

|                                                                                   |                                                                                            |                        |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------|
|  | No.3094                                                                                    | <b>2SA1708/2SC4488</b> |
|                                                                                   | PNP/NPN Epitaxial Planar Silicon Transistors<br><b>High-Voltage Switching Applications</b> |                        |

### Features

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

( ): 2SA1708

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

|                              |           |               | unit             |
|------------------------------|-----------|---------------|------------------|
| Collector to Base Voltage    | $V_{CBO}$ | (- )120       | V                |
| Collector to Emitter Voltage | $V_{CEO}$ | (- )100       | V                |
| Emitter to Base Voltage      | $V_{EBO}$ | (- )6         | V                |
| Collector Current            | $I_C$     | (- )1         | A                |
| Collector Current(Pulse)     | $I_{CP}$  | (- )2         | A                |
| Collector Dissipation        | $P_C$     | 1             | W                |
| Junction Temperature         | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ | - 55 to + 150 | $^\circ\text{C}$ |

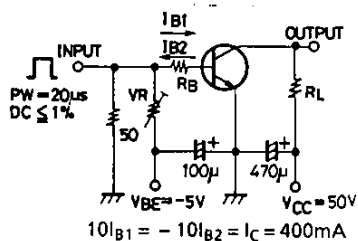
### Electrical Characteristics at $T_a = 25^\circ\text{C}$

|                          |               |                                                 | min      | typ     | max     | unit |
|--------------------------|---------------|-------------------------------------------------|----------|---------|---------|------|
| Collector Cutoff Current | $I_{CBO}$     | $V_{CB} = (-)100\text{V}, I_E = 0$              |          |         | (- )100 | nA   |
| Emitter Cutoff Current   | $I_{EBO}$     | $V_{EB} = (-)4\text{V}, I_C = 0$                |          |         | (- )100 | nA   |
| DC Current Gain          | $h_{FE}$      | $V_{CE} = (-)5\text{V}, I_C = (-)100\text{mA}$  | 100*     |         | 400*    |      |
| Gain-Bandwidth Product   | $f_T$         | $V_{CE} = (-)10\text{V}, I_C = (-)100\text{mA}$ |          | 120     |         | MHz  |
| C-E Saturation Voltage   | $V_{CE(sat)}$ | $I_C = (-)400\text{mA}, I_B = (-)40\text{mA}$   | (- 0.2)  | (- 0.6) |         | V    |
|                          |               |                                                 | 0.1      | 0.4     |         |      |
| B-E Saturation Voltage   | $V_{BE(sat)}$ | $I_C = (-)400\text{mA}, I_B = (-)40\text{mA}$   | (- )0.85 | (- )1.2 |         | V    |
| Output Capacitance       | $c_{ob}$      | $V_{CB} = (-)10\text{V}, f = 1\text{MHz}$       |          | (13)8.5 |         | pF   |
| C-B Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = (-)10\mu\text{A}, I_E = 0$               | (- )120  |         |         | V    |
| C-E Breakdown Voltage    | $V_{(BR)CEO}$ | $I_C = (-)1\text{mA}, R_{BE} = \infty$          | (- )100  |         |         | 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.                     |          | 80      |         | ns   |
| Storage Time             | $t_{stg}$     | "                                               |          | (700)   |         | ns   |
|                          |               |                                                 |          | 850     |         |      |
| Fall Time                | $t_f$         | "                                               |          | (40)50  |         | ns   |

※: The 2SA1708/2SC4488 are classified by 100mA  $h_{FE}$  as follows:

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

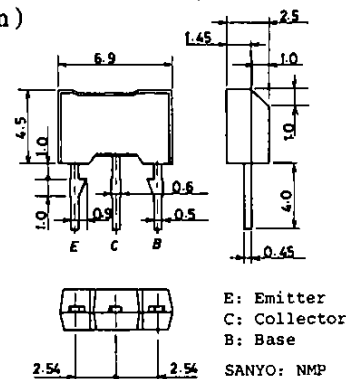
### Switching Time Test Circuit



(For PNP, the polarity is reversed.)

Unit(Resistance :  $\Omega$  , Capacitance : F)

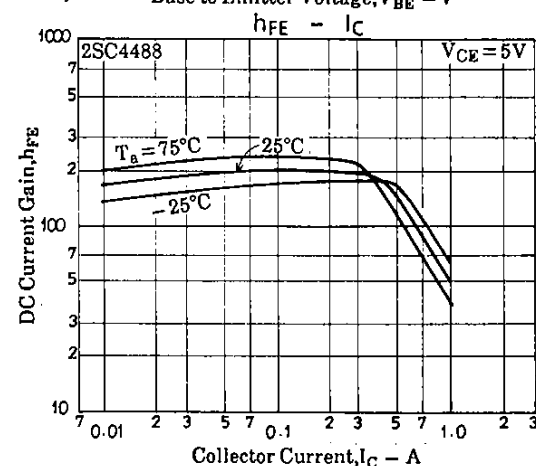
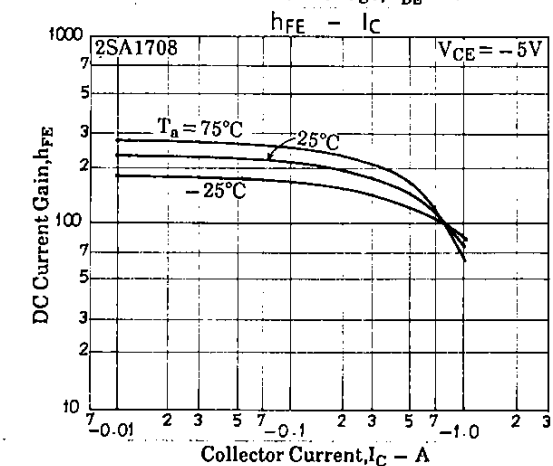
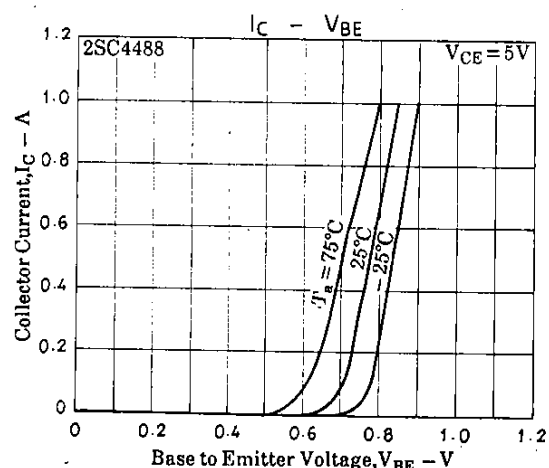
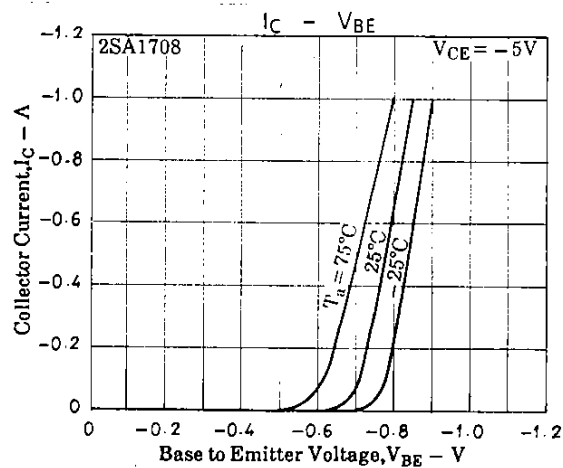
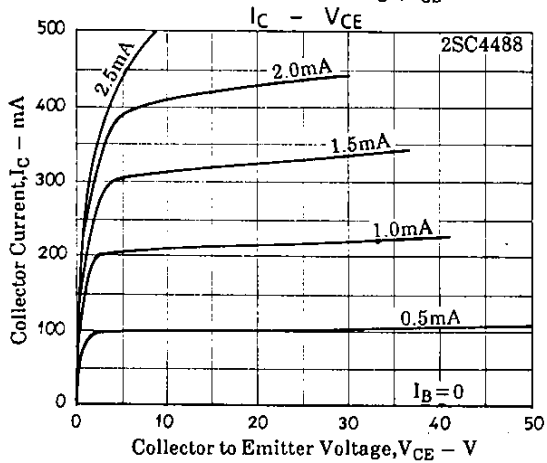
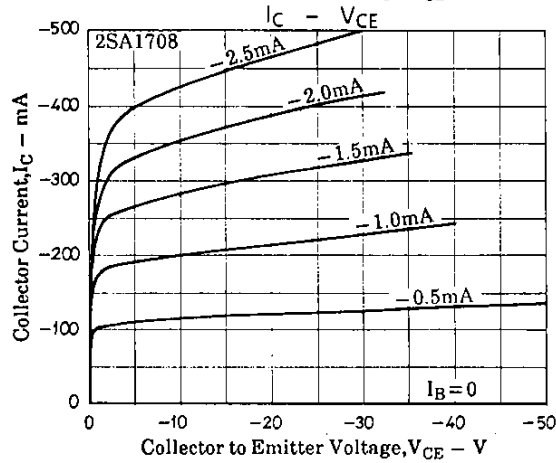
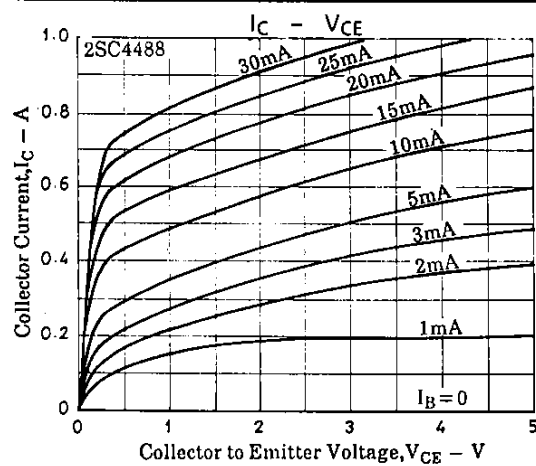
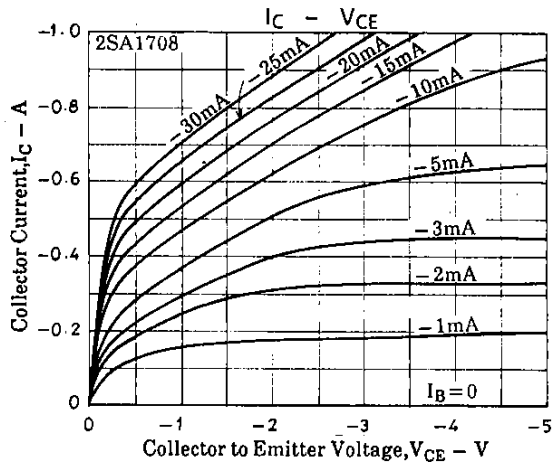
### Package Dimensions 2064 (unit: mm)



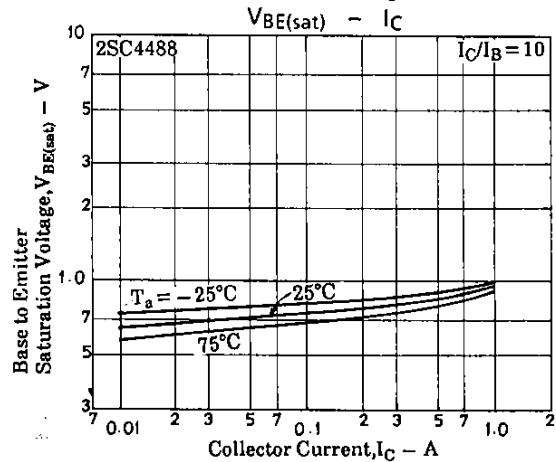
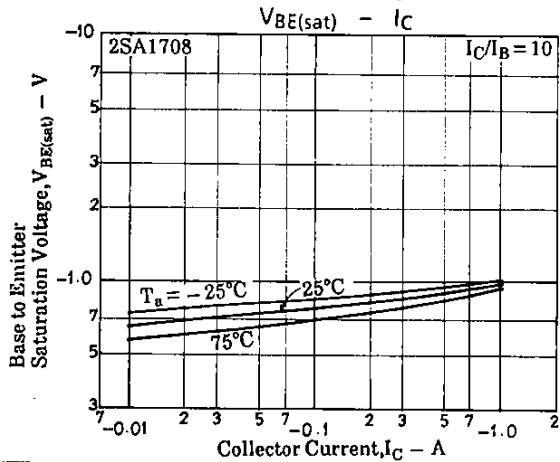
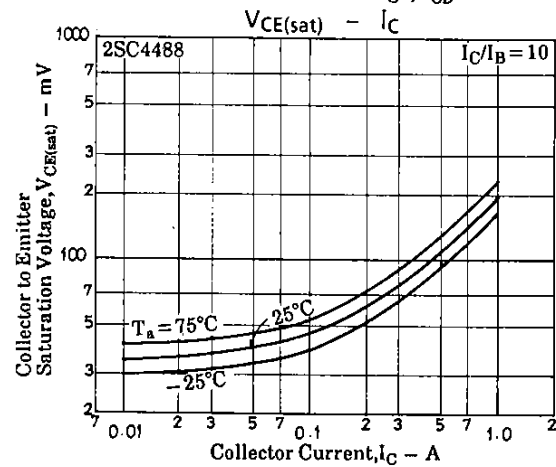
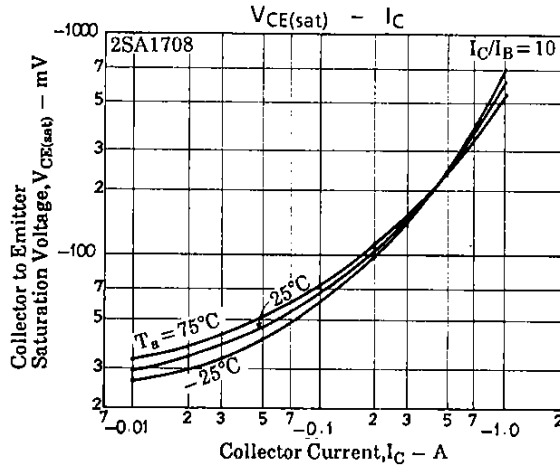
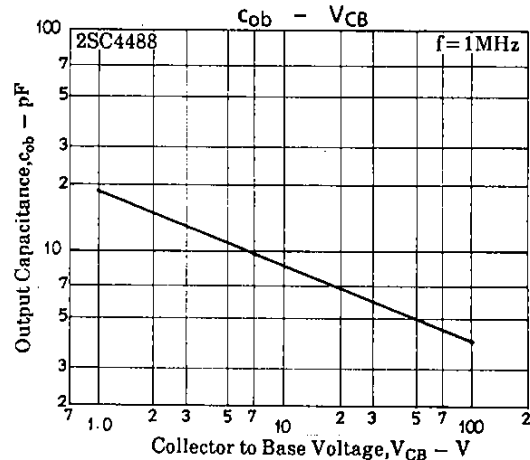
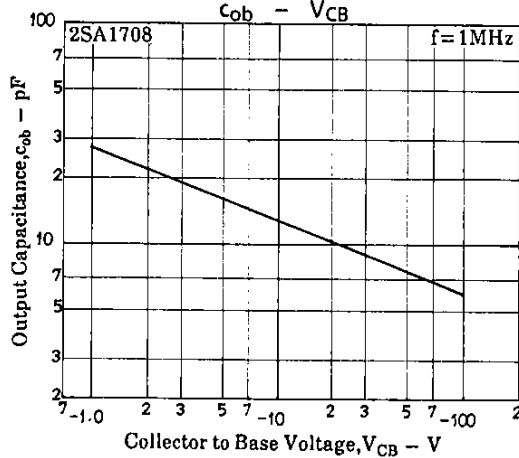
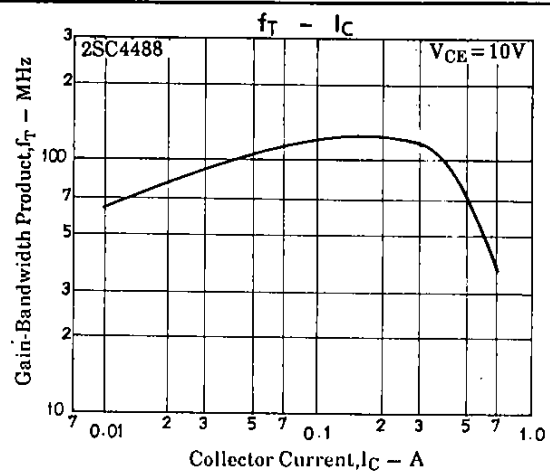
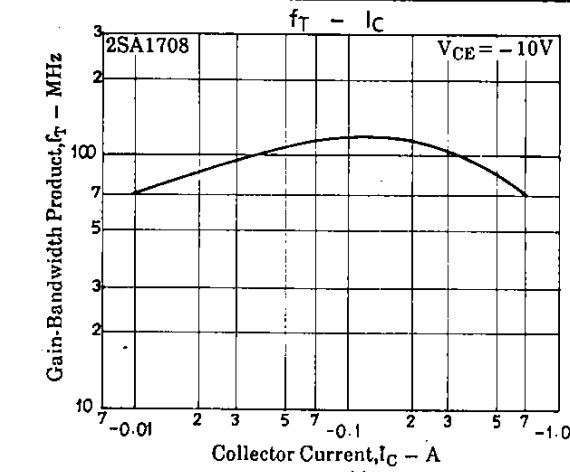
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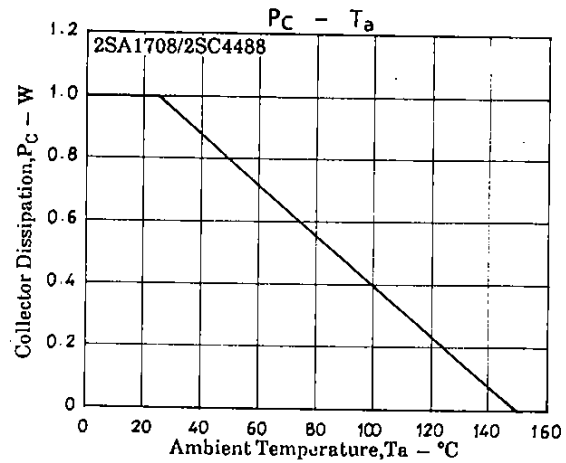
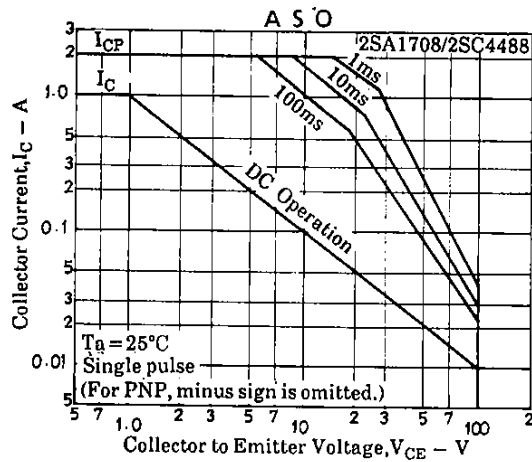
## 2SA1708/2SC4488



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