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# 2SA1083, 2SA1084, 2SA1085

Silicon PNP Epitaxial

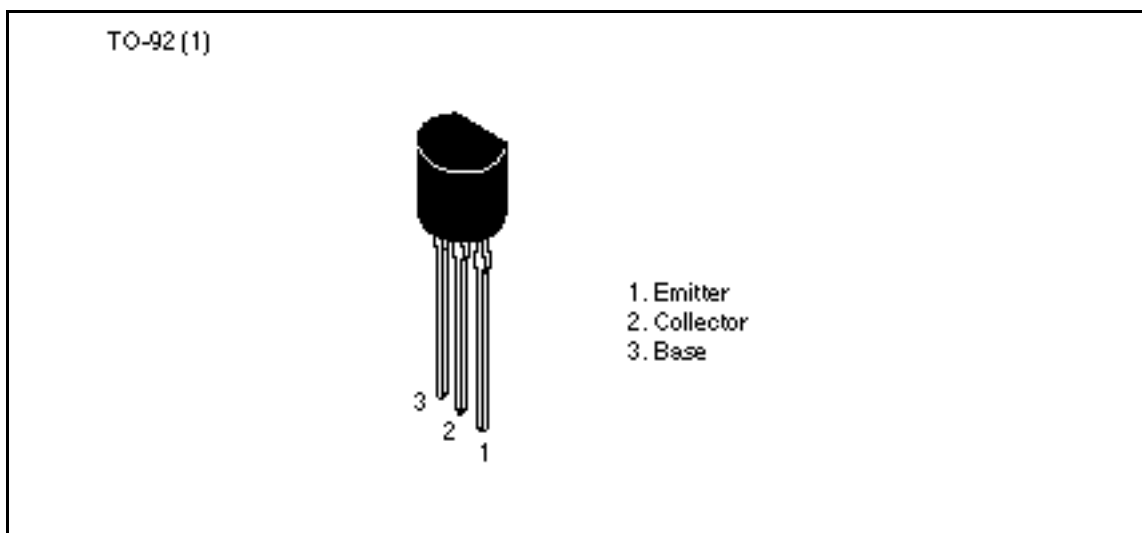
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## Application

- Low frequency low noise amplifier
- Complementary pair with 2SC2545, 2SC2546 and 2SC2547

## Outline



## 2SA1083, 2SA1084, 2SA1085

### Absolute Maximum Ratings (Ta = 25°C)

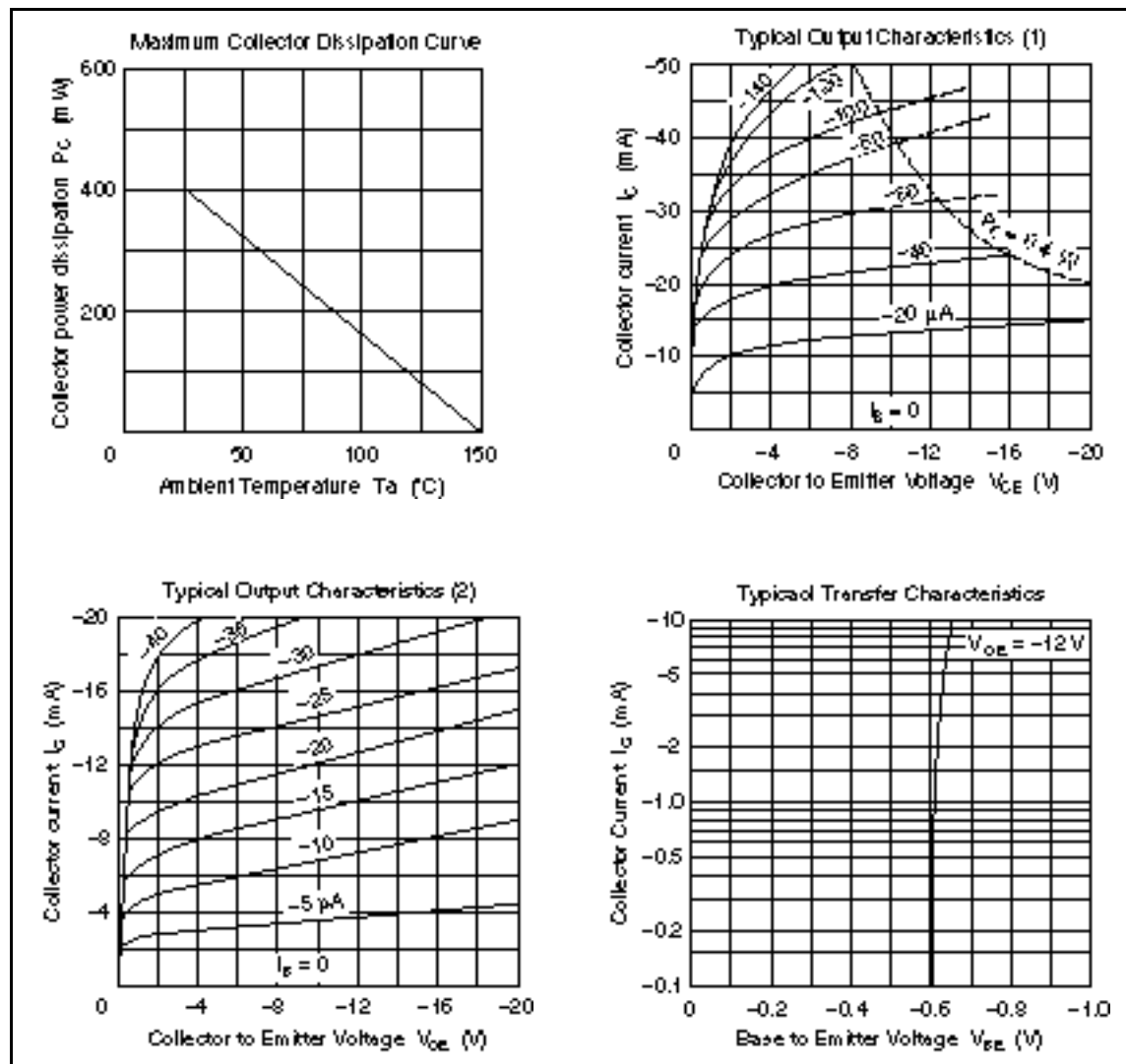
| Item                         | Symbol    | 2SA1083     | 2SA1084     | 2SA1085     | Unit |
|------------------------------|-----------|-------------|-------------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | -60         | -90         | -120        | V    |
| Collector to emitter voltage | $V_{CEO}$ | -60         | -90         | -120        | V    |
| Emitter to base voltage      | $V_{EBO}$ | -5          | -5          | -5          | V    |
| Collector current            | $I_C$     | -100        | -100        | -100        | mA   |
| Emitter current              | $I_E$     | 100         | 100         | 100         | mA   |
| Collector power dissipation  | $P_C$     | 400         | 400         | 400         | mW   |
| Junction temperature         | $T_j$     | 150         | 150         | 150         | °C   |
| Storage temperature          | $T_{stg}$ | -55 to +150 | -55 to +150 | -55 to +150 | °C   |

### Electrical Characteristics (Ta = 25°C)

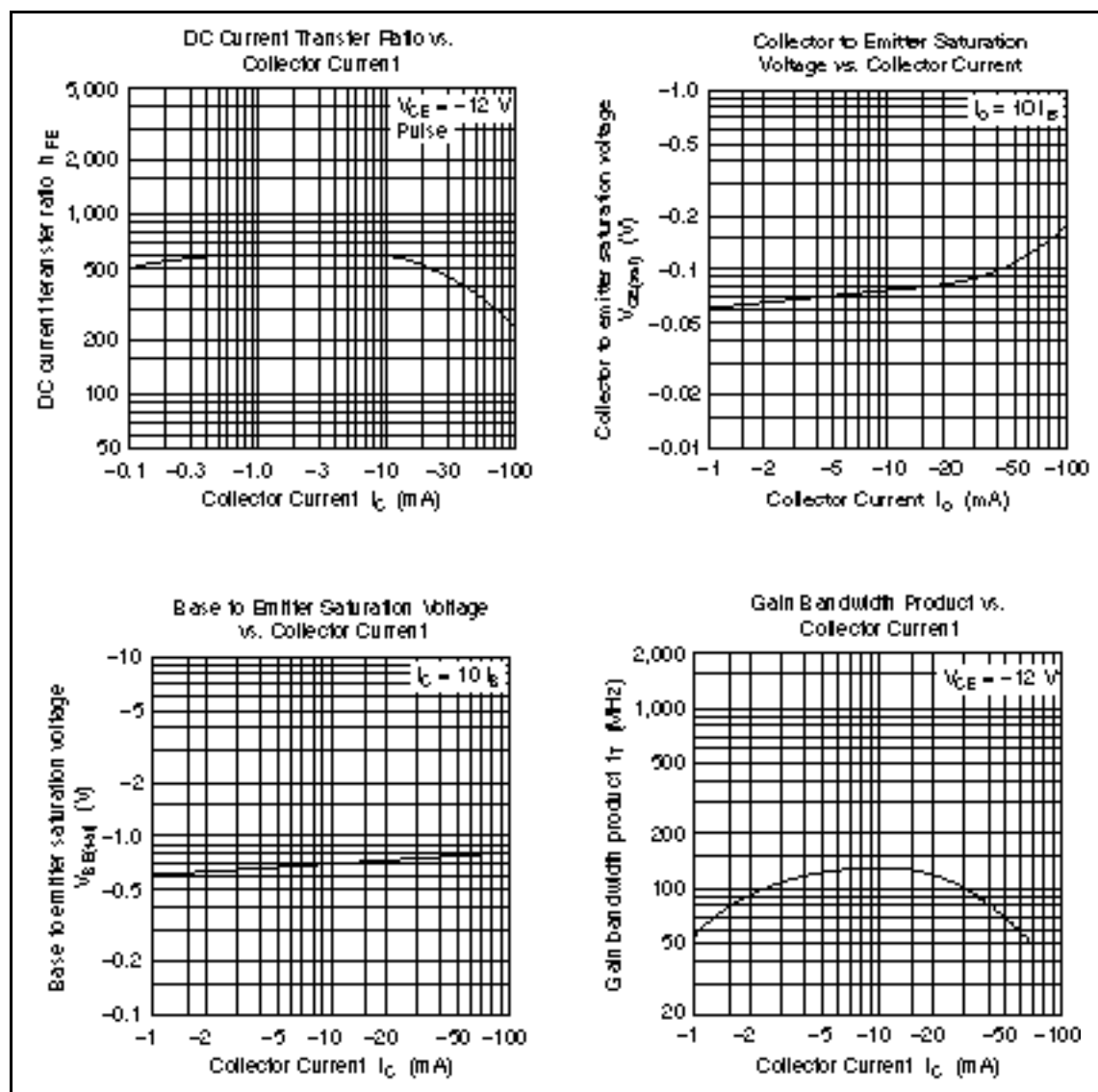
| Item                                    | Symbol        | 2SA1083 |      |      | 2SA1084 |      |      | 2SA1085 |      |      | Unit    | Test conditions   |
|---|---------------|---------|------|------|---------|------|------|---------|------|------|---------|---|
|   |               | Min     | Typ  | Max  | Min     | Typ  | Max  | Min     | Typ  | Max  |         |   |
| Collector to base breakdown voltage     | $V_{(BR)CBO}$ | -60     | —    | —    | -90     | —    | —    | -120    | —    | —    | V       | $I_C = -10 \mu A, I_E = 0$  |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$ | -60     | —    | —    | -90     | —    | —    | -120    | —    | —    | V       | $I_C = -1 \text{ mA}, R_{BE} =$   |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$ | -5      | —    | —    | -5      | —    | —    | -5      | —    | —    | V       | $I_E = -10 \mu A, I_C = 0$  |
| Collector cutoff current                | $I_{CBO}$     | —       | —    | -0.1 | —       | —    | -0.1 | —       | —    | -0.1 | $\mu A$ | $V_{CB} = -50 \text{ V}, I_E = 0$   |
| Emitter cutoff current                  | $I_{EBO}$     | —       | —    | -0.1 | —       | —    | -0.1 | —       | —    | -0.1 | $\mu A$ | $V_{EB} = -2 \text{ V}, I_C = 0$  |
| DC current transfer ratio               | $h_{FE}^{*1}$ | 250     | —    | 800  | 250     | —    | 800  | 250     | —    | 800  |         | $V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$   |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | —       | —    | -0.2 | —       | —    | -0.2 | —       | —    | -0.2 | V       | $I_C = -10 \text{ mA}, I_B = -1 \text{ mA}$   |
| Base to emitter voltage                 | $V_{BE}$      | —       | -0.6 | —    | —       | -0.6 | —    | —       | -0.6 | —    | V       | $V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$   |
| Gain bandwidth product                  | $f_T$         | —       | 90   | —    | —       | 90   | —    | —       | 90   | —    | MHz     | $V_{CE} = -12 \text{ V}, I_C = -2 \text{ mA}$   |
| Collector output capacitance            | $C_{ob}$      | —       | 3.5  | —    | —       | 3.5  | —    | —       | 3.5  | —    | pF      | $V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$  |
| Noise voltage referred to input         | $e_n$         | —       | 0.5  | —    | —       | 0.5  | —    | —       | 0.5  | —    | nV/Hz   | $V_{CE} = -6 \text{ V}, I_C = -10 \text{ mA}, f = 1 \text{ kHz}, R_g = 0, f = 1 \text{ Hz}$ |

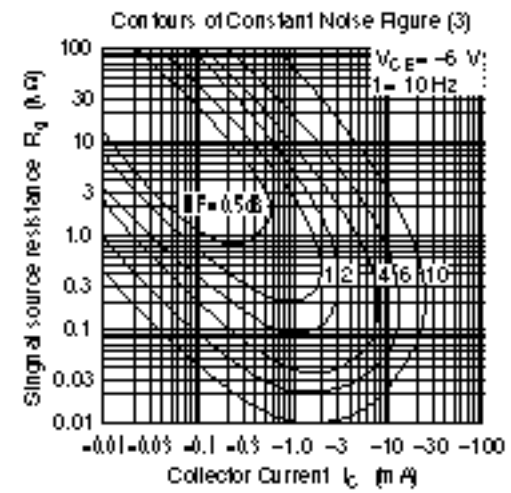
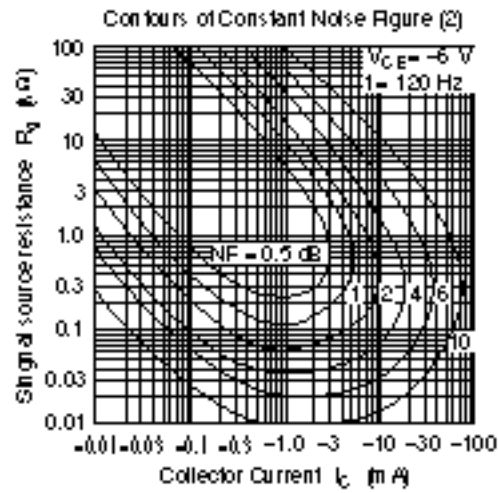
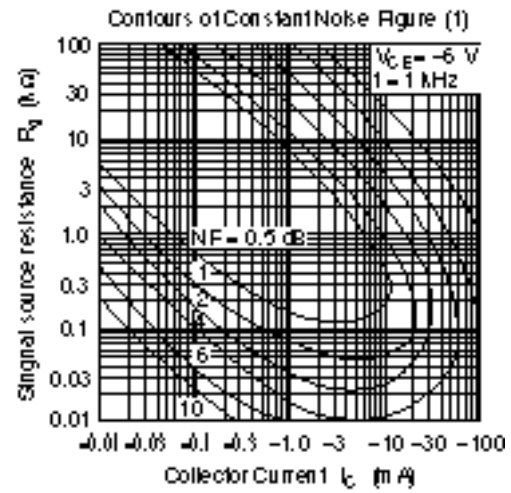
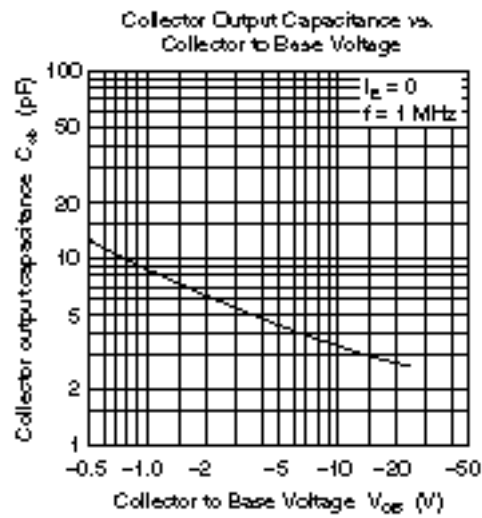
Note: 1. The 2SA1083, 2SA1084 and 2SA1085 are grouped by  $h_{FE}$  as follows.

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



## 2SA1083, 2SA1084, 2SA1085





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## 2SA1083, 2SA1084, 2SA1085

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