



~~2SB776/2SD896~~

100V/7A, AF 40W Output Applications

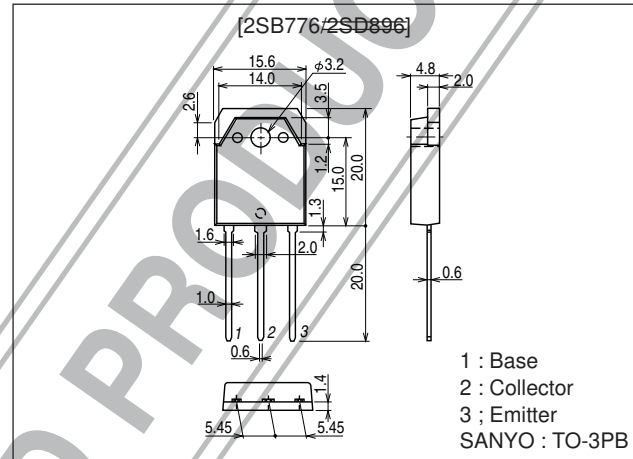
Features

- Capable of being mounted easily because of one-point fixing type plastic molded package (Interchangeable with TO-3).
- Wide ASO because of on-chip ballast resistance.
- Good dependence of f_T on current and excellent high frequency response.

The descriptions in parentheses are for the 2SB776 only ; other descriptions than those in parentheses are common to the 2SB776 and 2SD896.

Package Dimensions

unit:mm
2022A



Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CB0} | | (-120) | V |
| Collector-to-Emitter Voltage | V_{CEO} | | (-100) | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-6) | V |
| Collector Current | I_C | | (-7) | A |
| Collector Current (Pulse) | I_{CP} | | (-11) | A |
| Collector Dissipation | P_C | $T_c=25^\circ\text{C}$ | 70 | W |
| Junction Temperature | T_J | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 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} | $V_{CE}=(-)5\text{V}, I_C=(-)4\text{A}$ | 20 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$ | | 15 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10\text{V}, f=1\text{MHz}$ | | (200) | | pF |
| | | | | 140 | | pF |
| Base-to-Emitter Voltage | V_{BE} | $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$ | | | (-1.5) | V |

* : The 2SB776/2SD896 are classified by $1A h_{FE}$ as follows :

| Rank | D | E |
|----------|-----------|------------|
| h_{FE} | 60 to 120 | 100 to 200 |

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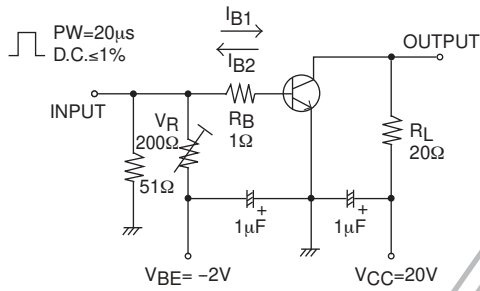
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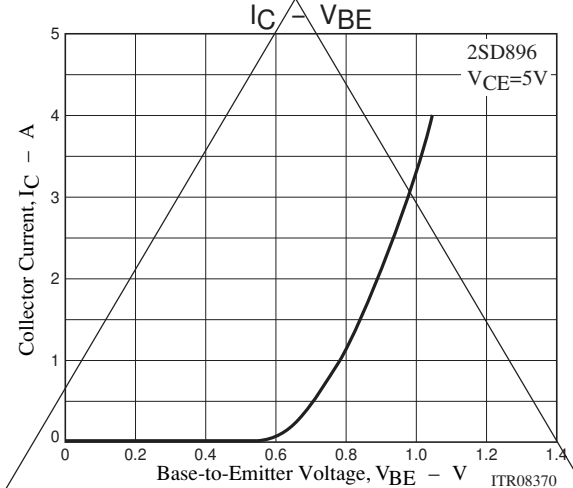
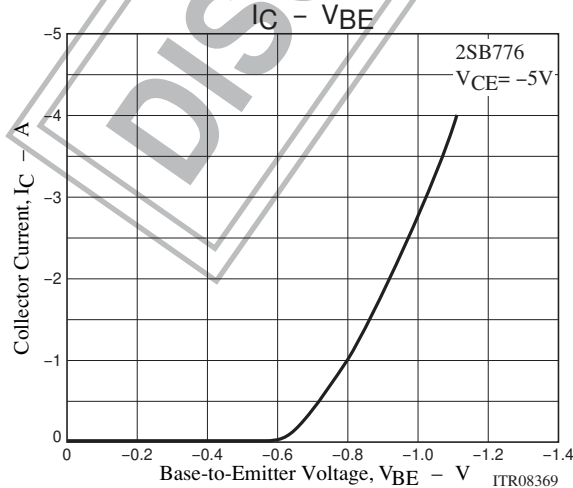
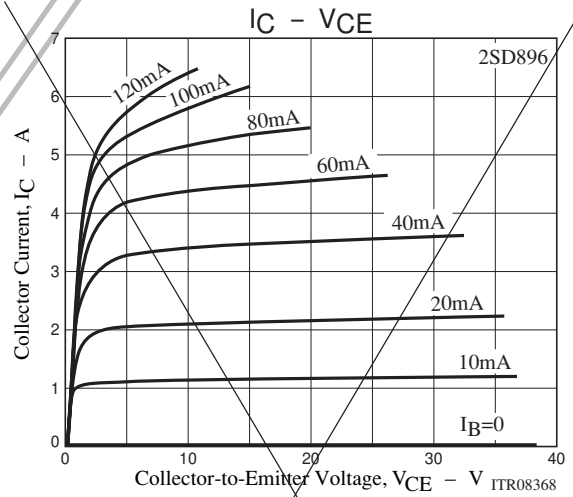
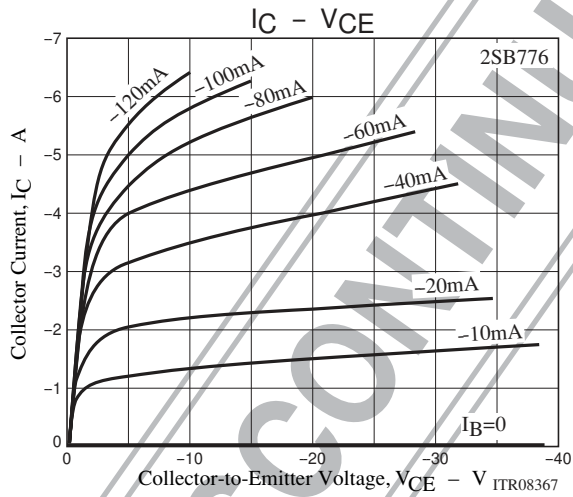
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|------------------------------|---------|--------|-----|---------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)4A, I_B=(-)0.4A$ | | (-0.9) | 2.0 | V |
| | | | | 0.6 | | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)5mA, I_E=0$ | (-)120 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)5mA, R_{BE}=\infty$ | (-)100 | | | V |
| | | $I_C=(-)50mA, R_{BE}=\infty$ | (-)100 | | | 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 | | (0.2) | | μs |
| | | | | 0.2 | | μs |
| Storage Time | t_{stg} | See specified Test Circuit | | (0.3) | | μs |
| | | | | 0.6 | | μs |
| Fall Time | t_f | See specified Test Circuit | | (1.2) | | μs |
| | | | | 6.0 | | μs |

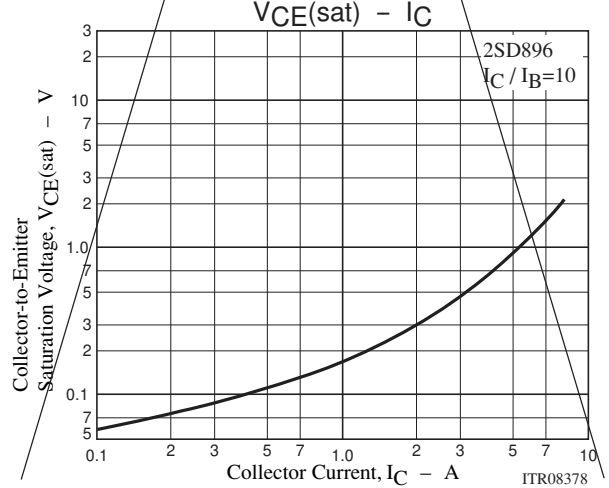
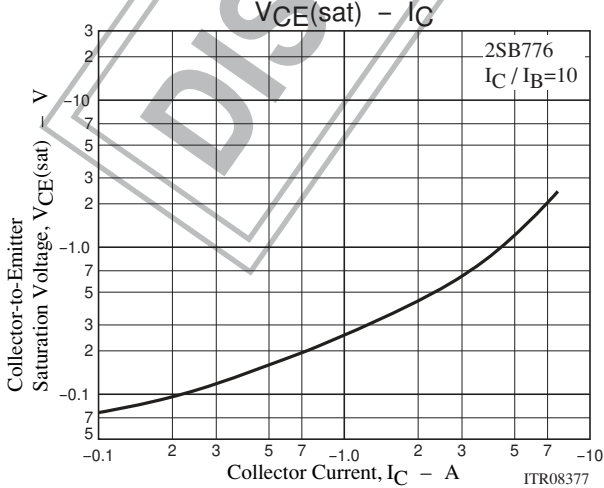
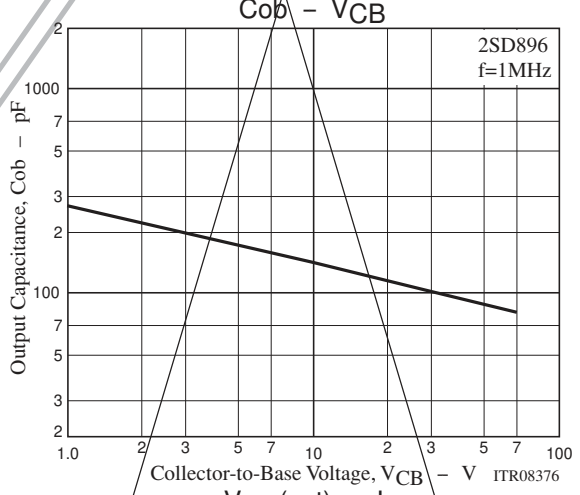
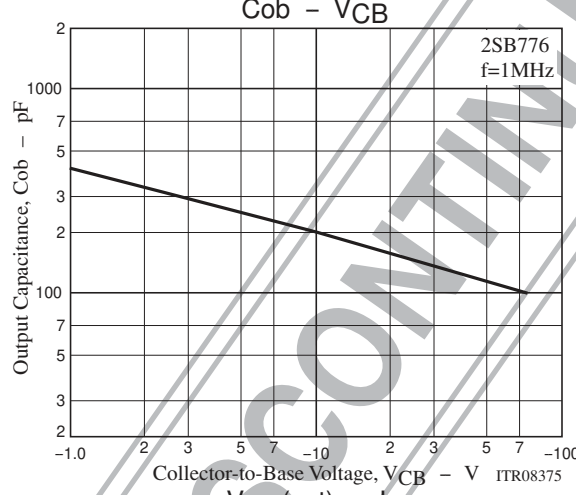
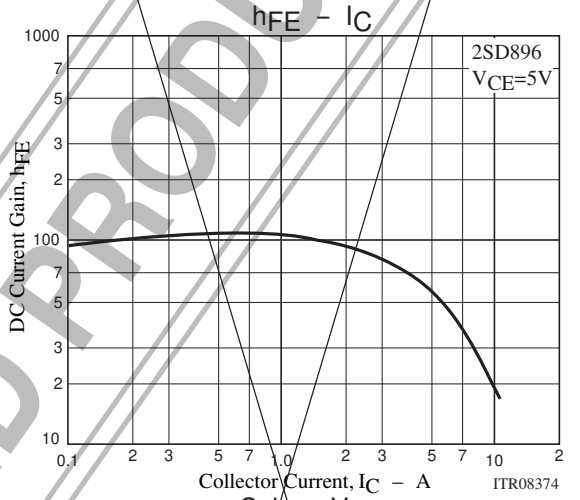
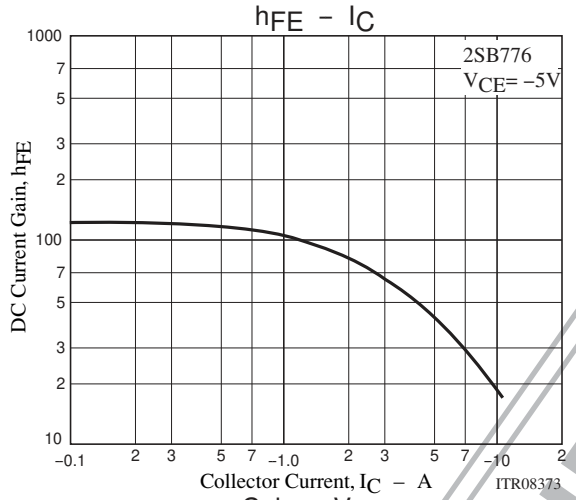
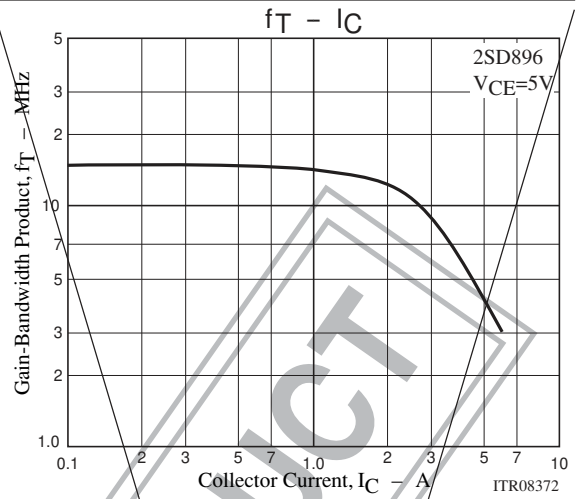
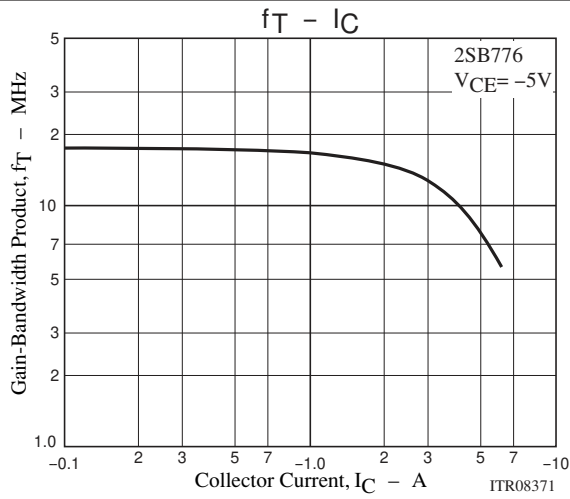
Switching Time Test Circuit



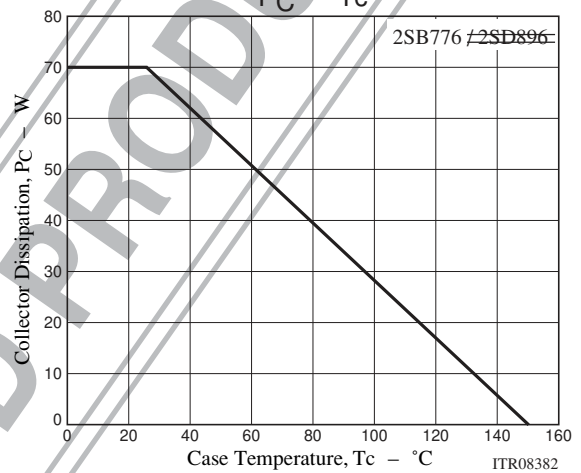
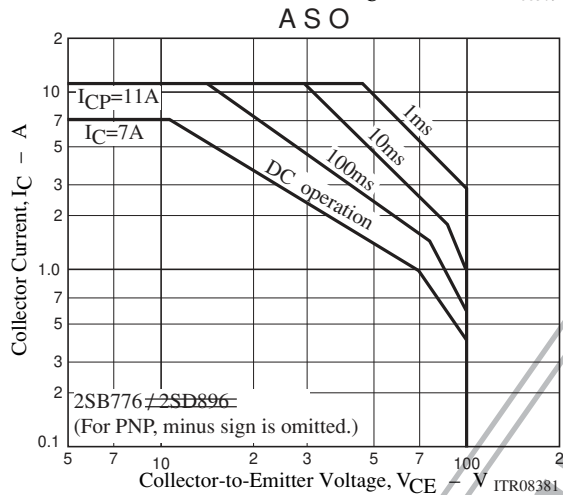
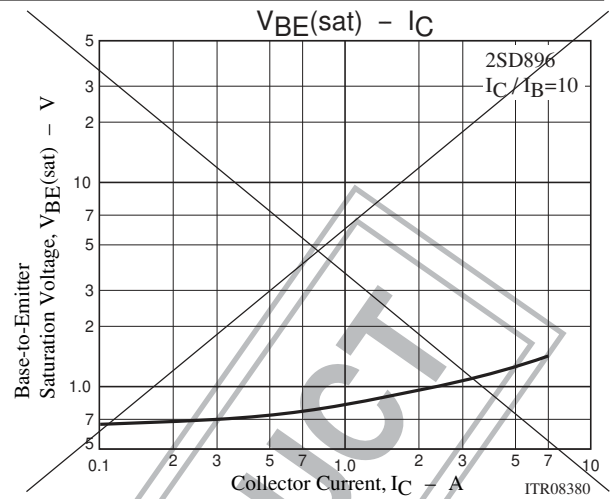
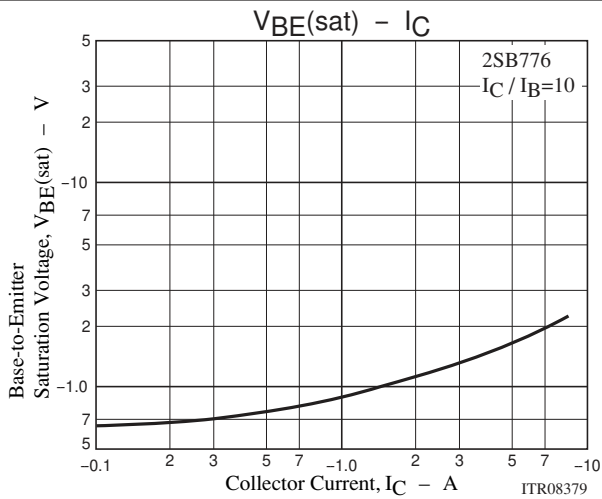
$I_C=10I_{B1} = -10I_{B2}=1A$
(For PNP, the polarity is reversed.)



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