Ordering number:EN4653

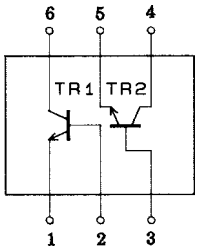
FC152

PNP Epitaxial Planar Silicon Composite Transistor

High-Frequency Amp, Differential Amp Applications

Features

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC152 is formed with two chips, being equivalent to the 2SC4270, placed in one package.
- Excellent in thermal equilibrium, pair capability and especially suited for differerntial amp.

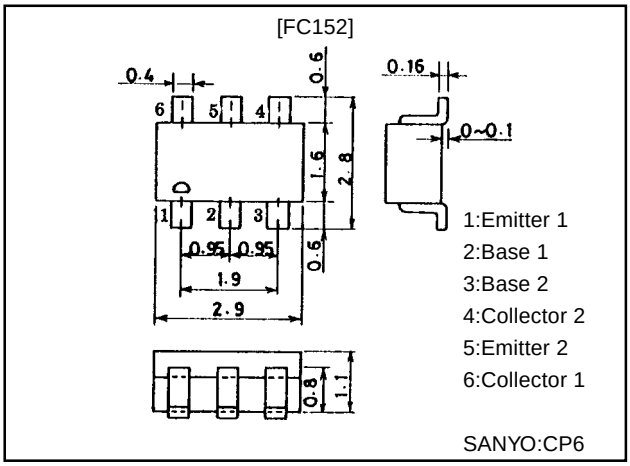


1:Emitter 1
2:Base 1
3:Base 2
4:Collector 2
5:Emitter 2
6:Collector 1

Package Dimensions

unit:mm

2104A



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

SANYO:CP6

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		25	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}=20V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=2V, I_C=0			10	μA
DC Current Gain	h_{FE}	V_{CE}=10V, I_C=5mA	60		200	
DC Current Gain Ratio	$h_{FE(small/large)}$	V_{CE}=10V, I_C=5mA	0.7	0.95		
B-E Voltage Difference	$V_{BE(large-small)}$	V_{CE}=10V, I_C=0		3.0	10	mV
Gain-Bnadwidth Product	f_T	V_{CE}=10V, I_C=10mA	1.5	3.0		GHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		0.7	1.0	pF
Power Gain	PG	V_{CE}=10V, I_C=10mA, f=0.9GHz		12		dB
Noise Figure	NF	V_{CE}=10V, I_C=3mA, f=0.9GHz		3.0		dB

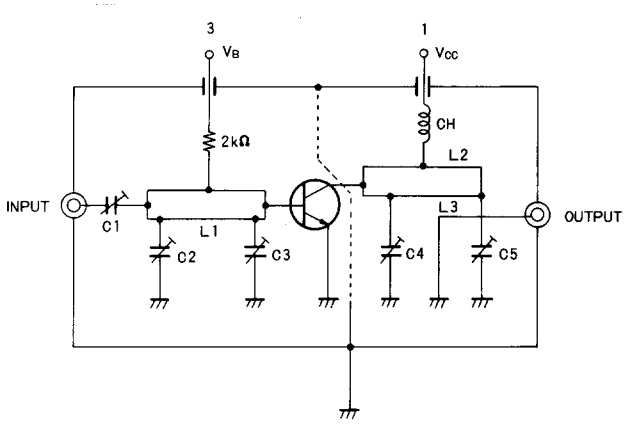
Note:The specifications shown above are for each individual transistor. However, the specifications of h_{FE}(small/large) and V_{BE}(large-small) are for pair capability

Marking:152

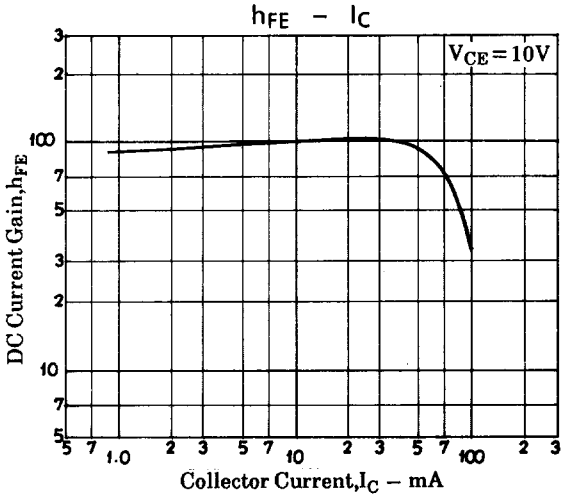
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

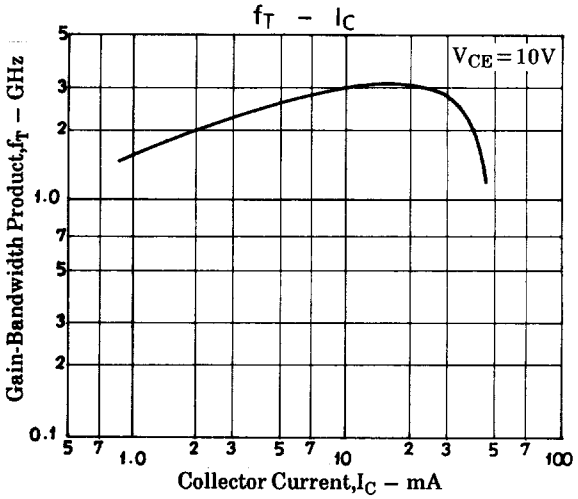
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

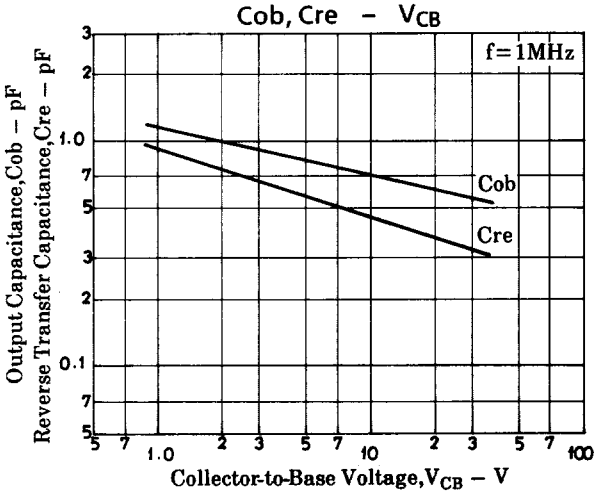
PG, NF Test Circuit

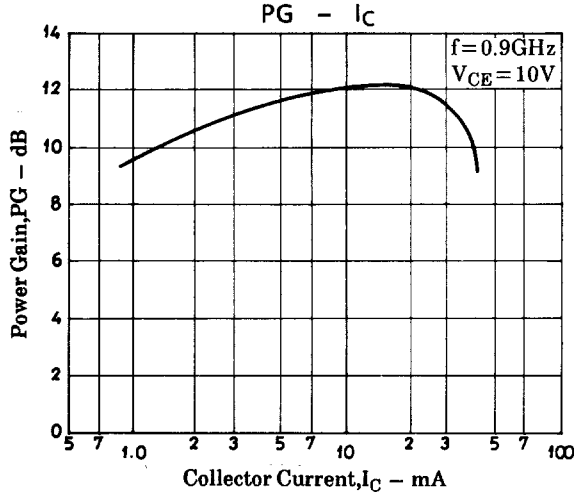


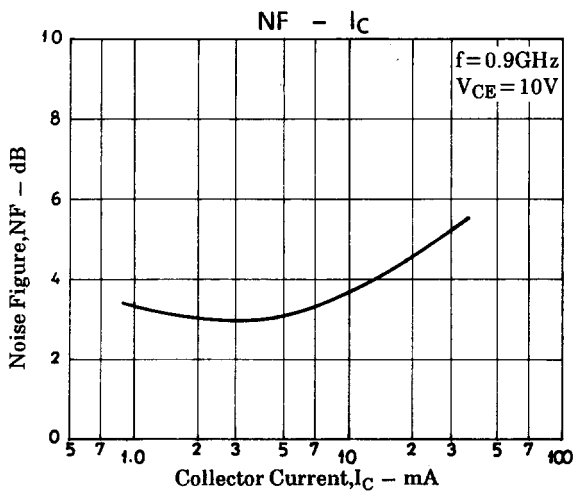
	900MHz
C1	~5pF
C2	~10pF
C3	~10pF
C4	~10pF
C5	~10pF
L1	W≒1.5mm, l≒25mm strip line
L2	W≒4mm, l≒25mm strip line
L3	0.5φ, l≒40mm
CH	2t + bead core

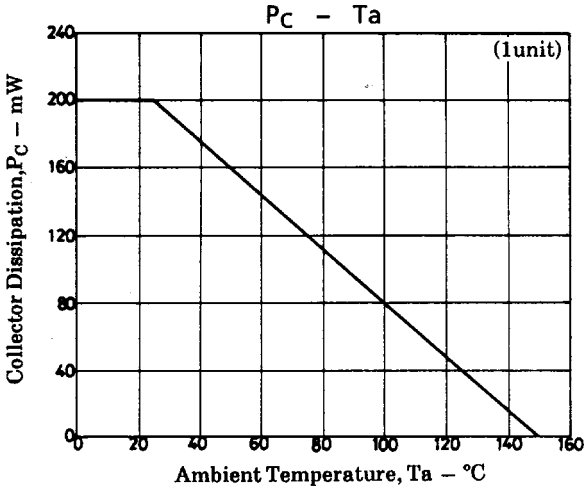






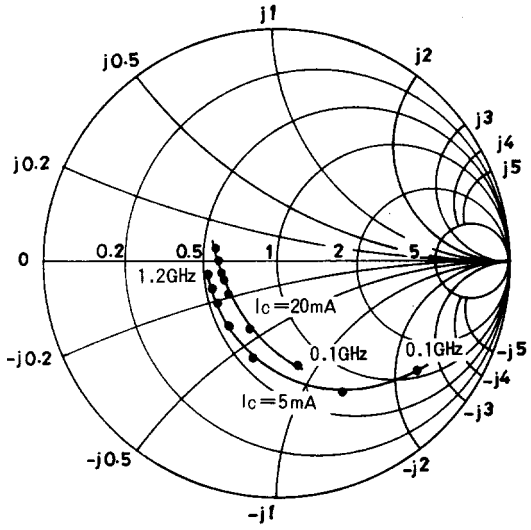




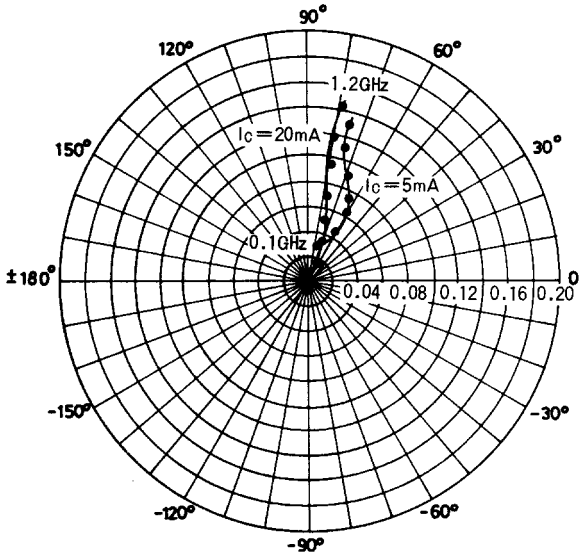


S Parameter

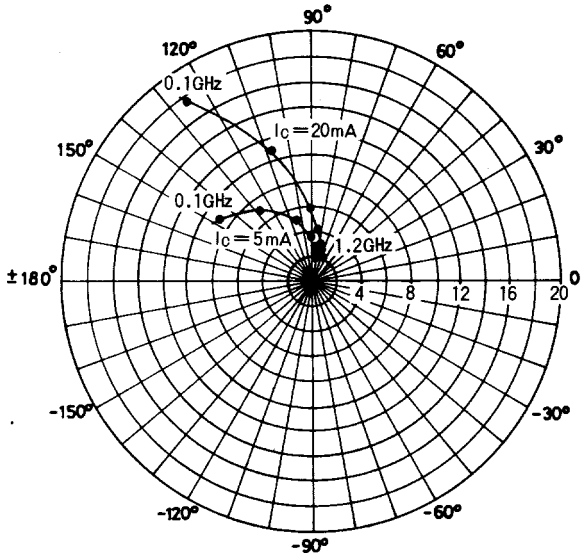
S11e : V_{CE} = 10V
f = 100MHz, 200 to 1200MHz (200MHz step)



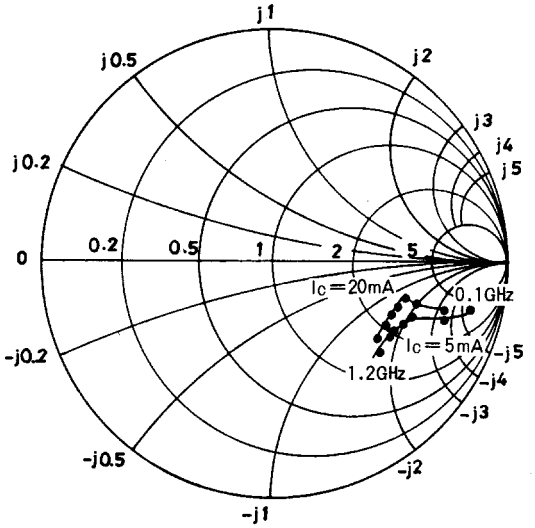
S12e : V_{CE} = 10V
f = 100MHz, 200 to 1200MHz (200MHz step)



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)	$\|S_{11}\|$	$\angle S_{11}$	$\|S_{21}\|$	$\angle S_{21}$	$\|S_{12}\|$	$\angle S_{12}$	$\|S_{22}\|$	$\angle S_{22}$
100	0.771	−35.1	8.763	147.2	0.027	69.3	0.890	−14.2
200	0.613	−64.7	7.004	127.6	0.043	59.8	0.780	−19.7
400	0.429	−110.7	4.882	103.1	0.061	58.1	0.660	−22.8
600	0.361	−133.5	3.471	90.5	0.075	63.1	0.625	−25.1
800	0.355	−148.4	2.693	81.6	0.091	68.1	0.612	−28.6
900	0.331	−153.7	2.450	78.9	0.100	70.5	0.609	−29.9
1000	0.328	−158.9	2.236	75.5	0.110	72.5	0.607	−31.6
1200	0.326	−167.9	1.932	69.9	0.130	74.7	0.608	−35.7

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

Freq (MHz)	$\|S_{11}\|$	$\angle S_{11}$	$\|S_{21}\|$	$\angle S_{21}$	$\|S_{12}\|$	$\angle S_{12}$	$\|S_{22}\|$	$\angle S_{22}$
100	0.447	−78.1	17.728	125.0	0.020	66.0	0.752	−18.5
200	0.338	−113.2	10.936	107.5	0.031	66.5	0.639	−18.5
400	0.290	−146.6	5.773	91.4	0.052	72.1	0.580	−18.5
600	0.281	−159.3	3.956	83.0	0.074	75.7	0.571	−21.1
800	0.285	−168.8	2.982	76.2	0.095	77.6	0.566	−25.2
900	0.289	−171.3	2.703	74.0	0.106	78.6	0.563	−26.7
1000	0.291	−174.4	2.454	71.3	0.118	79.4	0.565	−28.6
1200	0.297	178.1	2.116	66.5	0.140	79.0	0.569	−33.1