



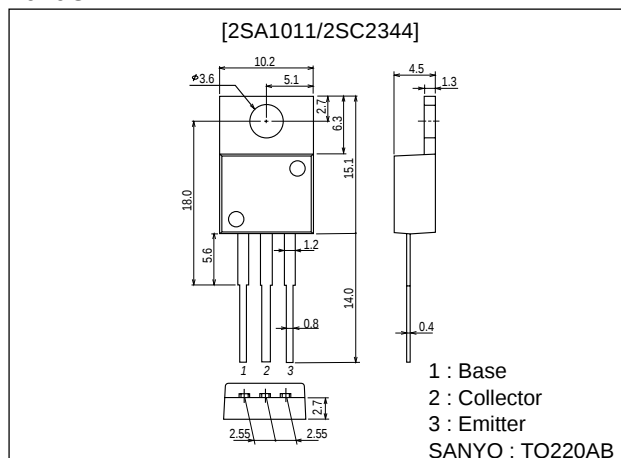
## 2SA1011/2SC2344

### High-Voltage Switching, AF Power Amp, 100W Output Predriver Applications

#### Package Dimensions

unit:mm

2010C



() : 2SA1011

#### Specifications

##### Absolute Maximum Ratings at Ta = 25°C

| Parameter                    | Symbol    | Conditions             | Ratings     | Unit |
|------------------------------|-----------|------------------------|-------------|------|
| Collector-to-Base Voltage    | $V_{CB0}$ |                        | (-)180      | V    |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                        | (-)160      | V    |
| Emitter-to-Base Voltage      | $V_{EBO}$ |                        | (-)6        | V    |
| Collector Current            | $I_C$     |                        | (-)1.5      | A    |
| Collector Current (Pulse)    | $I_{CP}$  |                        | (-)3        | A    |
| Collector Dissipation        | $P_C$     | $T_c=25^\circ\text{C}$ | 25          | W    |
| Junction Temperature         | $T_J$     |                        | 150         | °C   |
| Storage Temperature          | $T_{stg}$ |                        | -55 to +150 | °C   |

##### Electrical Characteristics at Ta = 25°C

| Parameter                | Symbol    | Conditions                                 | Ratings |        |       | Unit |
|--------------------------|-----------|--------------------------------------------|---------|--------|-------|------|
|                          |           |                                            | min     | typ    | max   |      |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}=(-)120\text{V}, I_E=0$             |         |        | (-)10 | μA   |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB}=(-)4\text{V}, I_C=0$               |         |        | (-)10 | μA   |
| DC Current Gain          | $h_{FE}$  | $V_{CE}=(-)5\text{V}, I_C=(-)300\text{mA}$ | 60*     |        | 200*  |      |
| Gain-Bandwidth Product   | $f_T$     | $V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$ |         | 100    |       | MHz  |
| Output Capacitance       | $C_{ob}$  | $V_{CB}=(-)10\text{V}, f=1\text{MHz}$      |         | (30)   |       | pF   |
|                          |           |                                            |         | 23     |       | pF   |
| Base-to-Emitter Voltage  | $V_{BE}$  | $V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$  |         | (-)1.5 |       | V    |

\* : The 2SA1011/2SC2344 are classified by 300mA  $h_{FE}$  as follows :

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

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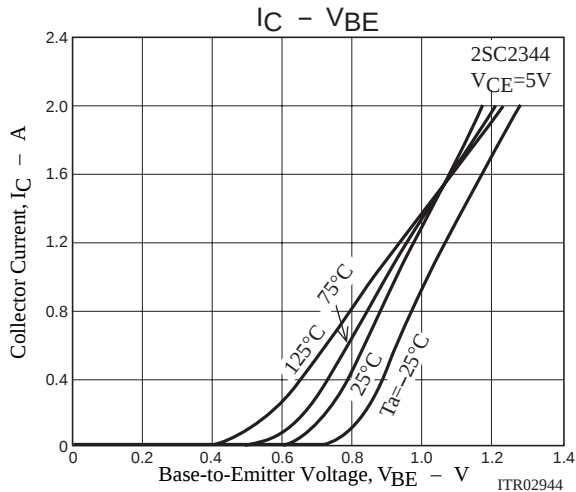
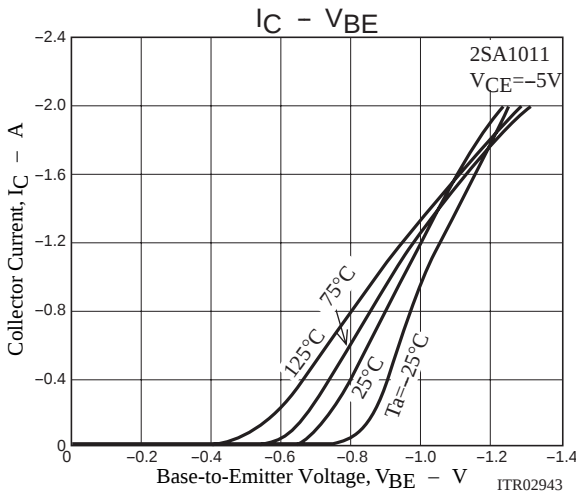
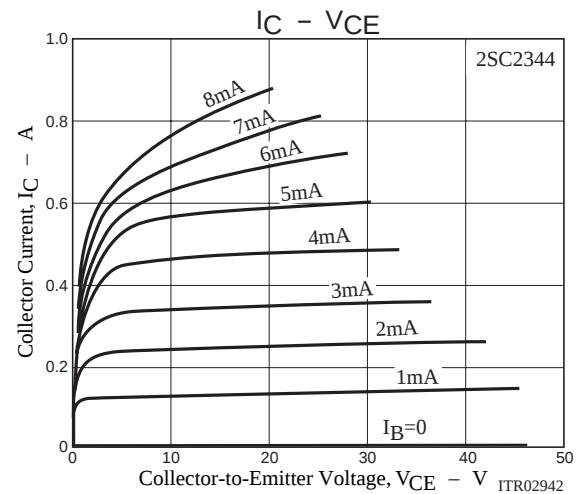
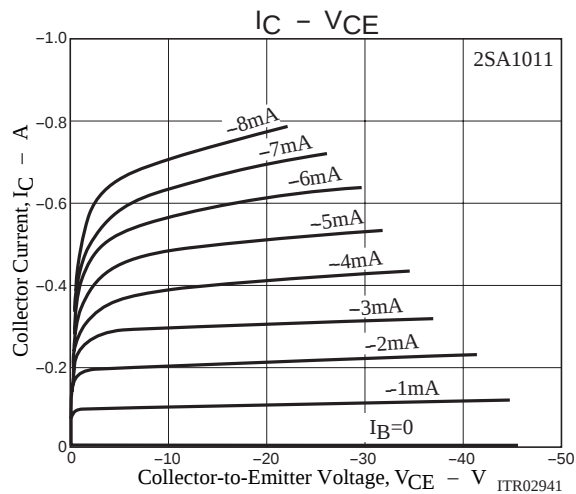
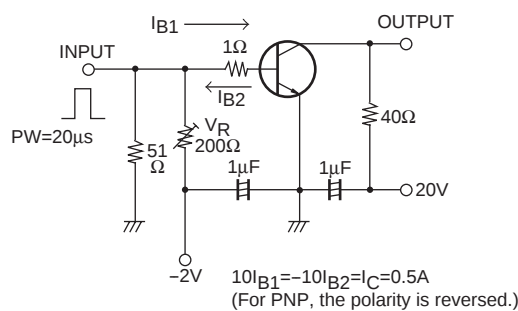
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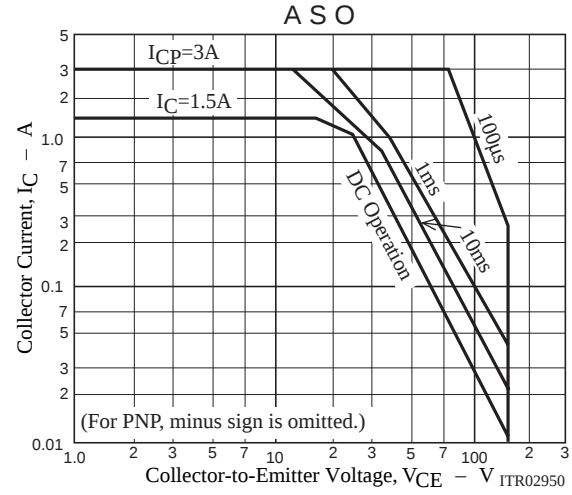
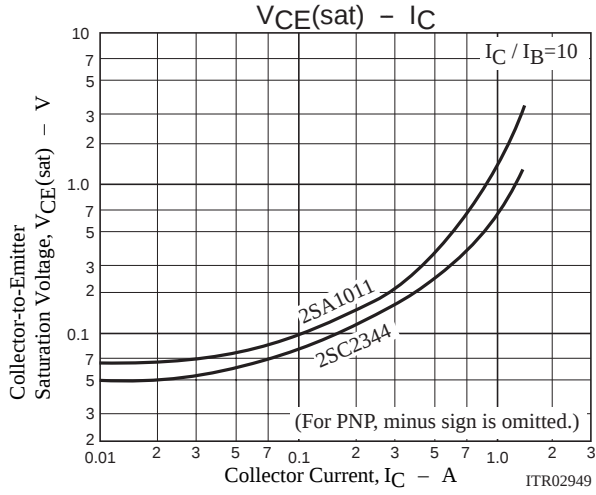
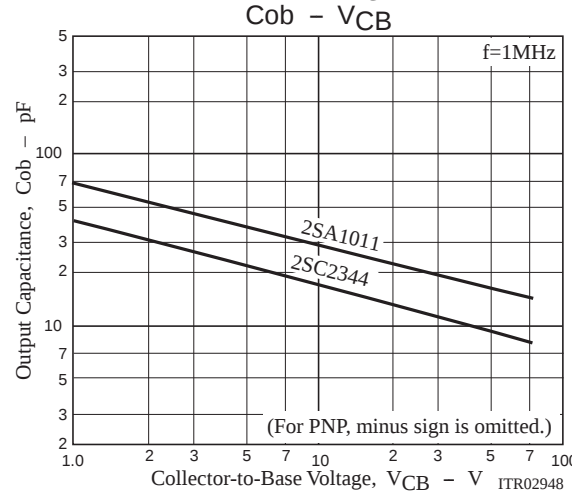
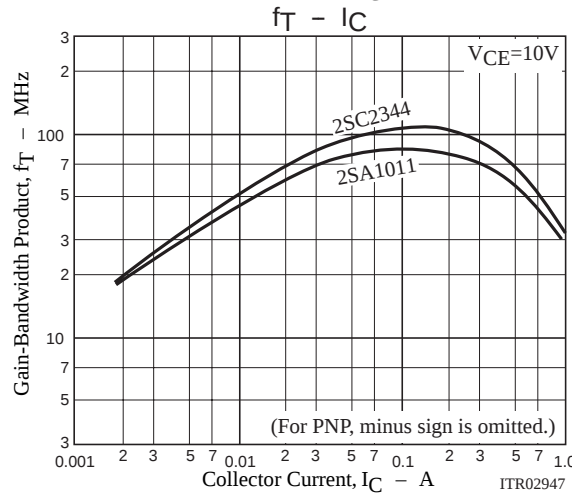
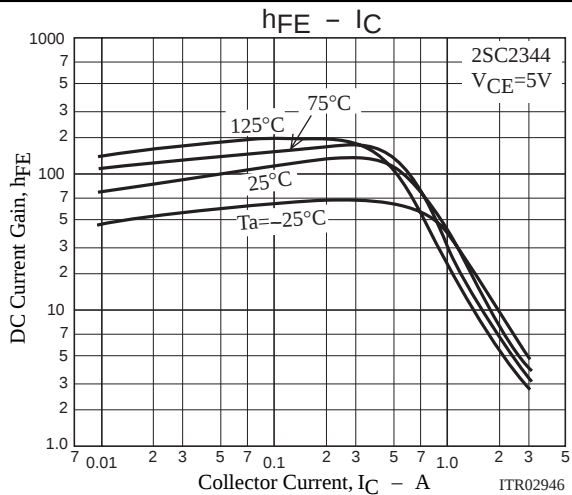
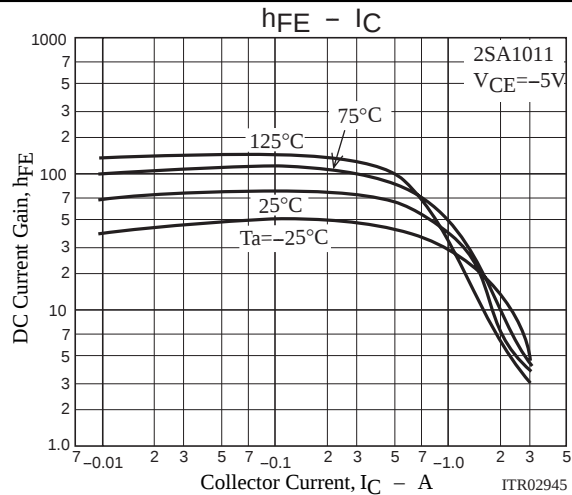
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| Parameter                               | Symbol        | Conditions                  | Ratings |                |     | Unit    |
|-----------------------------------------|---------------|-----------------------------|---------|----------------|-----|---------|
|                                         |               |                             | min     | typ            | max |         |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)500mA, I_B=(-)50mA$ |         | (-0.5)         |     | V       |
|                                         |               |                             |         | 0.3            |     | V       |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C=(-)1mA, I_E=0$         | (-)180  |                |     | V       |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-)160  |                |     | V       |
| Emitter-to-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E=(-)10mA, I_C=0$        | (-)6    |                |     | V       |
| Turn-ON Time                            | $t_{on}$      | See specified Test Circuit  |         | (0.29)<br>0.15 |     | $\mu s$ |
| Fall Time                               | $t_f$         | See specified Test Circuit  |         | (0.19)<br>0.48 |     | $\mu s$ |
| Storage Time                            | $t_{stg}$     | See specified Test Circuit  |         | (0.48)<br>0.81 |     | $\mu s$ |

Switching Time Test Circuit



2SA1011/2SC2344



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