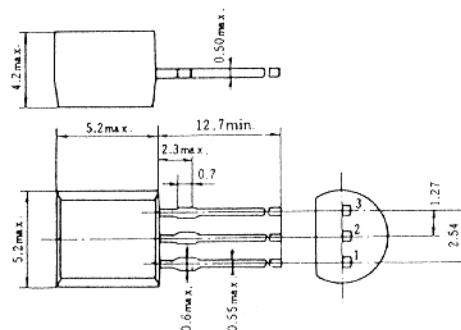


## 2SA1083, 2SA1084, 2SA1085

SILICON PNP EPITAXIAL

LOW FREQUENCY LOW NOISE AMPLIFIER

Complementary pair with 2SC2545,  
2SC2546 and 2SC2547



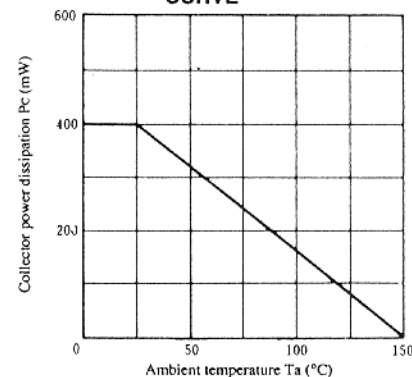
1. Emitter
  2. Collector
  3. Base
- (Dimensions in mm)

(JEDEC TO-92)

### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Item                         | Symbol           | 2SA1083     | 2SA1084     | 2SA1085     | Unit |
|------------------------------|------------------|-------------|-------------|-------------|------|
| Collector to base voltage    | V <sub>CB0</sub> | -60         | -90         | -120        | V    |
| Collector to emitter voltage | V <sub>CEO</sub> | -60         | -90         | -120        | V    |
| Emitter to base voltage      | V <sub>EBO</sub> | -5          | -5          | -5          | V    |
| Collector current            | I <sub>C</sub>   | -100        | -100        | -100        | mA   |
| Emitter current              | I <sub>E</sub>   | 100         | 100         | 100         | mA   |
| Collector power dissipation  | P <sub>C</sub>   | 400         | 400         | 400         | mW   |
| Junction temperature         | T <sub>j</sub>   | 150         | 150         | 150         | °C   |
| Storage temperature          | T <sub>sig</sub> | -55 to +150 | -55 to +150 | -55 to +150 | °C   |

### MAXIMUM COLLECTOR DISSIPATION CURVE



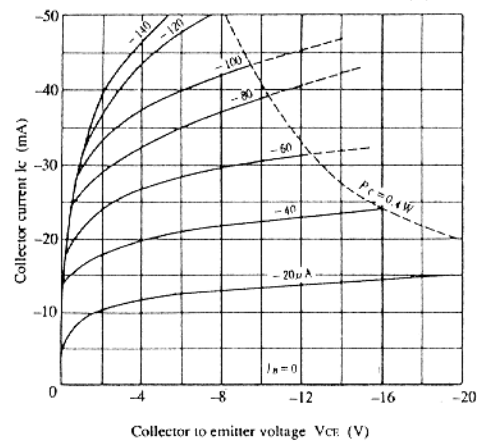
### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

| Item                                    | Symbol               | Test Condition                                                                        | 2SA1083 |      |      | 2SA1084 |      |      | 2SA1085 |      |      | Unit   |
|-----------------------------------------|----------------------|---------------------------------------------------------------------------------------|---------|------|------|---------|------|------|---------|------|------|--------|
|                                         |                      |                                                                                       | min.    | typ. | max. | min.    | typ. | max. | min.    | typ. | max. |        |
| Collector to base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> = -10μA, I <sub>E</sub> = 0                                            | -60     | —    | —    | -90     | —    | —    | -120    | —    | —    | V      |
| Collector to emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> = -1mA, R <sub>BE</sub> = ∞                                            | -60     | —    | —    | -90     | —    | —    | -120    | —    | —    | V      |
| Emitter to base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> = -10μA, I <sub>C</sub> = 0                                            | -5      | —    | —    | -5      | —    | —    | -5      | —    | —    | V      |
| Collector cutoff current                | I <sub>CBO</sub>     | V <sub>CB</sub> = -50V, I <sub>E</sub> = 0                                            | —       | —    | -0.1 | —       | —    | -0.1 | —       | —    | -0.1 | μA     |
| Emitter cutoff current                  | I <sub>EBO</sub>     | V <sub>EB</sub> = -2V, I <sub>C</sub> = 0                                             | —       | —    | -0.1 | —       | —    | -0.1 | —       | —    | -0.1 | μA     |
| DC current transfer ratio               | h <sub>FE</sub> *    | V <sub>CE</sub> = -12V, I <sub>C</sub> = -2mA                                         | 250     | —    | 800  | 250     | —    | 800  | 250     | —    | 800  |        |
| Collector to emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = -10mA, I <sub>B</sub> = -1mA                                         | —       | —    | -0.2 | —       | —    | -0.2 | —       | —    | -0.2 | V      |
| Base to emitter voltage                 | V <sub>BE</sub>      | V <sub>CE</sub> = -12V, I <sub>C</sub> = -2mA                                         | —       | -0.6 | —    | —       | -0.6 | —    | —       | -0.6 | —    | V      |
| Gain bandwidth product                  | f <sub>T</sub>       | V <sub>CE</sub> = -12V, I <sub>C</sub> = -2mA                                         | —       | 90   | —    | —       | 90   | —    | —       | 90   | —    | MHz    |
| Collector output capacitance            | C <sub>ob</sub>      | V <sub>CB</sub> = -10V, I <sub>E</sub> = 0, f = 1MHz                                  | —       | 3.5  | —    | —       | 3.5  | —    | —       | 3.5  | —    | pF     |
| Noise voltage referred to input         | e <sub>n</sub>       | V <sub>CE</sub> = -6V, I <sub>C</sub> = -10mA, f = 1kHz, R <sub>g</sub> = 0, Δf = 1Hz | —       | 0.5  | —    | —       | 0.5  | —    | —       | 0.5  | —    | nV/√Hz |

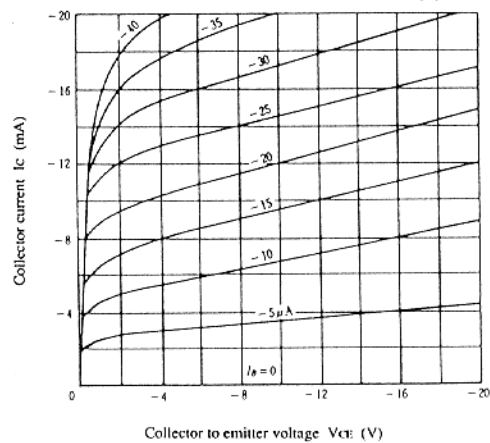
\* The 2SA1083, 2SA1084 and 2SA1085 are grouped by h<sub>FE</sub> as follows.

| D          | E          |
|------------|------------|
| 250 to 500 | 400 to 800 |

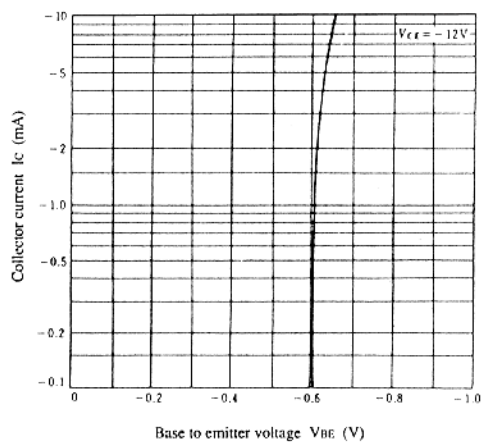
TYPICAL OUTPUT CHARACTERISTICS (1)



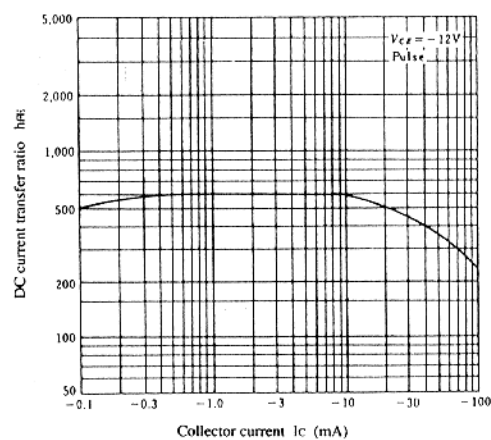
TYPICAL OUTPUT CHARACTERISTICS (2)



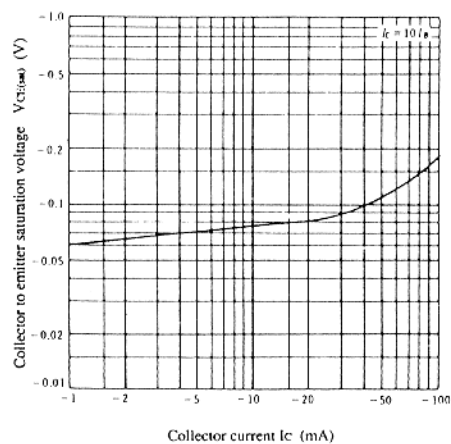
TYPICAL TRANSFER CHARACTERISTICS



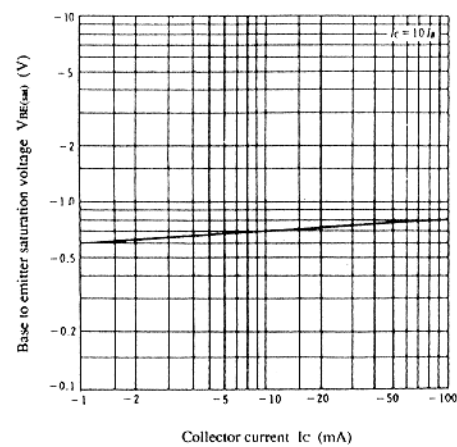
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



COLLECTOR TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT

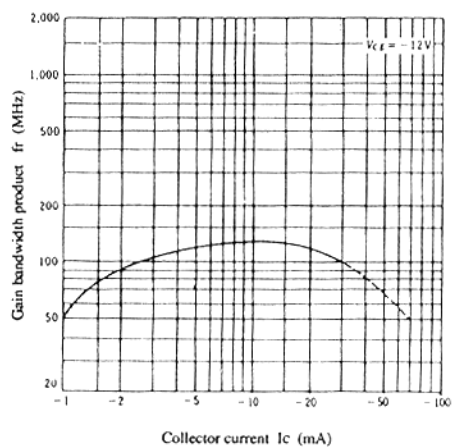


BASE TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT

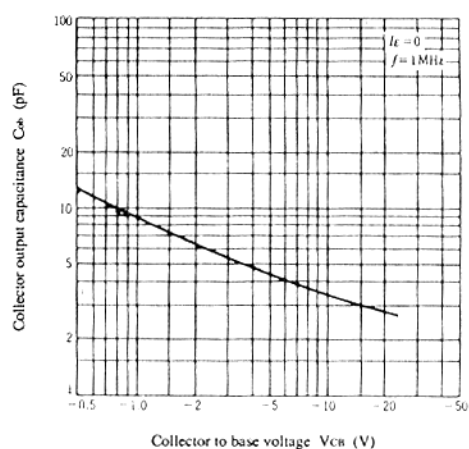


## 2SA1083, 2SA1084, 2SA1085

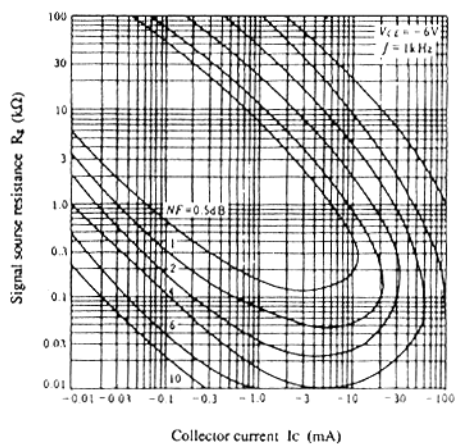
GAIN BANDWIDTH PRODUCT VS.  
COLLECTOR CURRENT



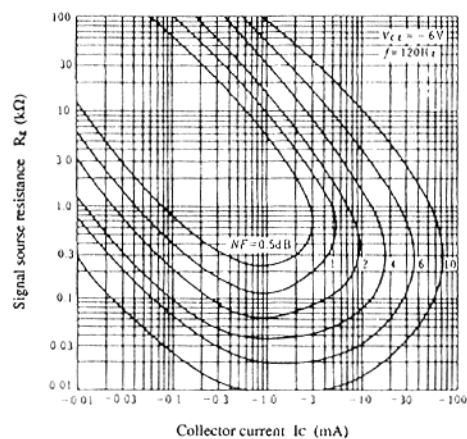
COLLECTOR OUTPUT CAPACITANCE VS.  
COLLECTOR TO BASE VOLTAGE



CONTOURS OF CONSTANT NOISE FIGURE (1)



CONTOURS OF CONSTANT NOISE FIGURE (2)



CONTOURS OF CONSTANT NOISE FIGURE (3)

