



2SA1705/2SC4485

Low-Frequency Power Amplifier Applications

Applications

- Voltage regulators, relay drivers, lamp drivers.

Features

- Adoption of FBET process.
- Fast switching speed.

() : 2SA1705

Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CB0} | | (-)60 | V |
| Collector-to-Emitter Voltage | V_{CE0} | | (-)50 | V |
| Emitter-to-Base Voltage | V_{EB0} | | (-)5 | V |
| Collector Current | I_C | | (-)1 | A |
| Collector Current (Pulse) | I_{CP} | | (-)2 | A |
| Collector Dissipation | P_C | | 0.9 | 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} | $V_{CB} = (-)50\text{V}, I_E = 0$ | | | (-)100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4\text{V}, I_C = 0$ | | | (-)100 | nA |
| DC Current Gain | h_{FE1} | $V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$ | 100* | | 400* | |
| | h_{FE2} | $V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$ | 30 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$ | | 150 | | MHz |

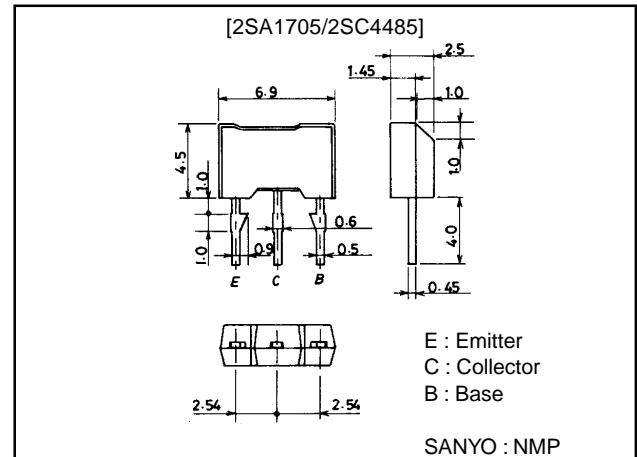
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Package Dimensions

unit:mm

2064



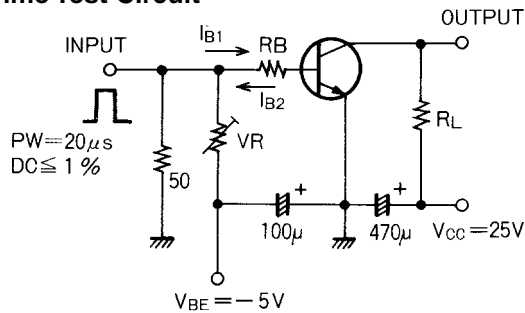
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|---------|--------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)500mA, I_B=(-)50mA$ | | (-180) | (-500) | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)500mA, I_B=(-)50mA$ | | (-)0.9 | (-)1.2 | V |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10V, f=1MHz$ | | (12)8.5 | | pF |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-)60 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-)50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)10\mu A, I_C=0$ | (-)5 | | | V |
| Turn-ON Time | t_{ON} | See specified Test Circuit | | 40 | | V |
| Storage Time | t_{stg} | See specified Test Circuit | | (300) | | ns |
| Fall Time | t_f | See specified Test Circuit | | 350 | | ns |
| | | | | 30 | | ns |

* : The 2SA1705/2SC4485 are classified by 100mA h_{FE} as follows :

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

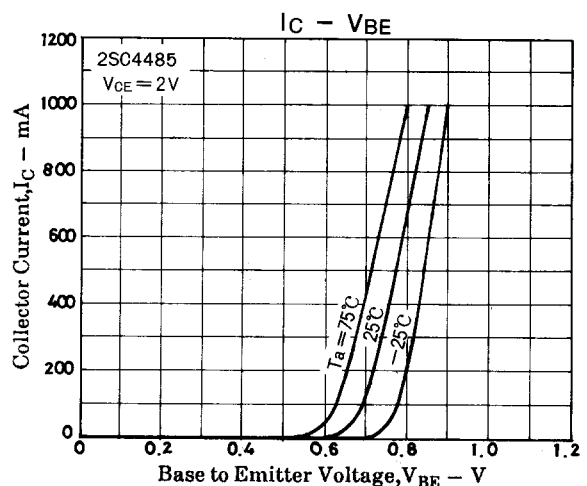
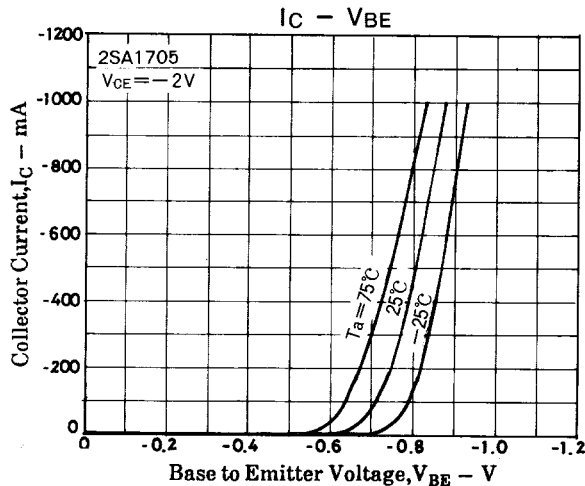
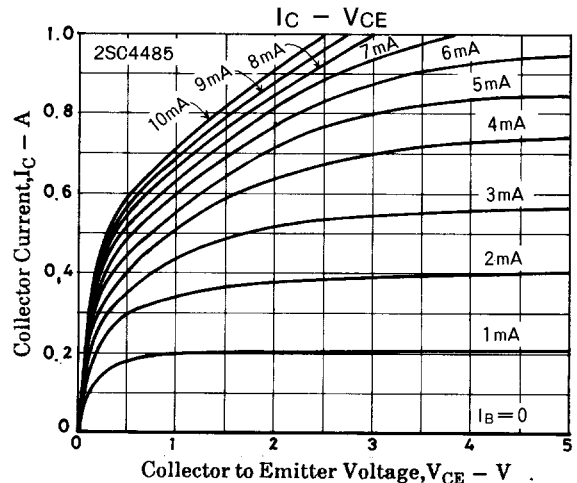
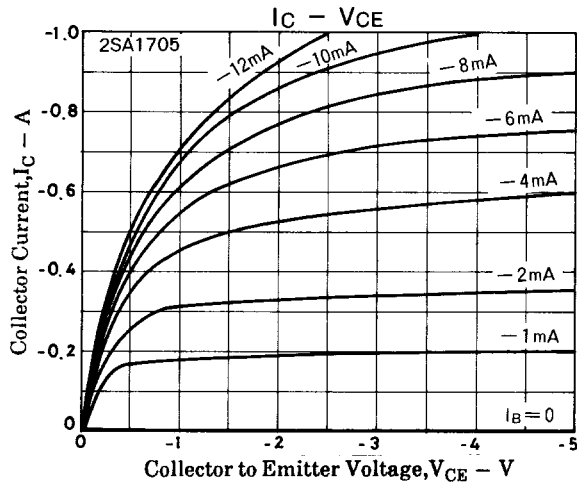
Switching Time Test Circuit



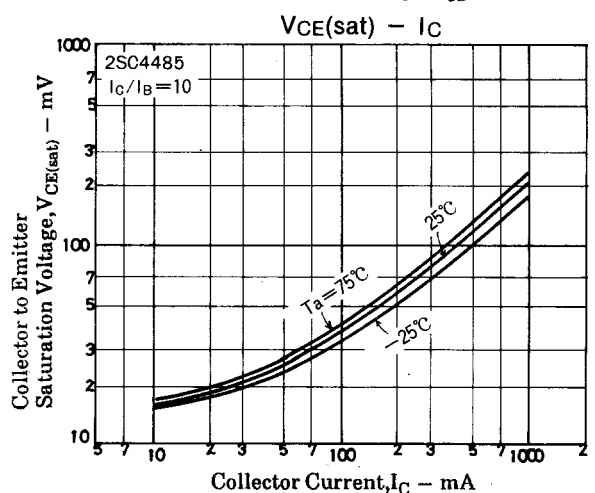
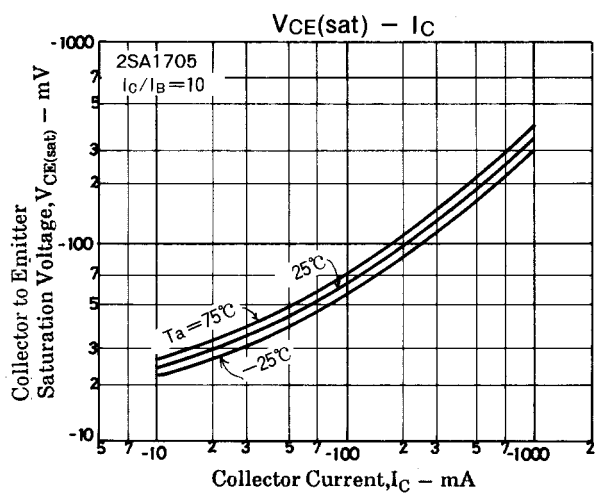
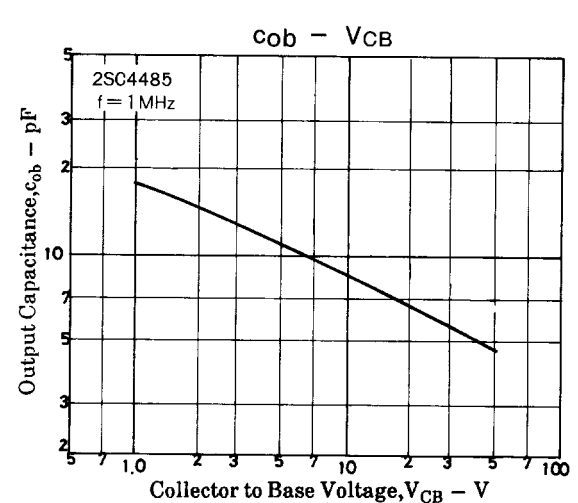
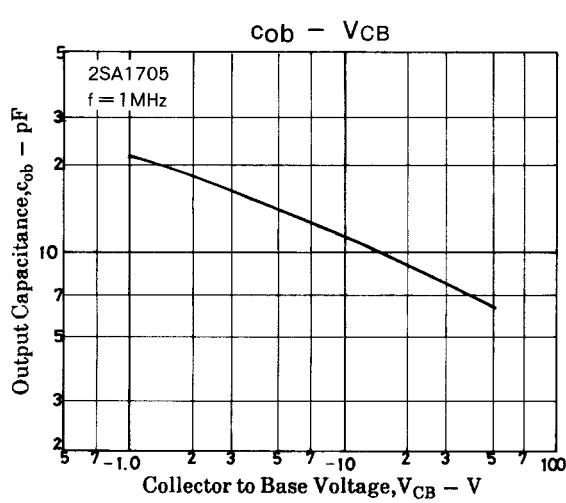
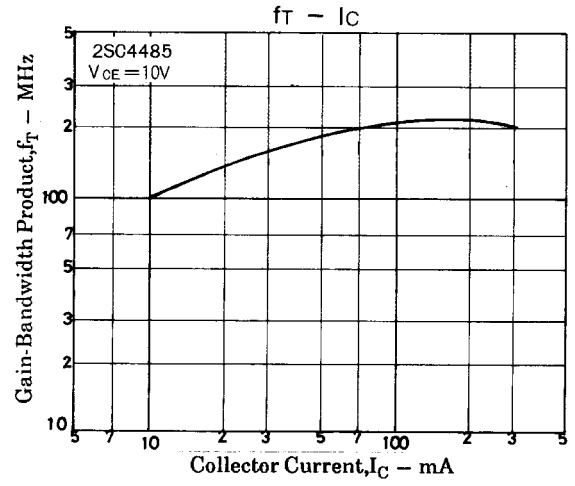
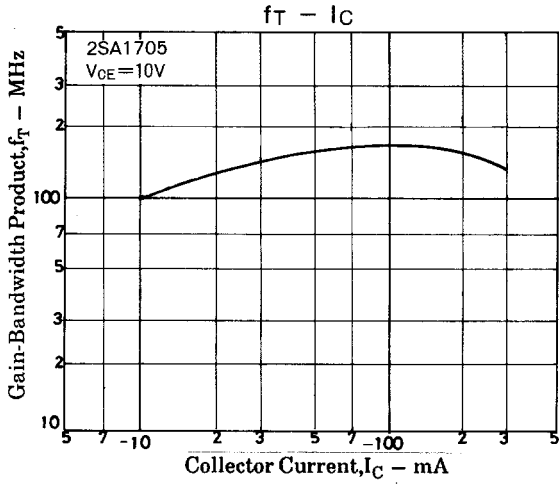
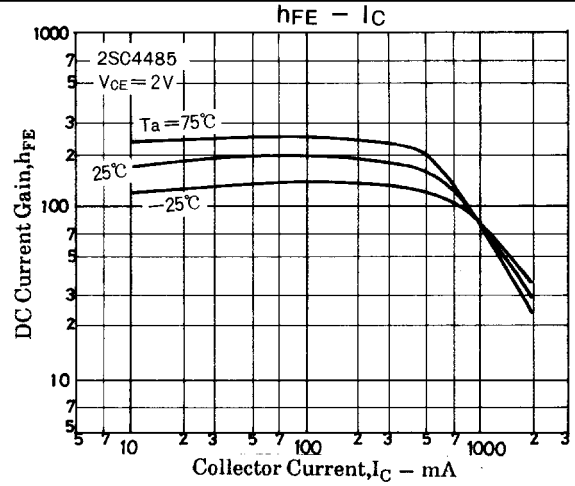
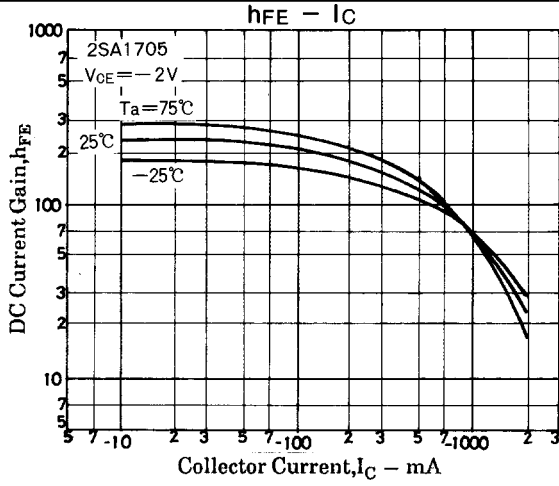
$$10I_{B1} = -10I_{B2} = I_C = 500mA$$

(For PNP, the polarity is reversed.)

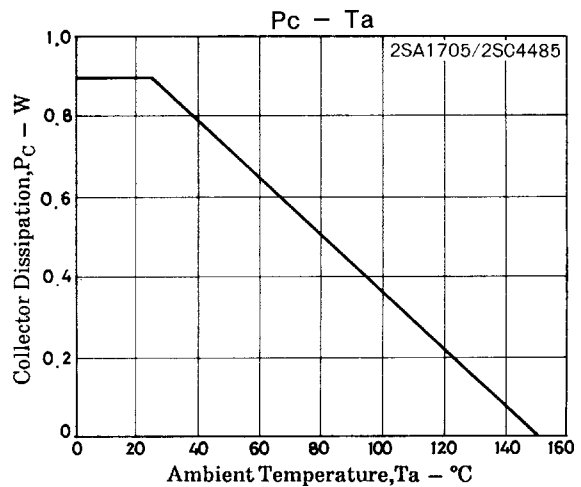
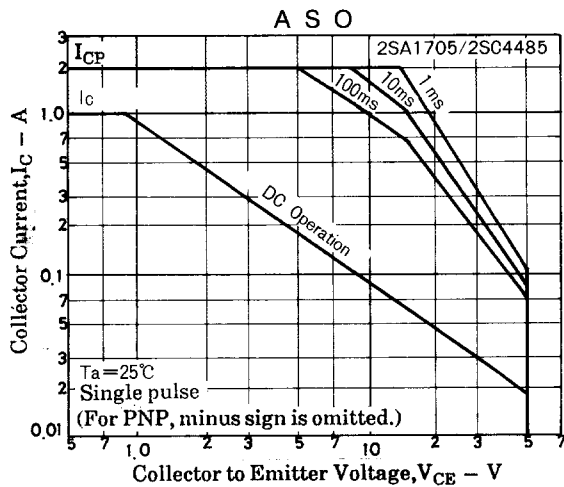
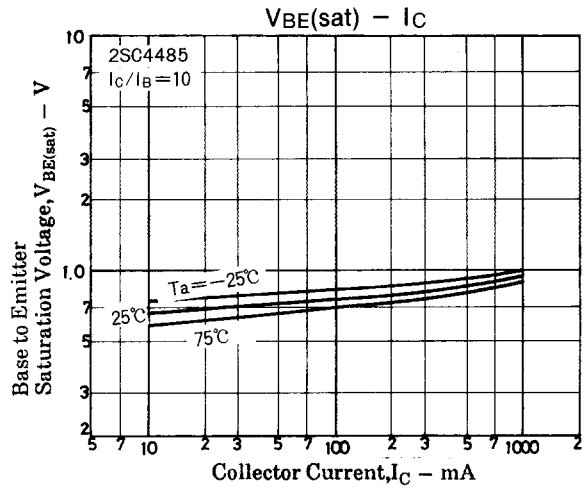
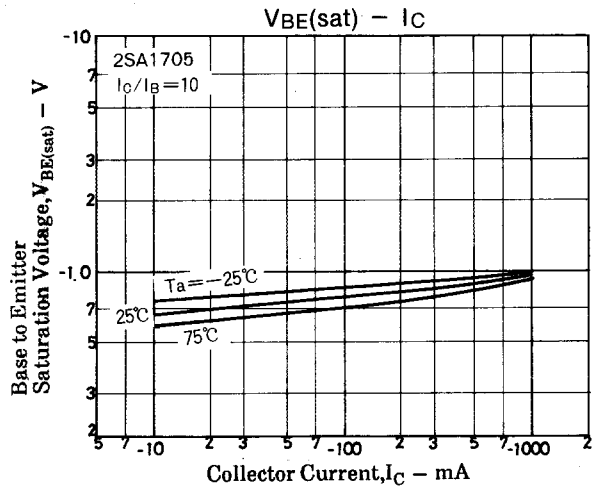
Unit (resistance : Ω , capacitance : F)



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