

**SANYO**

No.2101B

**2SA1507/2SC3902**

PNP/NPN Epitaxial Planar Silicon Transistors

**High-Voltage Driver Applications****Applications**

- Color TV audio output, converters, inverters.

**Features**

- High breakdown voltage.
- Large current capacity.
- Adoption of FBET and MBIT process.
- The plastic-covered heat sink eliminates the need for an insulator when mounting the 2SA1507/2SC3902.

( ): 2SA1507

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

unit

|                              |           |             |                  |
|------------------------------|-----------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ | (- )180     | V                |
| Collector-to-Emitter Voltage | $V_{CE0}$ | (- )160     | V                |
| Emitter-to-Base Voltage      | $V_{EB0}$ | (- )6       | V                |
| Collector Current            | $I_C$     | (- )1.5     | A                |
| Collector Current (Pulse)    | $I_{CP}$  | (- )2.5     | A                |
| Collector Dissipation        | $P_C$     | 1.5         | W                |
|                              |           | 10          | W                |
| Junction Temperature         | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

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

min typ max unit

|                          |               |                                                |          |         |               |
|--------------------------|---------------|------------------------------------------------|----------|---------|---------------|
| Collector Cutoff Current | $I_{CBO}$     | $V_{CB} = (-)120\text{V}, I_E = 0$             |          | (- )1.0 | $\mu\text{A}$ |
| Emitter Cutoff Current   | $I_{EBO}$     | $V_{EB} = (-)4\text{V}, I_C = 0$               |          | (- )1.0 | $\mu\text{A}$ |
| DC Current Gain          | $h_{FE(1)}$   | $V_{CE} = (-)5\text{V}, I_C = (-)100\text{mA}$ | 100※     | 400※    |               |
|                          | $h_{FE(2)}$   | $V_{CE} = (-)5\text{V}, I_C = (-)10\text{mA}$  | 90       |         |               |
| Gain-Bandwidth Product   | $f_T$         | $V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$ | 120      |         | MHz           |
| Output Capacitance       | $C_{ob}$      | $V_{CB} = (-)10\text{V}, f = 1\text{MHz}$      | (22)     |         | pF            |
|                          |               |                                                | 14       |         | pF            |
| C-E Saturation Voltage   | $V_{CE(sat)}$ | $I_C = (-)500\text{mA}, I_B = (-)50\text{mA}$  | (- )0.2  | (- )0.5 | V             |
|                          |               |                                                | 0.13     | 0.45    | V             |
| B-E Saturation Voltage   | $V_{BE(sat)}$ | $I_C = (-)500\text{mA}, I_B = (-)50\text{mA}$  | (- )0.85 | (- )1.2 | V             |

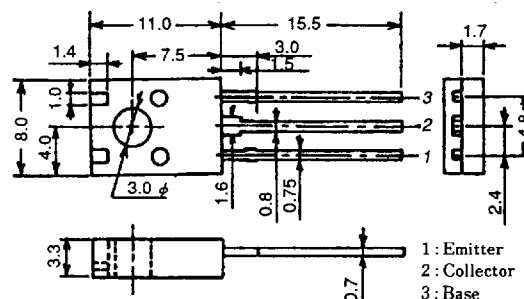
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※ : The 2SA1507/2SC3902 are classified by 100mA  $h_{FE}$  as follows :

|     |   |     |     |   |     |     |   |     |
|-----|---|-----|-----|---|-----|-----|---|-----|
| 100 | R | 200 | 140 | S | 280 | 200 | T | 400 |
|-----|---|-----|-----|---|-----|-----|---|-----|

**Package Dimensions 2042B**

(unit : mm)



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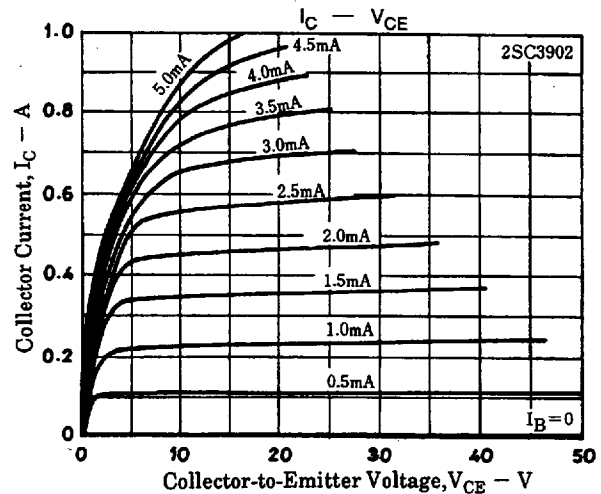
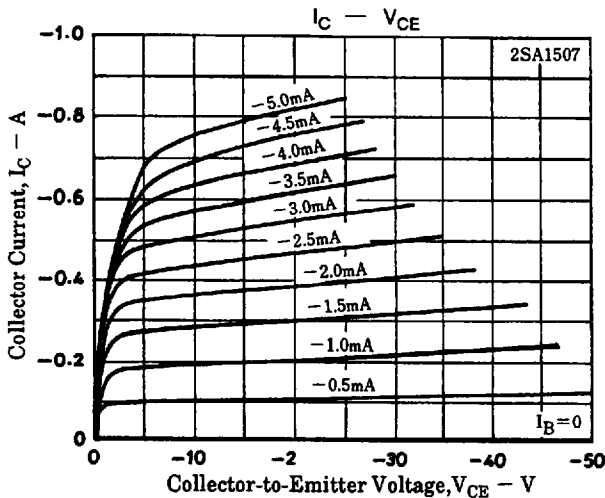
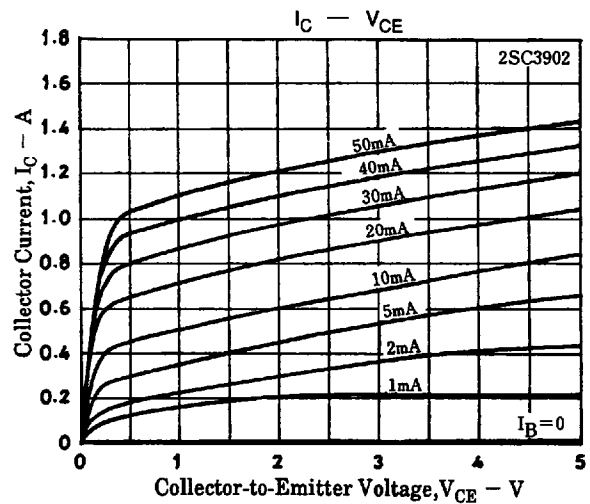
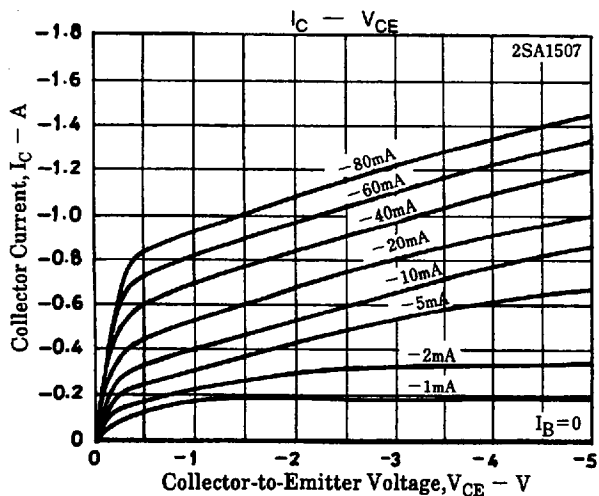
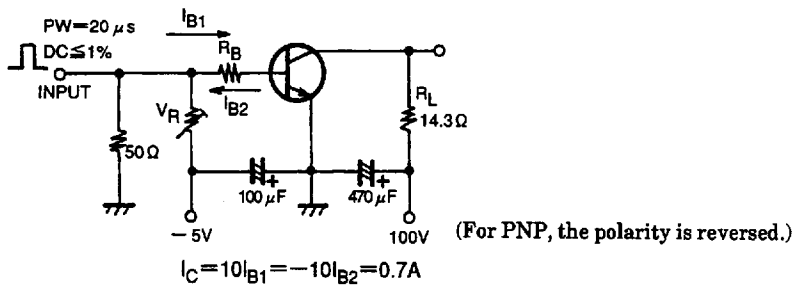
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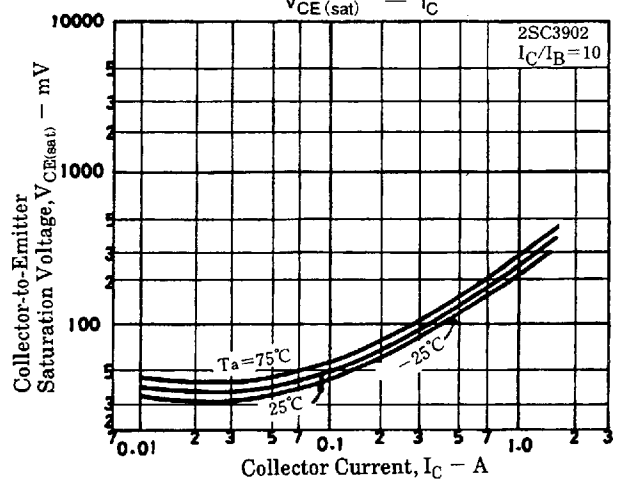
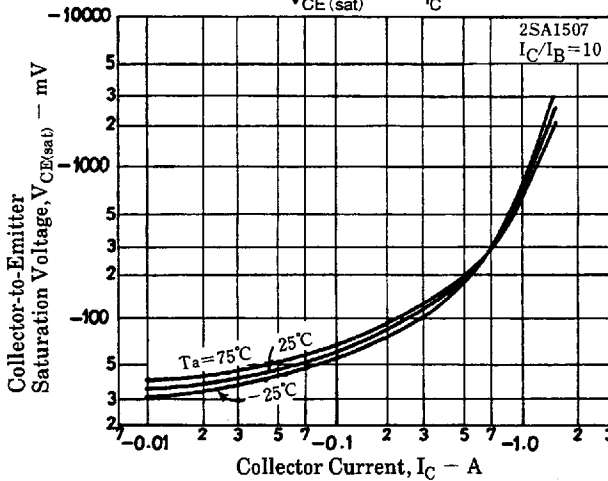
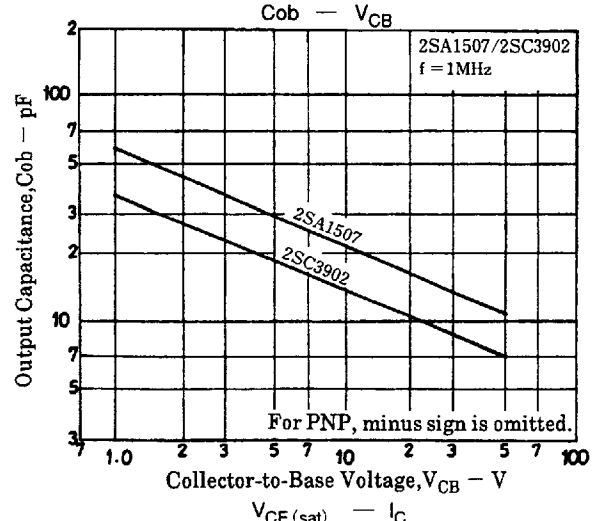
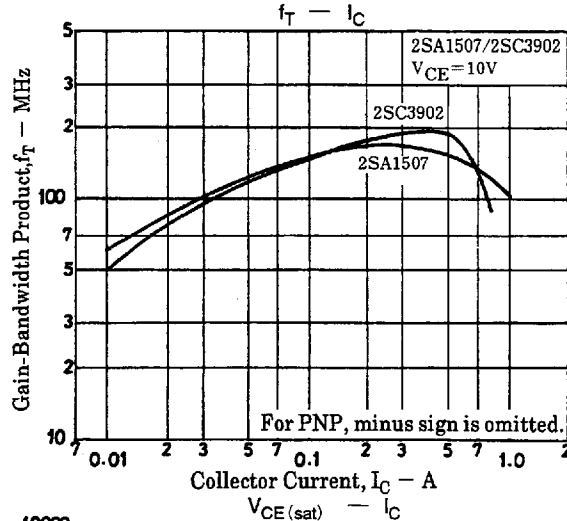
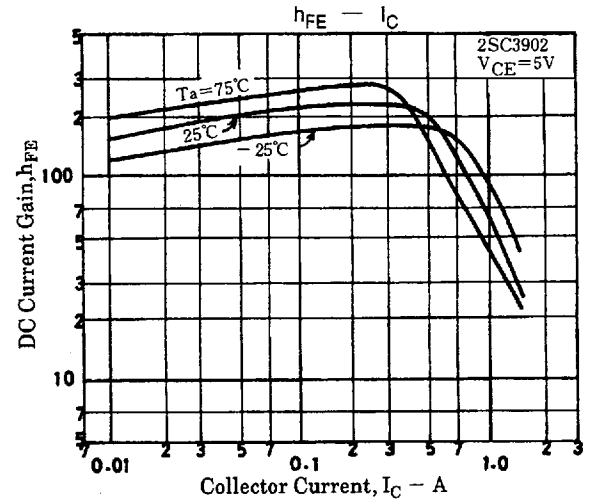
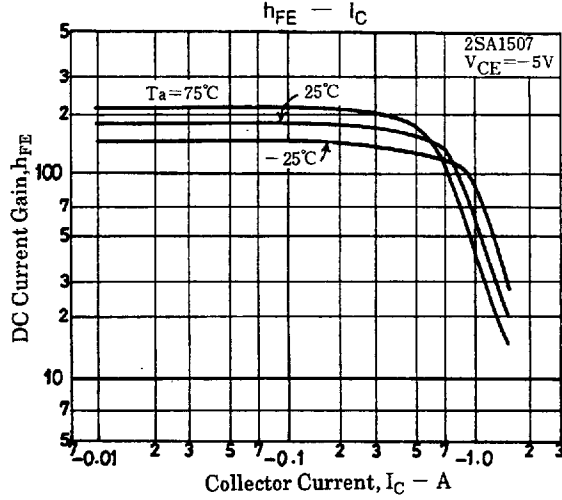
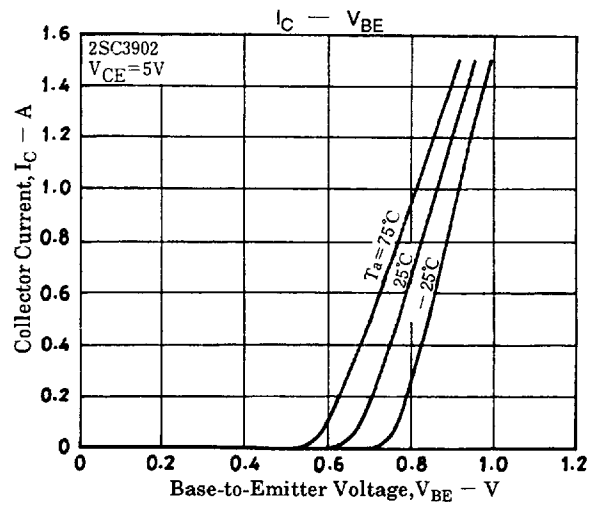
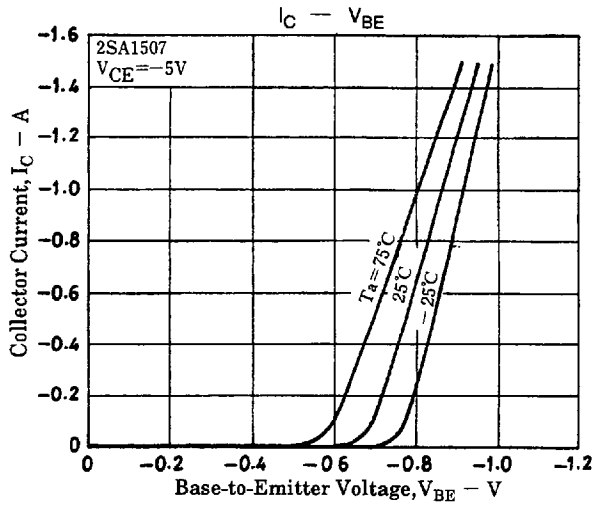
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|                       |                                                  | min       | typ    | max | unit    |
|-----------------------|--------------------------------------------------|-----------|--------|-----|---------|
| C-B Breakdown Voltage | $V_{(BR)CBO}$ $I_C = (-)10\mu A$ , $I_E = 0$     | $(-)$ 180 |        |     | V       |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ $I_C = (-)1mA$ , $R_{BE} = \infty$ | $(-)$ 160 |        |     | V       |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ $I_E = (-)10\mu A$ , $I_C = 0$     | $(-)$ 6   |        |     | V       |
| Turn-ON Time          | $t_{on}$ See specified Test Circuit.             |           | 0.04   |     | $\mu s$ |
| Storage Time          | $t_{stg}$                                        |           | (0.7)  |     | $\mu s$ |
|                       |                                                  |           | 1.2    |     | $\mu s$ |
| Fall Time             | $t_f$                                            |           | (0.04) |     | $\mu s$ |
|                       |                                                  |           | 0.08   |     | $\mu s$ |

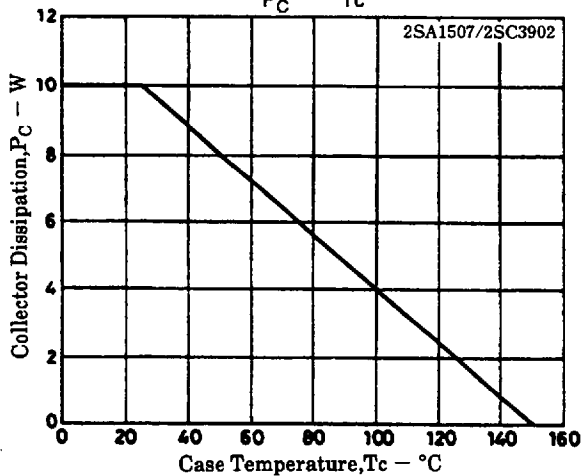
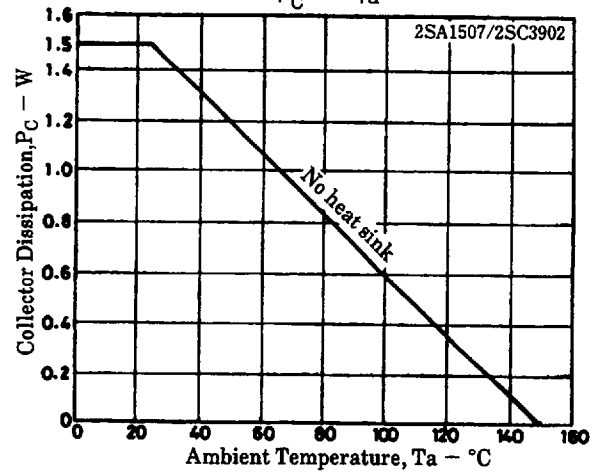
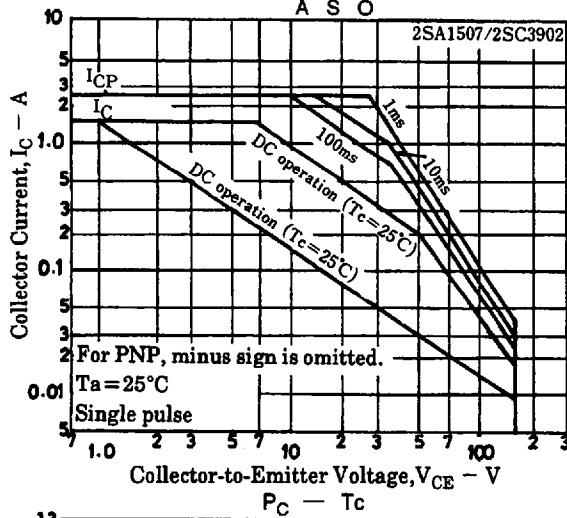
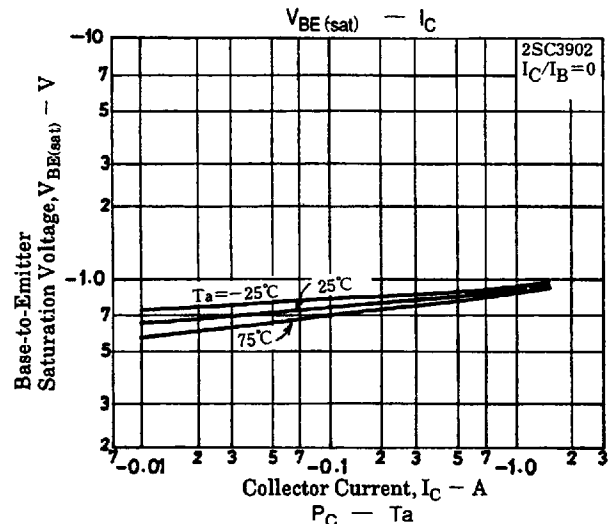
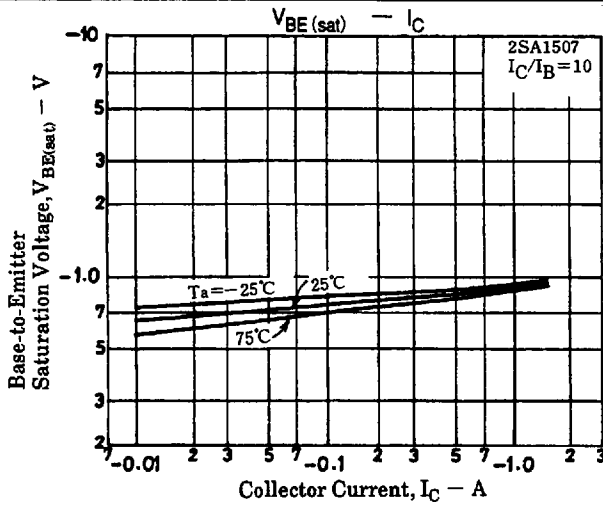
### Switching Time Test Circuit



# 2SA1507/2SC3902



# 2SA1507/2SC3902



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