

FC104



2066

NPN Epitaxial Planar  
Silicon Composite Transistor

T-27-09

Low-Frequency General-Purpose Amp,  
Differential Amp Applications

©3112

Features

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC104 is formed with two chips, being equivalent to the 2SC4211, placed in one package.
- Excellent in thermal equilibrium and pair capability and suitable for use in differential amp.
- Common emitter.

Absolute Maximum Ratings at Ta = 25°C

|                              |                  | unit           |
|------------------------------|------------------|----------------|
| Collector to Base Voltage    | V <sub>CB0</sub> | 55 V           |
| Collector to Emitter Voltage | V <sub>CE0</sub> | 50 V           |
| Emitter to Base Voltage      | V <sub>EB0</sub> | 6 V            |
| Collector Current            | I <sub>C</sub>   | 150 mA         |
| Peak Collector Current       | i <sub>cp</sub>  | 300 mA         |
| Base Current                 | I <sub>B</sub>   | 30 mA          |
| Collector Dissipation        | P <sub>C</sub>   | 200 mW         |
| Total Power Dissipation      | P <sub>T</sub>   | 300 mW         |
| Junction Temperature         | T <sub>J</sub>   | 150 °C         |
| Storage Temperature          | T <sub>stg</sub> | -55 to +150 °C |

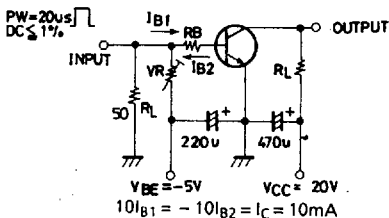
Electrical Characteristics at Ta = 25°C

|                              |                               | min                                         | typ  | max  | unit  |
|------------------------------|-------------------------------|---------------------------------------------|------|------|-------|
| Collector Cutoff Current     | I <sub>CBO</sub>              | V <sub>CB</sub> = 35V, I <sub>E</sub> = 0   |      | 0.1  | μA    |
| Emitter Cutoff Current       | I <sub>EBO</sub>              | V <sub>EB</sub> = 4V, I <sub>C</sub> = 0    |      | 0.1  | μA    |
| DC Current Gain              | h <sub>FE</sub>               | V <sub>CE</sub> = 6V, I <sub>C</sub> = 1mA  | 160  | 600  |       |
| DC Current Gain Ratio        | h <sub>FE</sub> (small/large) | V <sub>CE</sub> = 6V, I <sub>C</sub> = 1mA  | 0.8  | 0.98 |       |
| Base to Emitter Voltage Drop | V <sub>BE</sub> (large-small) | V <sub>CE</sub> = 6V, I <sub>C</sub> = 1mA  |      | 1.0  | 15 mV |
| Gain-Bandwidth Product       | f <sub>T</sub>                | V <sub>CE</sub> = 6V, I <sub>C</sub> = 10mA |      | 200  | MHz   |
| Output Capacitance           | C <sub>ob</sub>               | V <sub>CB</sub> = 6V, f = 1MHz              |      | 1.7  | pF    |
| C-E Saturation Voltage       | V <sub>CE(sat)</sub>          | I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA |      | 0.08 | 0.4 V |
| B-E Saturation Voltage       | V <sub>BE(sat)</sub>          | I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA |      | 0.8  | 1.0 V |
| C-B Breakdown Voltage        | V <sub>(BR)CBO</sub>          | I <sub>C</sub> = 10μA, I <sub>E</sub> = 0   | 55   |      | V     |
| C-E Breakdown Voltage        | V <sub>(BR)CEO</sub>          | I <sub>C</sub> = 1mA, R <sub>BE</sub> = ∞   | 50   |      | V     |
| E-B Breakdown Voltage        | V <sub>(BR)EBO</sub>          | I <sub>E</sub> = 10μA, I <sub>C</sub> = 0   | 6    |      | V     |
| Turn-ON Time                 | t <sub>on</sub>               | See specified Test Circuit.                 | 0.15 |      | μs    |
| Storage Time                 | t <sub>stg</sub>              |                                             | 0.75 |      | μs    |
| Fall Time                    | t <sub>f</sub>                |                                             | 0.20 |      | μs    |

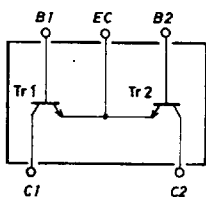
Note) The specifications shown above are for each individual transistor.

Marking : 104

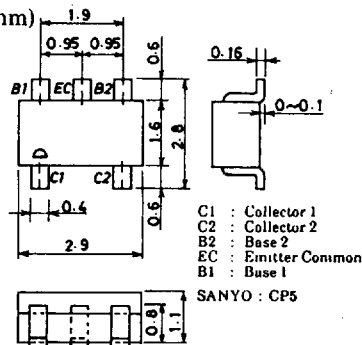
Switching Time Test Circuit



Electrical Connection (unit : mm)

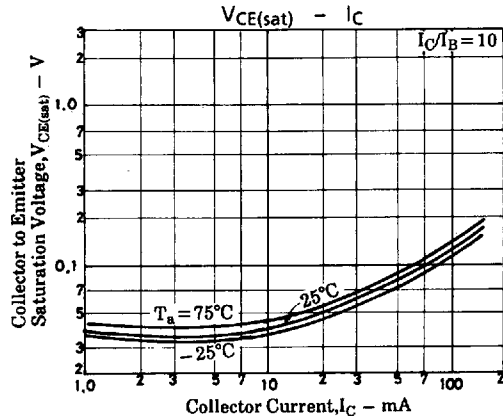
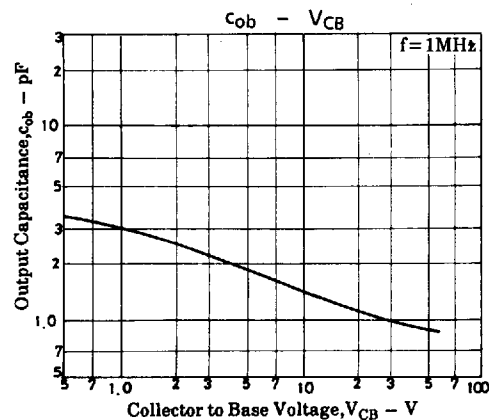
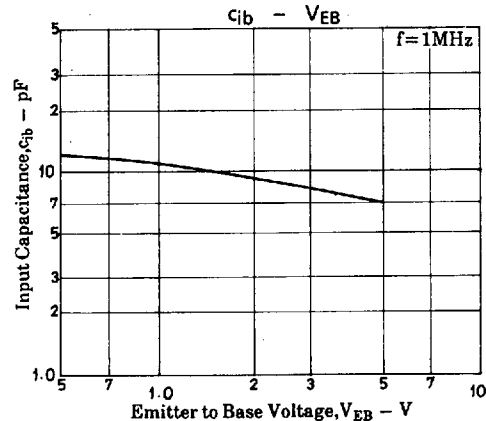
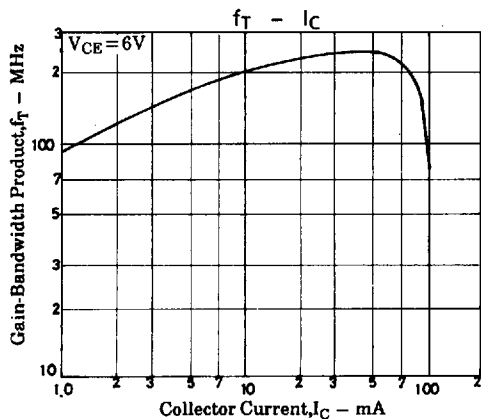
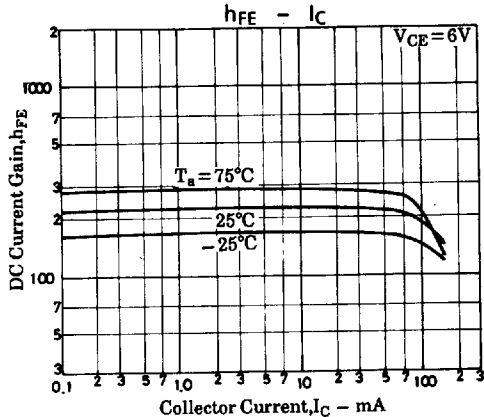
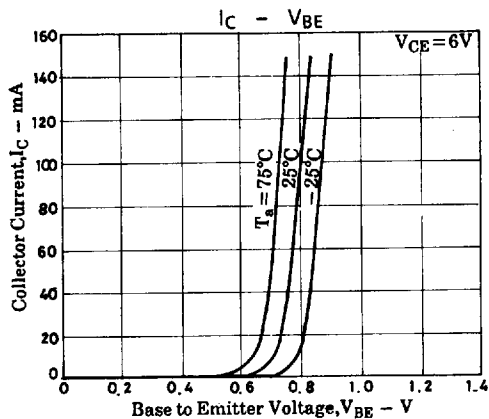
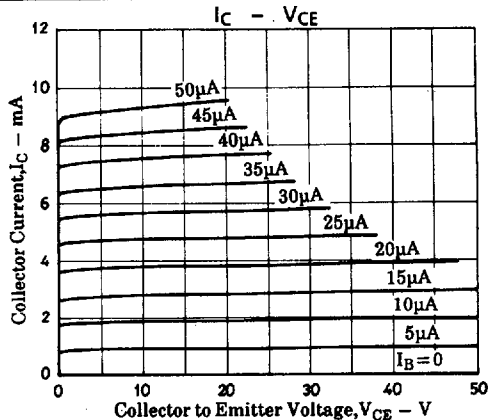
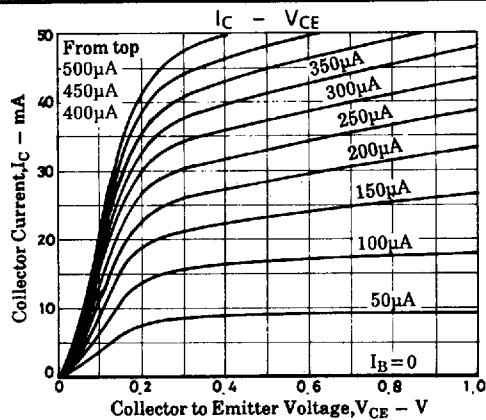


Case Outline 2066



C1 : Collector 1  
C2 : Collector 2  
B2 : Base 2  
EC : Emitter Common  
B1 : Base 1  
SANYO : CP5

6299MO,TS No.3112-1/3



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