



2SB816/2SD1046

For LF Power Amplifier, 50W Output
Large Power Switching Applications

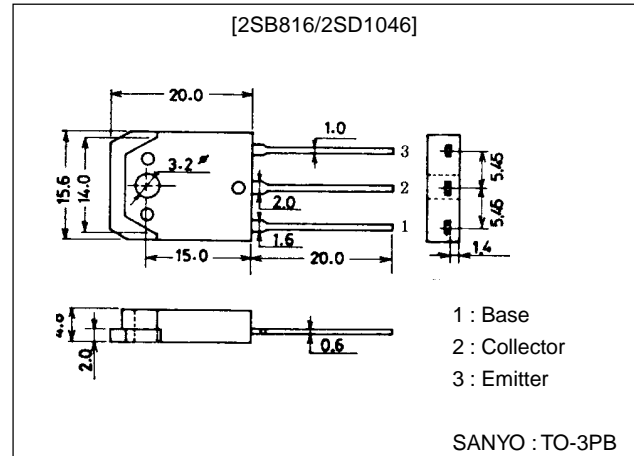
Features

- Capable of being mounted easily because of one-point fixing type plastic molded package (Interchangeable with TO-3).
- Wide ASO because of built-in ballast resistance.
- Good dependence of f_T on current and good HF characteristic.

Package Dimensions

unit:mm

2022A



() : 2SB816

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CBO} | | (-150) | V |
| Collector-to-Emitter Voltage | V_{CEO} | | (-120) | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-6) | V |
| Collector Current | I_C | | (-8) | A |
| Collector Current (Pulse) | I_{CP} | | (-12) | A |
| Collector Dissipation | P_C | $T_c=25^\circ\text{C}$ | 80 | W |
| Junction Temperature | T_J | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -40 to +150 | $^\circ\text{C}$ |

Electrical Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|-----------|---|---------|-------|--------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=(-)80\text{V}, I_E=0$ | | | (-0.1) | mA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)4\text{V}, I_C=0$ | | | (-0.1) | mA |
| DC Current Gain | h_{FE1} | $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$ | 60* | | 200* | |
| | h_{FE2} | $V_{CE}=(-)5\text{V}, I_C=(-)5\text{A}$ | 20 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$ | | 15 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10\text{V}, f=1\text{MHz}$ | | (220) | | pF |
| | | | | 160 | | pF |

* : The 2SB816/2SD1046 are classified by 1A h_{FE} as follows :

| | | | | | |
|----|---|-----|-----|---|-----|
| 60 | D | 120 | 100 | E | 200 |
|----|---|-----|-----|---|-----|

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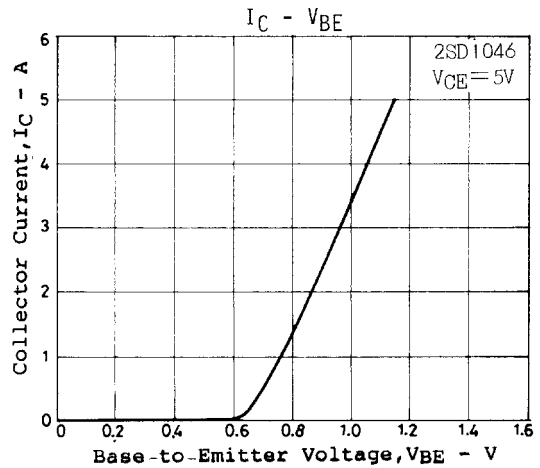
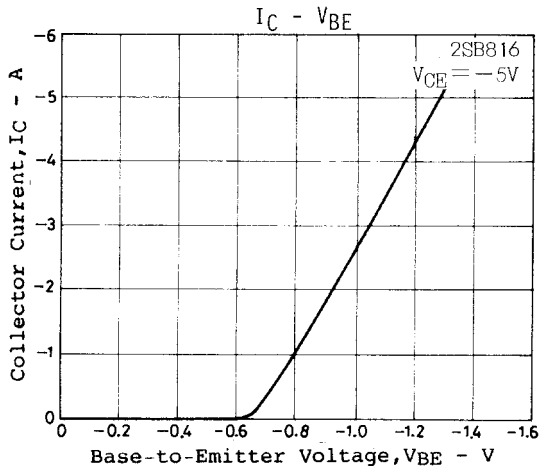
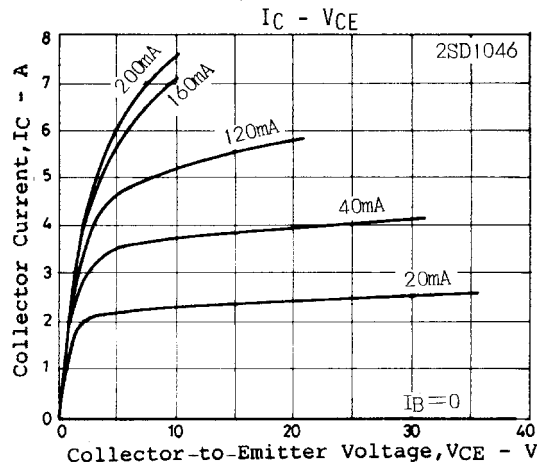
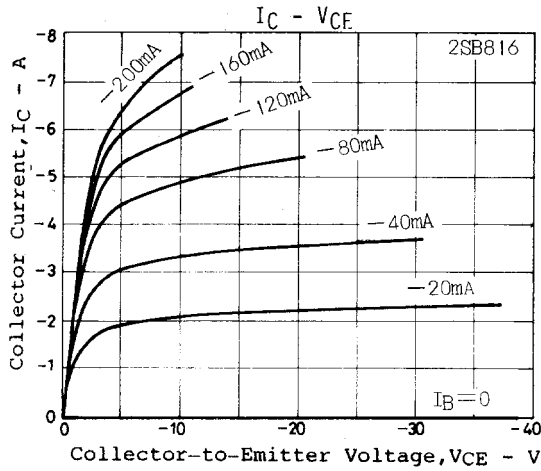
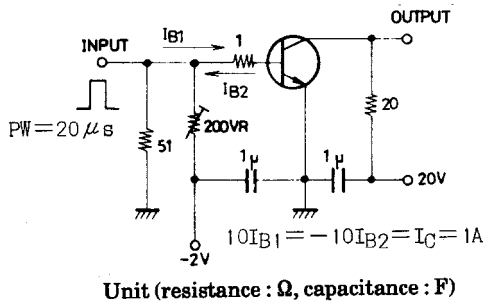
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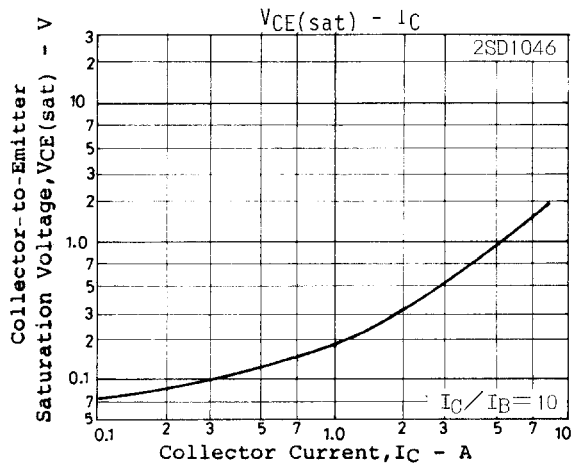
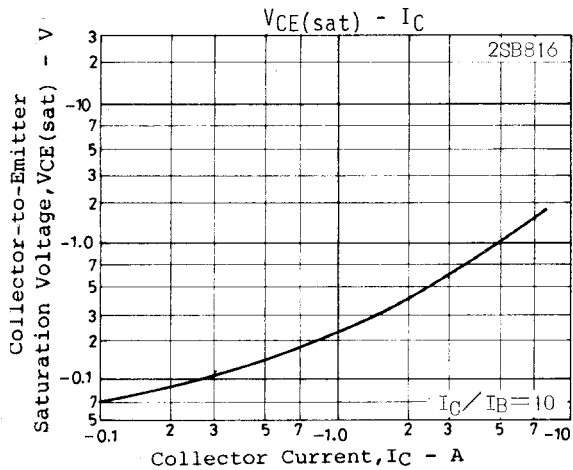
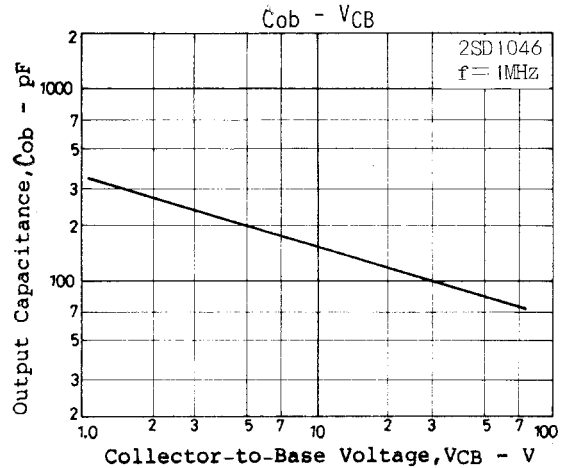
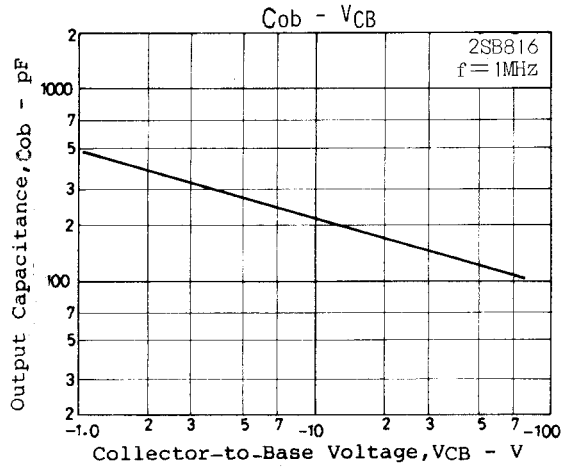
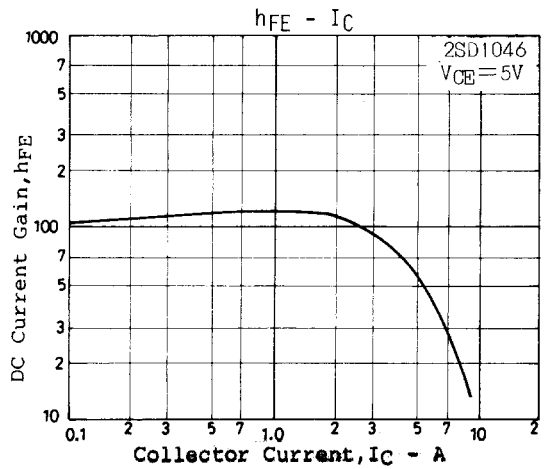
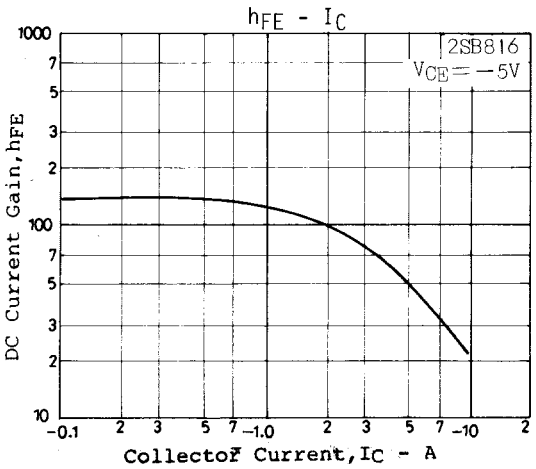
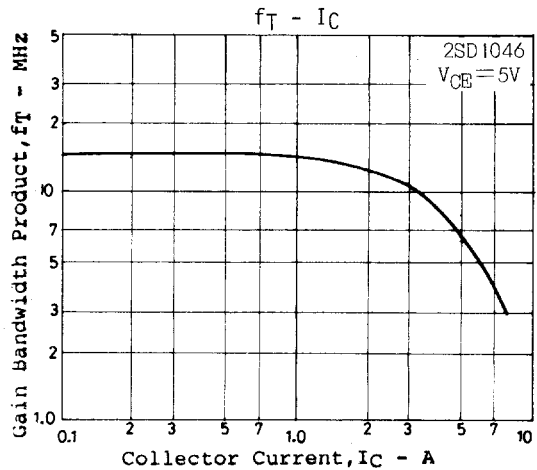
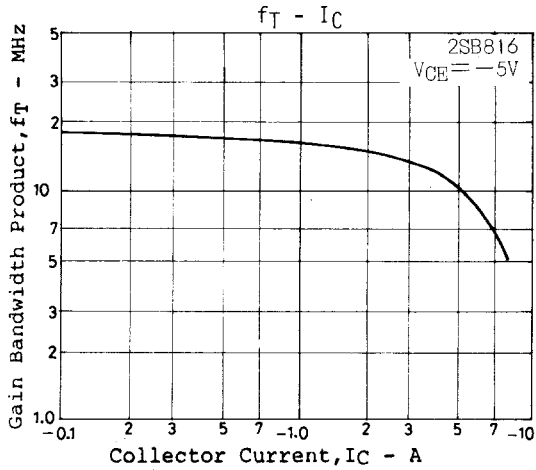
2SB816/2SD1046

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|------------------------------|---------|--------|------|---------|
| | | | min | typ | max | |
| Base-to-Emitter Voltage | V_{BE} | $V_{CE}=(-)5V, I_C=(-)1A$ | | | 1.5 | V |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)5A, I_B=(-)0.5A$ | | 1.0 | 2.0 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)5mA, I_E=0$ | (-)150 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)5mA, R_{BE}=\infty$ | (-)120 | | | V |
| | | $I_C=(-)50mA, R_{BE}=\infty$ | (-)120 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)5mA, I_C=0$ | (-)6 | | | V |
| Turn-ON Time | t_{on} | See specified test circuit. | | (0.22) | | μs |
| | | | | | 0.22 | |
| Fall Time | t_f | See specified test circuit. | | (0.37) | | μs |
| | | | | | 1.02 | |
| Storage Time | t_{stg} | See specified test circuit. | | (0.93) | | μs |
| | | | | | 6.66 | |

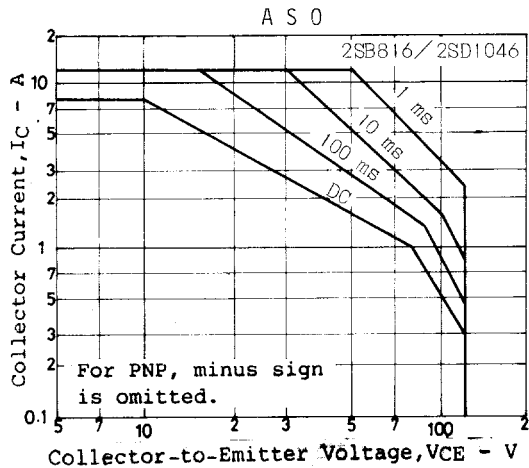
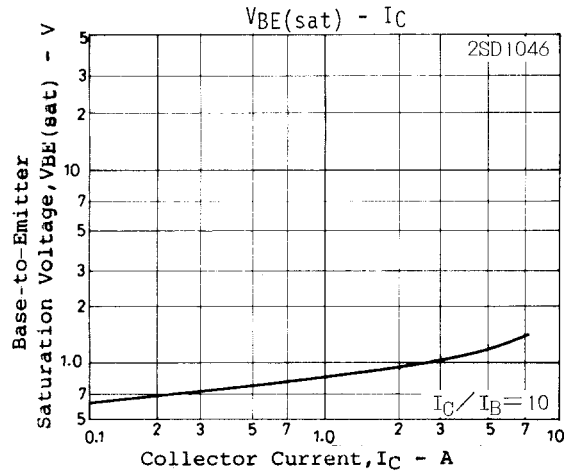
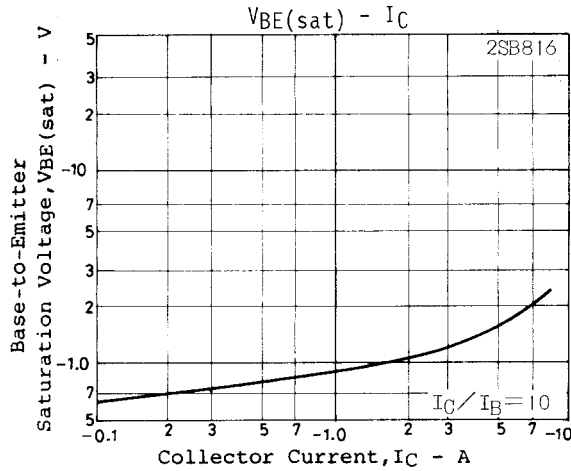
Swicthing Time Test Circuit



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