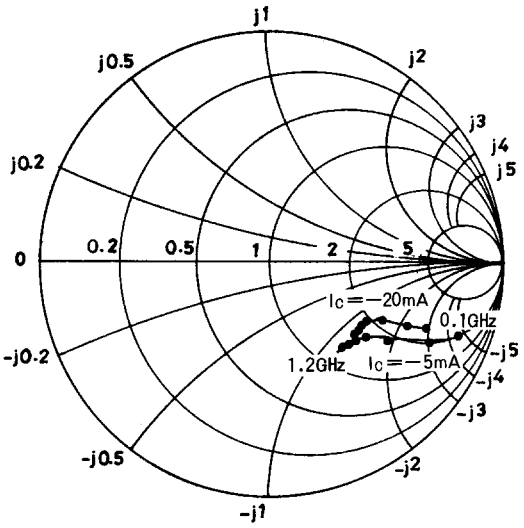
S12e : $V_{CE} = -10V$
f = 100MHz, 200 to 1200MHz (200MHz step)



S21e : $V_{CE}=-10V$
f=100MHz, 200 to 1200MHz (200MHz step)



S22e : $V_{CE}=-10V$
f=100MHz, 200 to 1200MHz (200MHz step)



S Parameter (Common-emitter)

$V_{CE}=-10V$, $I_C=-5mA$, $Z_O=50\Omega$

Freq (MHz)	$\lvert S_{11}\rvert$	$\angle S_{11}$	$\lvert S_{21}\rvert$	$\angle S_{21}$	$\lvert S_{12}\rvert$	$\angle S_{12}$	$\lvert S_{22}\rvert$	$\angle S_{22}$
100	0.707	−33.1	8.215	151.1	0.043	68.6	0.856	−19.8
200	0.589	−60.3	6.763	132.2	0.059	62.0	0.761	−25.4
400	0.435	−104.7	4.810	106.5	0.089	56.4	0.584	−34.2
600	0.373	−128.1	3.503	93.2	0.110	57.3	0.508	−36.6
800	0.349	−144.4	2.728	83.4	0.130	59.5	0.474	−39.0
900	0.346	−150.1	2.492	80.0	0.142	60.9	0.464	−40.3
1000	0.344	−155.4	2.266	76.8	0.154	61.4	0.459	−41.7
1200	0.340	−163.6	1.971	70.6	0.176	62.1	0.452	−45.2

$V_{CE}=-10V$, $I_C=-20mA$, $Z_O=50\Omega$

Freq (MHz)	$\lvert S_{11}\rvert$	$\angle S_{11}$	$\lvert S_{21}\rvert$	$\angle S_{21}$	$\lvert S_{12}\rvert$	$\angle S_{12}$	$\lvert S_{22}\rvert$	$\angle S_{22}$
100	0.348	−92.8	12.039	129.4	0.031	67.3	0.727	−22.9
200	0.330	−116.7	9.073	118.2	0.041	66.0	0.634	−24.8
400	0.350	−151.2	4.962	95.1	0.068	67.7	0.510	−26.5
600	0.353	−164.5	3.408	84.4	0.093	69.9	0.481	−28.1
800	0.360	−172.9	2.591	76.4	0.118	71.6	0.470	−31.1
900	0.366	−176.2	2.346	73.3	0.131	72.0	0.467	−32.9
1000	0.371	−178.4	2.142	70.8	0.146	71.8	0.467	−34.8
1200	0.379	176.2	1.851	65.2	0.171	71.1	0.466	−39.1

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