

Ordering number:EN4653

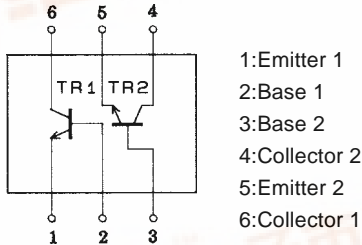


FC152

PNP Epitaxial Planar Silicon Composite Transistor High-Frequency Amp, Differential Amp Applications

Features

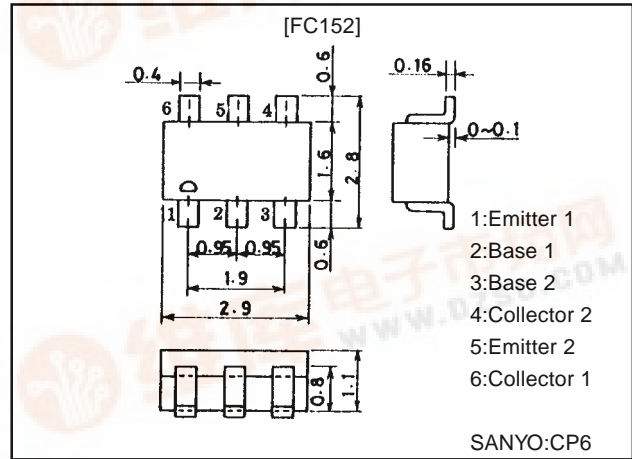
- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC152 is formed with two chips, being equivalent to the 2SC4270, placed in one package.
- Excellent in thermal equilibrium, pair capability and especially suited for differerntial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



Package Dimensions

unit:mm

2104A



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		25	V
Collector-to-Emitter Voltage	V _{CE0}		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	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditons	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	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	C _{ob}	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

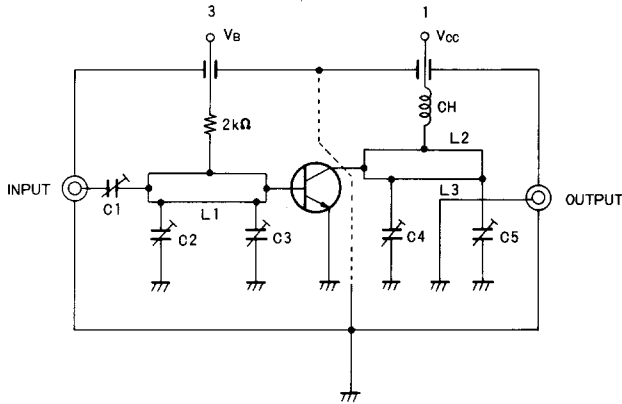
Note:The specifications shown above are for each individual transistor. However, the specifications of h_{FE}(small/large) and V_{BE}(large-small) are for pair capability

Marking:152

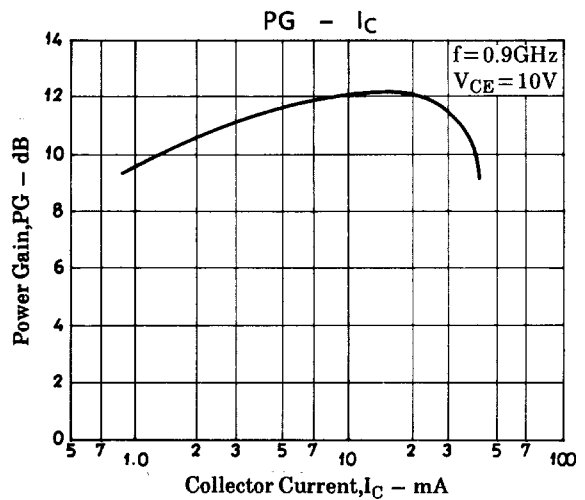
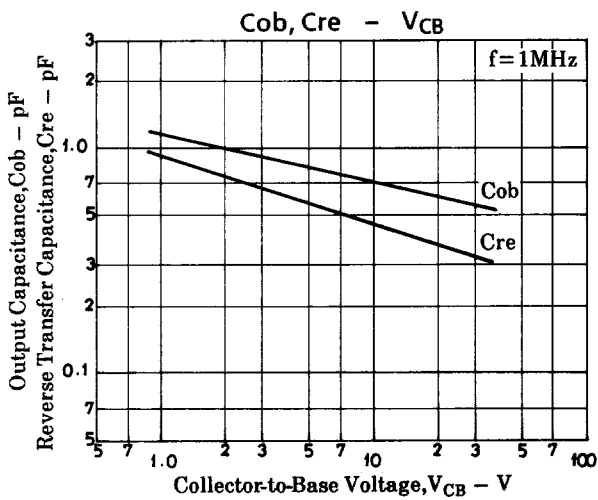
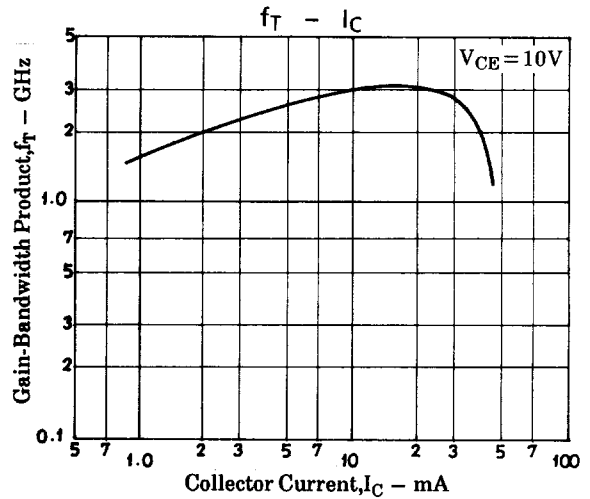
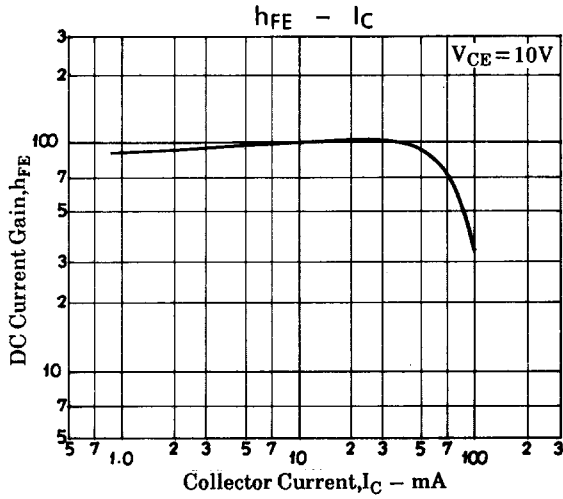


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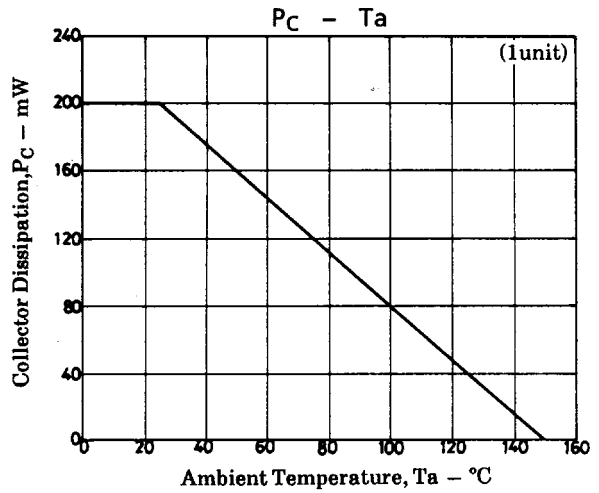
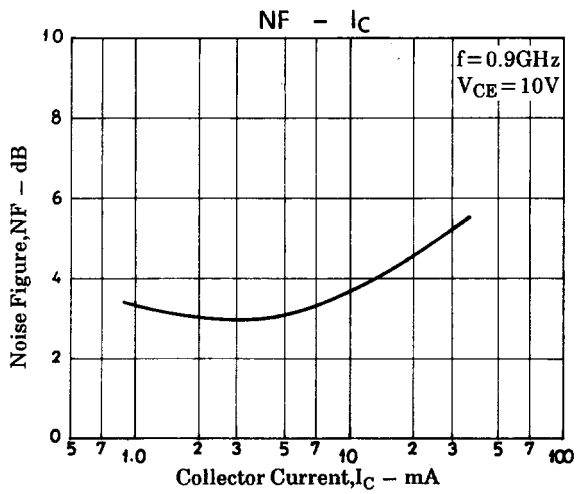
PG, NF Test Circuit



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



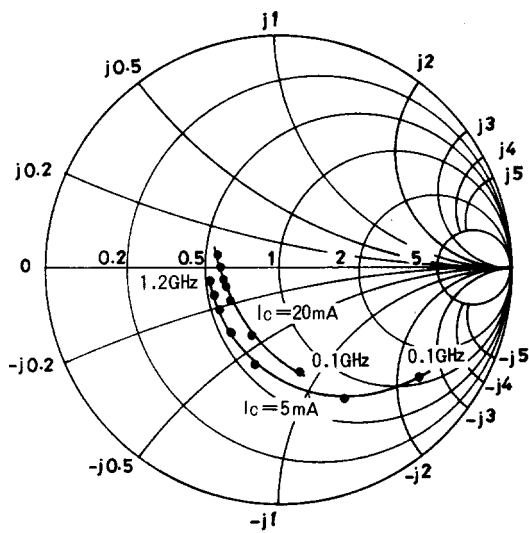
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S Parameter

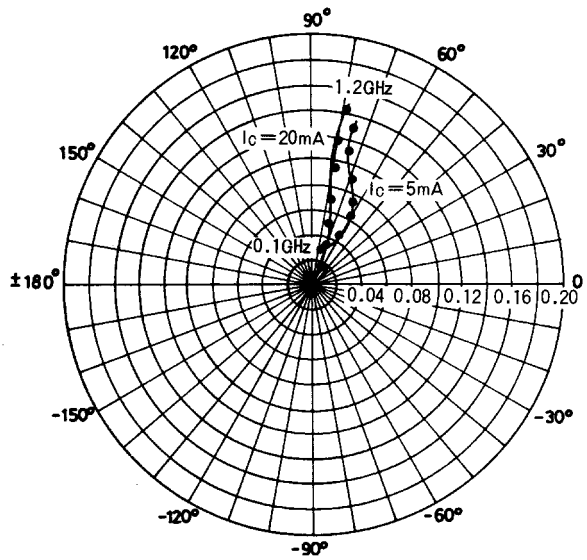
S11e: $V_{CE} = 10\text{V}$

$f = 100\text{MHz}, 200 \text{ to } 1200\text{MHz}$ (200MHz step)



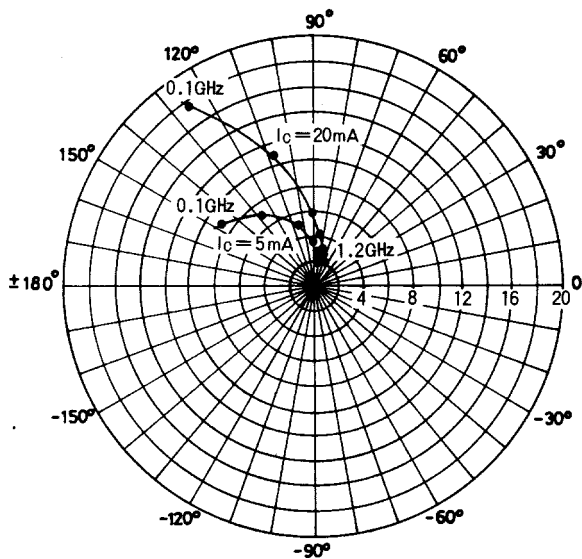
S12e: $V_{CE} = 10\text{V}$

$f = 100\text{MHz}, 200 \text{ to } 1200\text{MHz}$ (200MHz step)



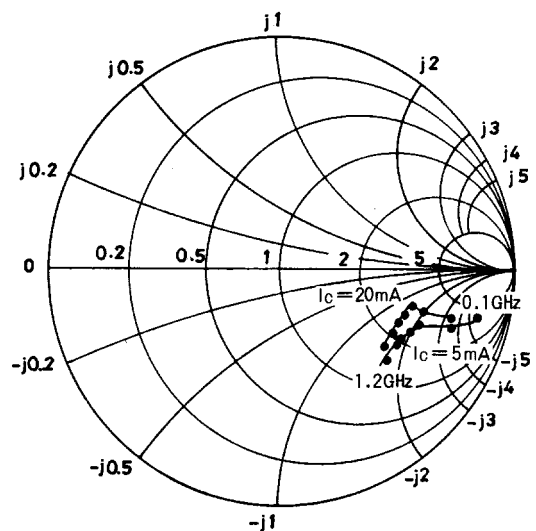
S21e: $V_{CE} = 10\text{V}$

$f = 100\text{MHz}, 200 \text{ to } 1200\text{MHz}$ (200MHz step)



S22e: $V_{CE} = 10\text{V}$

$f = 100\text{MHz}, 200 \text{ to } 1200\text{MHz}$ (200MHz step)



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S Parameter (Common-emitter)

$V_{CE} = 10V, I_C = 5mA, Z_0 = 50\Omega$

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

$V_{CE} = 10V, I_C = 20mA, Z_0 = 50\Omega$

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

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