

**SANYO**

No.3582

**2SA1768/2SC4612**

PNP/NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching Applications

**Applications**

- Color TV sound output, converter, inverter

**Features**

- Adoption of MBIT process
- High breakdown voltage, large current capacity
- Fast switching speed

( ): 2SA1768

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

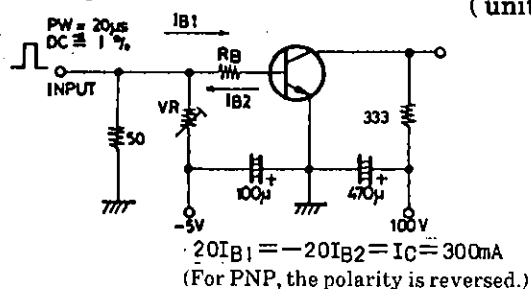
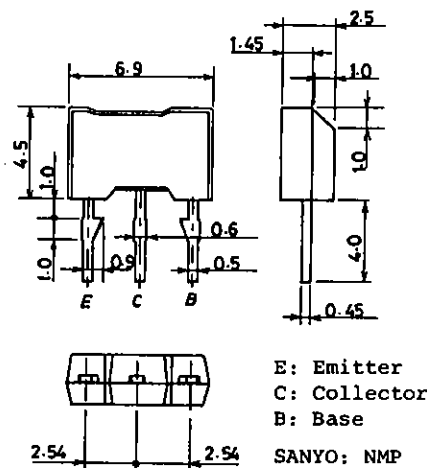
|                              |           |             | unit             |
|------------------------------|-----------|-------------|------------------|
| Collector to Base Voltage    | $V_{CB0}$ | (- )180     | V                |
| Collector to Emitter Voltage | $V_{CEO}$ | (- )160     | V                |
| Emitter to Base Voltage      | $V_{EBO}$ | (- )6       | V                |
| Collector Current            | $I_C$     | (- )0.7     | A                |
| Collector Current(Pulse)     | $I_{CP}$  | (- )1.5     | A                |
| Collector Dissipation        | $P_C$     | 1           | W                |
| Junction Temperature         | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

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

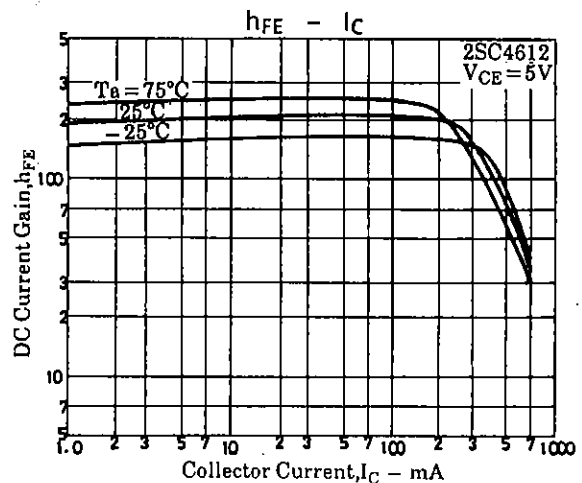
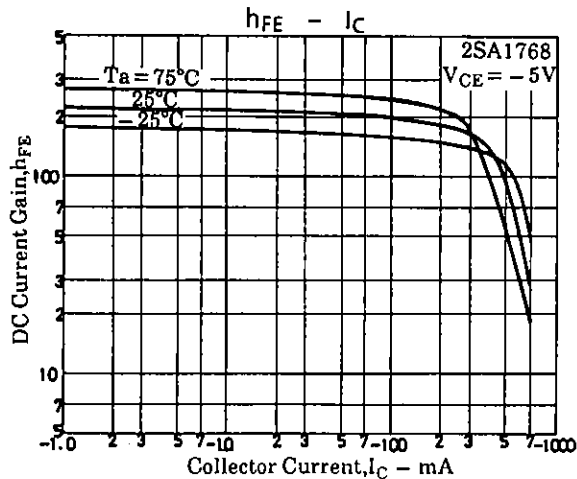
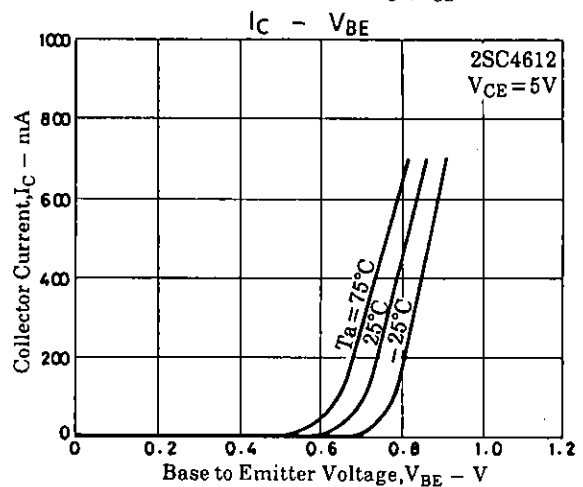
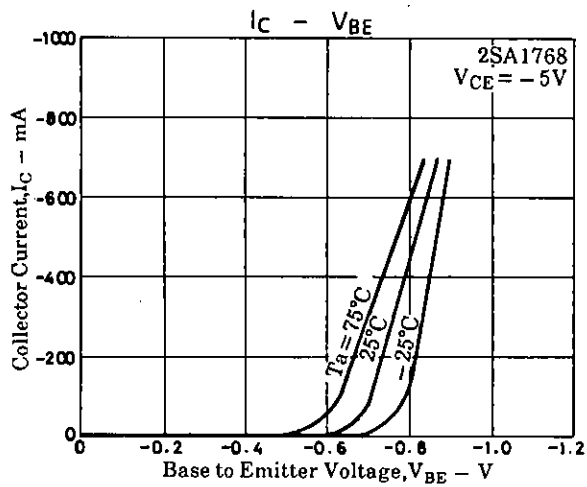
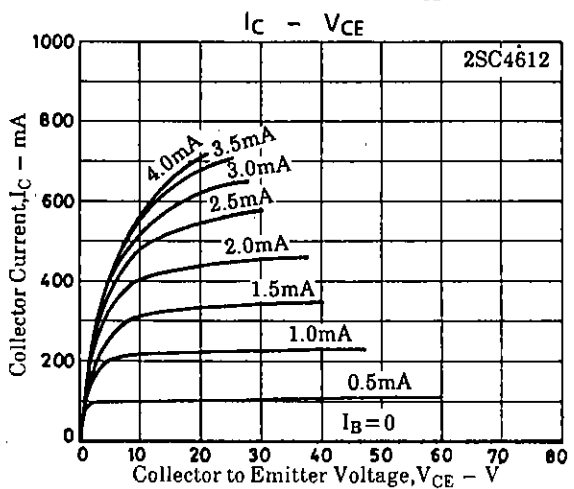
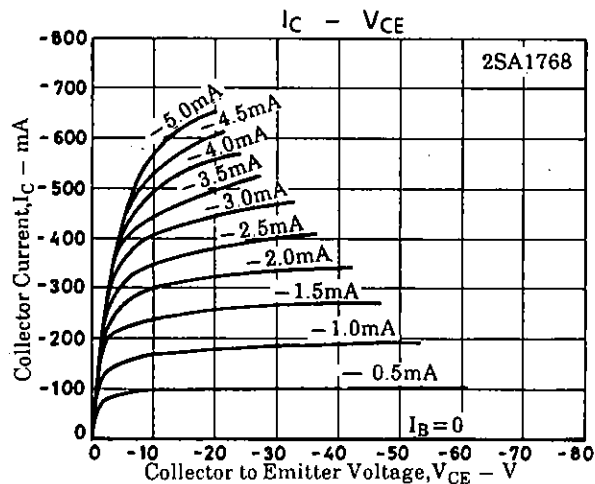
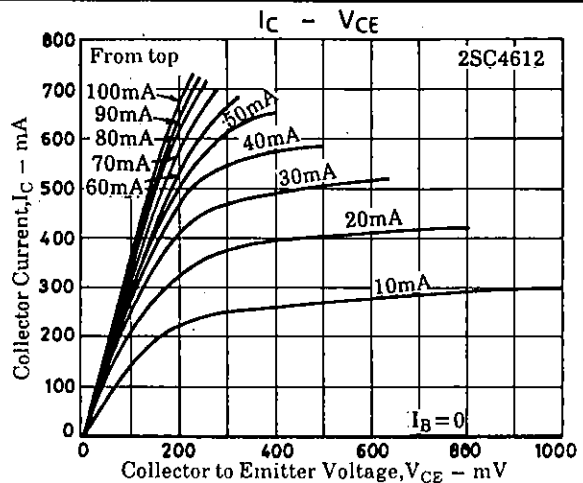
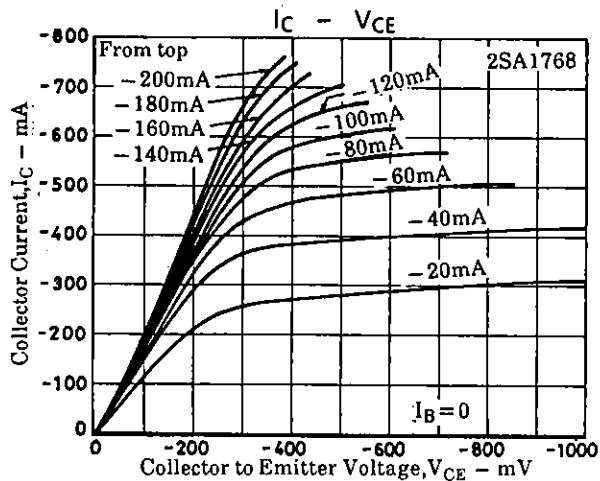
|                          |               |                                                | min         | typ        | max     | unit          |
|--------------------------|---------------|------------------------------------------------|-------------|------------|---------|---------------|
| Collector Cutoff Current | $I_{CBO}$     | $V_{CB} = (-)120\text{V}, I_E = 0$             |             |            | (- )0.1 | $\mu\text{A}$ |
| Emitter Cutoff Current   | $I_{EBO}$     | $V_{EB} = (-)4\text{V}, I_C = 0$               |             |            | (- )0.1 | $\mu\text{A}$ |
| 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       | $c_{ob}$      | $V_{CB} = (-)10\text{V}, f = 1\text{MHz}$      |             | (11)8      |         | pF            |
| C-E Saturation Voltage   | $V_{CE(sat)}$ | $I_C = 250\text{mA}, I_B = (-)25\text{mA}$     | (- 0.2)0.12 | (- 0.5)0.4 |         | V             |
| B-E Saturation Voltage   | $V_{BE(sat)}$ | $I_C = 250\text{mA}, I_B = (-)25\text{mA}$     | (- )0.85    | (- )1.2    |         | V             |
| C-B Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = 10\mu\text{A}, I_E = 0$                 | (- )180     |            |         | V             |
| C-E Breakdown Voltage    | $V_{(BR)CEO}$ | $I_C = 1\text{mA}, R_{BE} = \infty$            | (- )160     |            |         | V             |
| E-B Breakdown Voltage    | $V_{(BR)EBO}$ | $I_E = 10\mu\text{A}, I_C = 0$                 | 6           |            |         | V             |
| Turn-ON Time             | $t_{on}$      | See specified Test Circuit.                    |             | (60)50     |         | ns            |
| Storage Time             | $t_{stg}$     | "                                              |             | (900)1000  |         | ns            |
| Fall Time                | $t_f$         | "                                              |             | (60)60     |         | ns            |

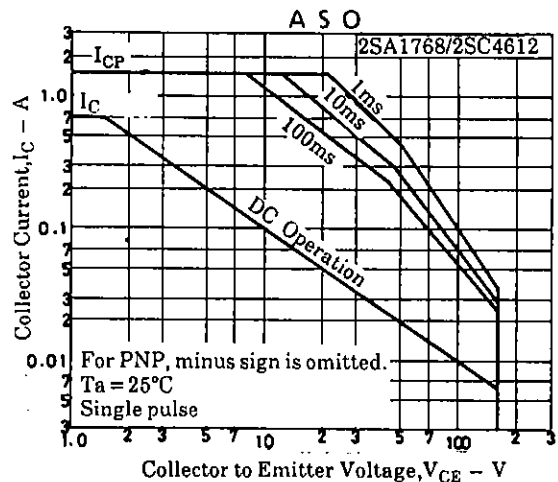
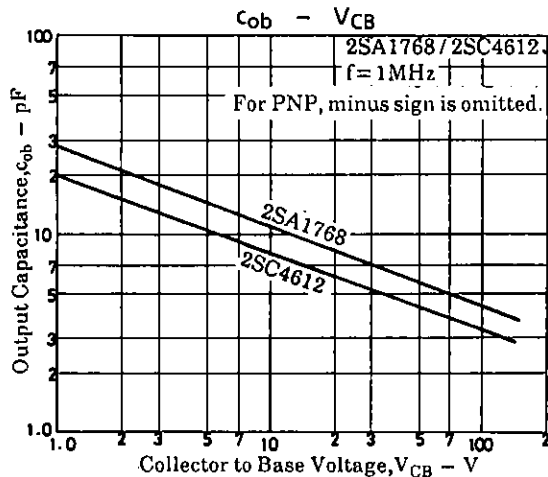
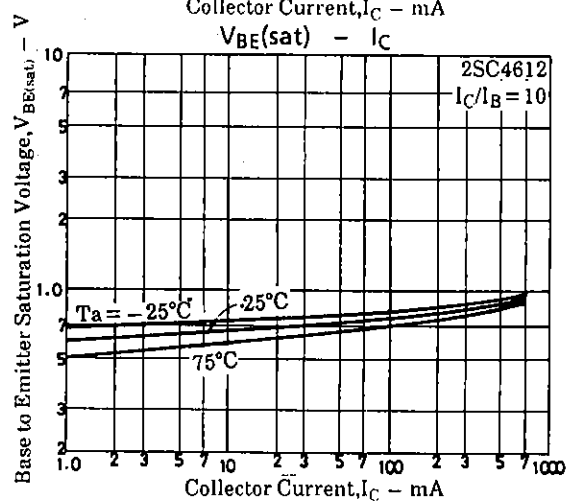
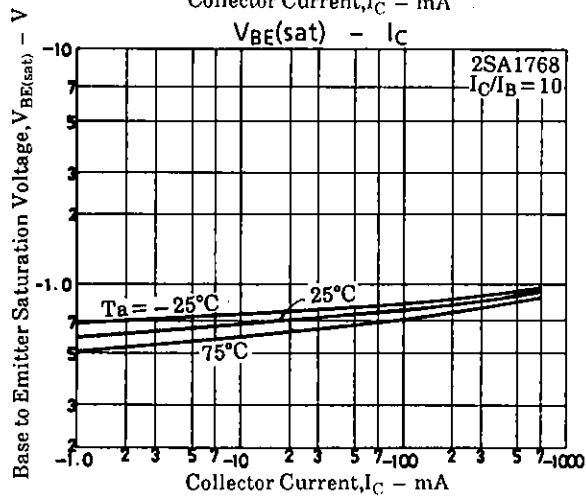
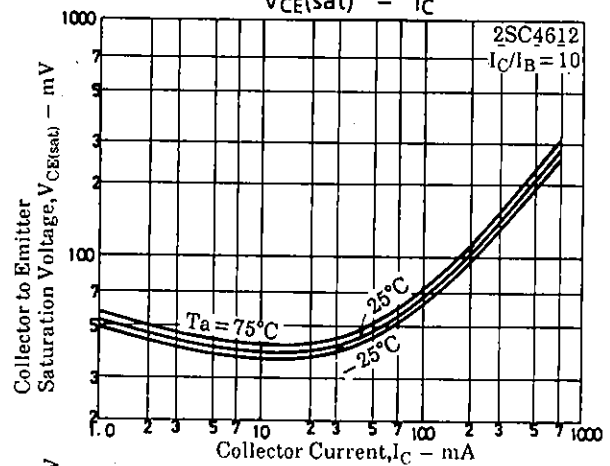
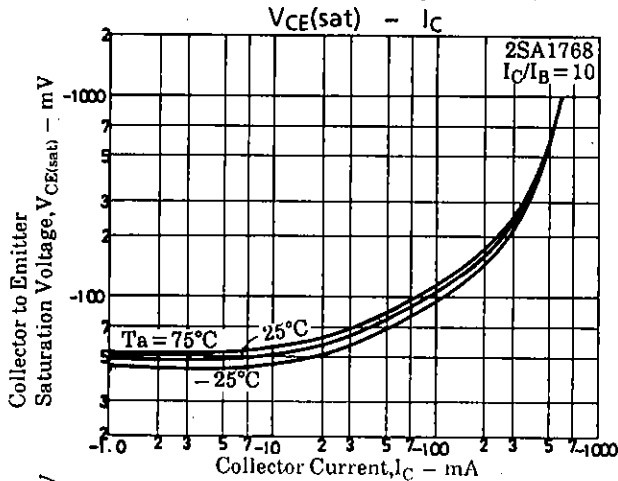
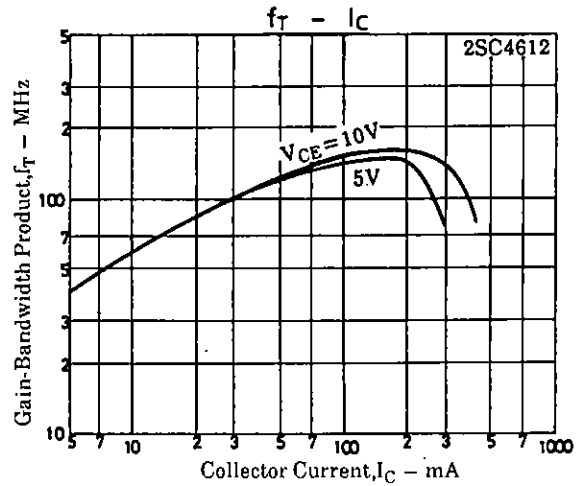
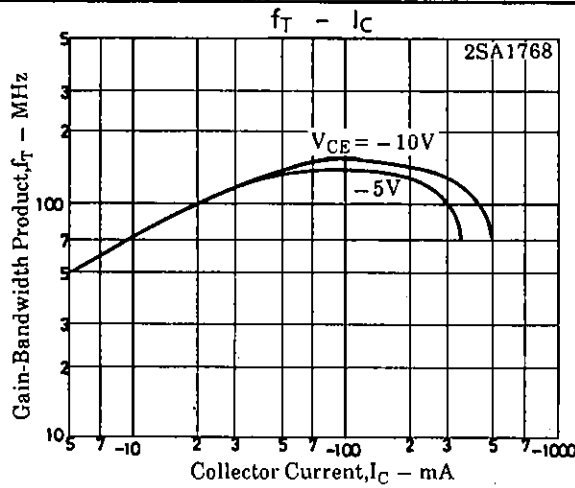
\* : The 2SA1768/2SC4612 are classified by 100mA  $h_{FE}$  as follows :

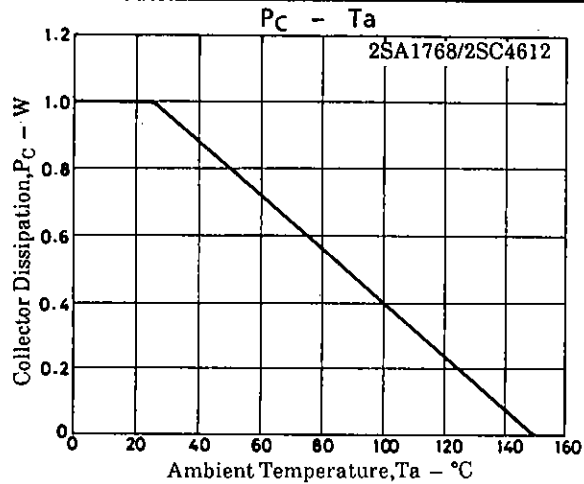
|     |   |     |     |   |     |     |   |     |
|-----|---|-----|-----|---|-----|-----|---|-----|
| 100 | R | 200 | 140 | S | 280 | 200 | T | 400 |
|-----|---|-----|-----|---|-----|-----|---|-----|

**Switching Time Test Circuit**Unit(Resistance :  $\Omega$  , Capacitance : F)**Package Dimensions 2064**  
(unit: mm)

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