



2SA1769/2SC4613

160V/700mA Switching Applications

Applications

- Color TV audio output, conveter, inverter.

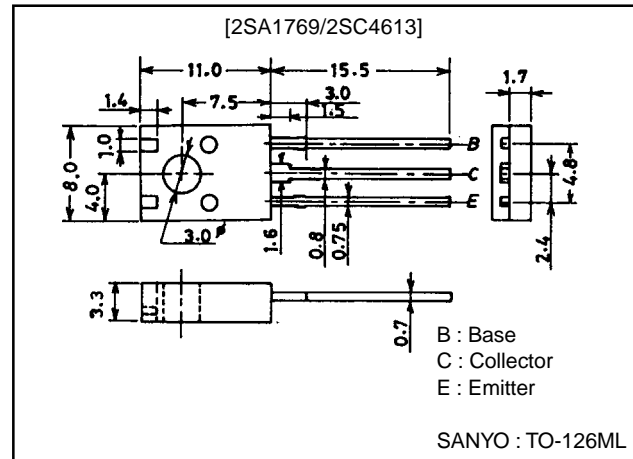
Features

- Adoption of MBIT processes.
- High breakdown voltage and large current capacity.
- Fast switching speed.

Package Dimensions

unit:mm

2042A



() : 2SA1769

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 | | (-)0.7 | A |
| Collector Current (Pulse) | I_{CP} | | (-)1.5 | A |
| Collector Dissipation | P_C | | 1.5 | W |
| | | $T_c=25^\circ\text{C}$ | 10 | 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} | $V_{CB}=(-)120\text{V}, I_E=0$ | | | (-)0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)4\text{V}, I_C=0$ | | | (-)0.1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=(-)5\text{V}, I_C=(-)100\text{mA}$ | 100* | | 400* | |
| | h_{FE2} | $V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$ | 90 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$ | | 120 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$ | | 0.12 | 0.4 | V |
| | | | | (-)0.2 | (-)0.5 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$ | (-)0.85 | | (-)1.2 | V |

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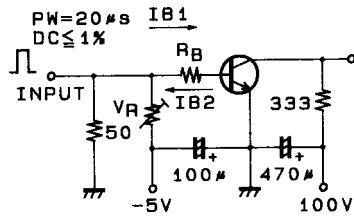
2SA1769/2SC4613

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|----------------------------------------|---------------|---------------------------------|---------|--------|-----|------|
| | | | min | typ | max | |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = (-)10\mu A, I_E = 0$ | (-)180 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)1mA, R_{BE} = \infty$ | (-)160 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = (-)10\mu A, I_C = 0$ | 6 | | | V |
| Output Capacitance | C_{ob} | $V_{CB} = (-)10V, f = 1MHz$ | | 8 | | pF |
| | | | | (11) | | pF |
| Turn-ON Time | t_{on} | See specified Test Circuit | | (60)50 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit | | (900) | | ns |
| | | | | 1000 | | ns |
| Fall Time | t_f | See specified Test Circuit | | (60)60 | | ns |

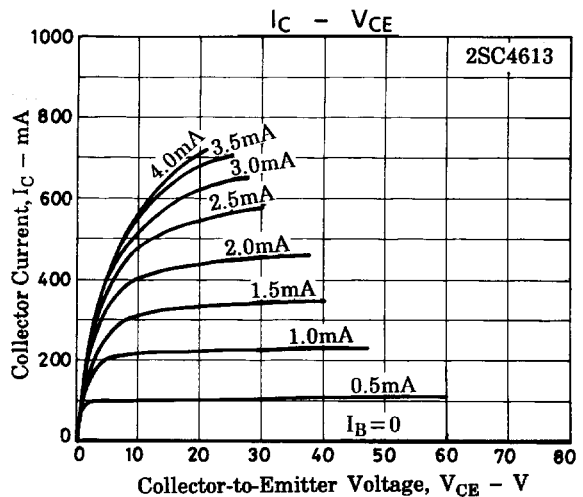
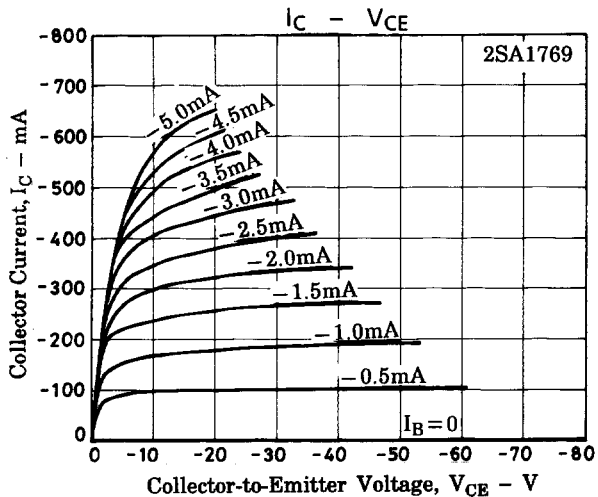
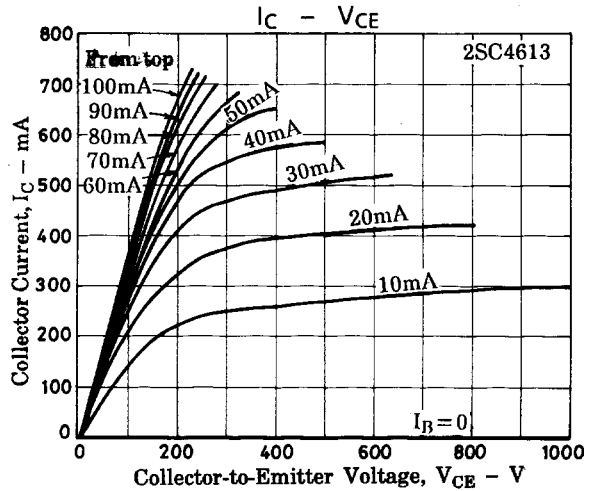
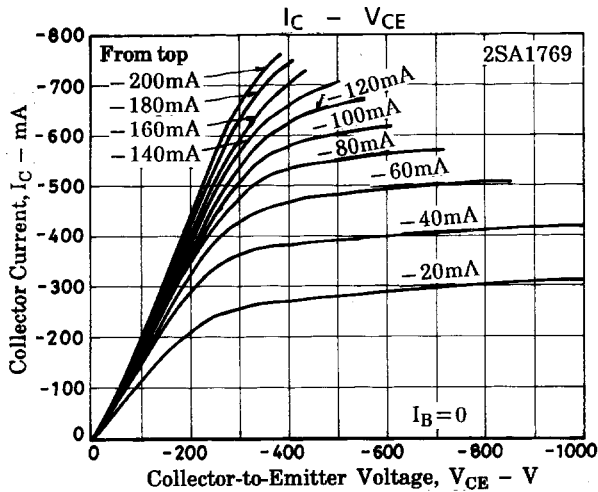
* The 2SA1769/2SC4613 are classified by 100mA h_{FE} as follows :

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

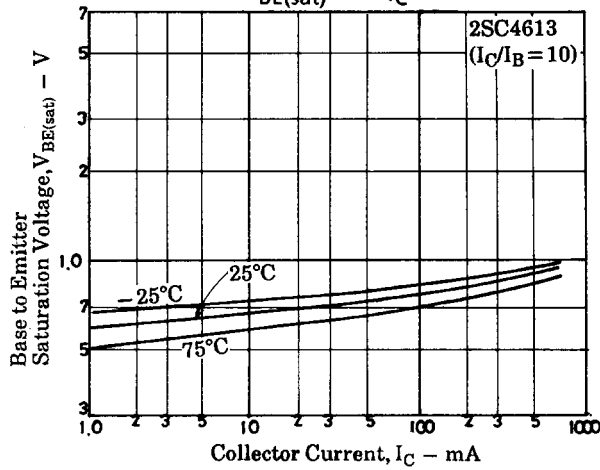
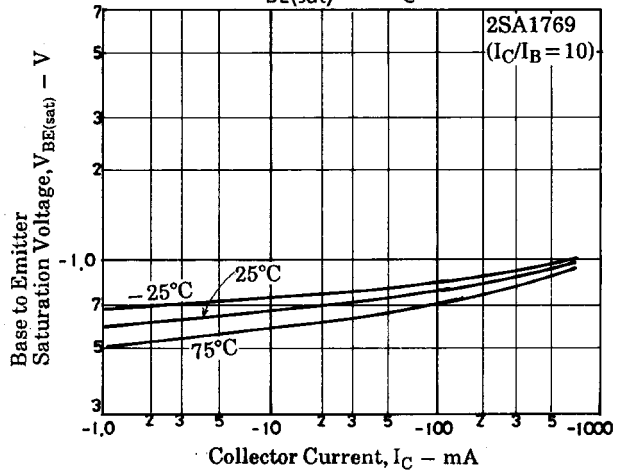
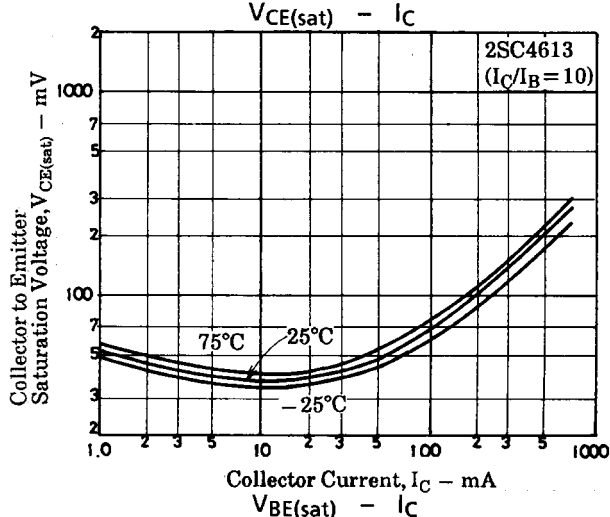
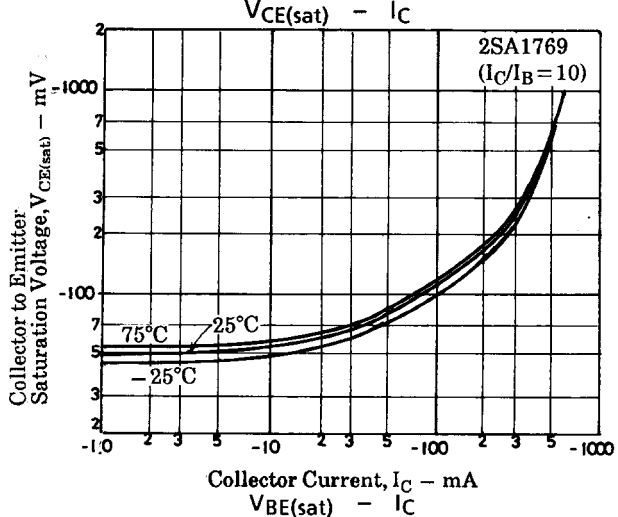
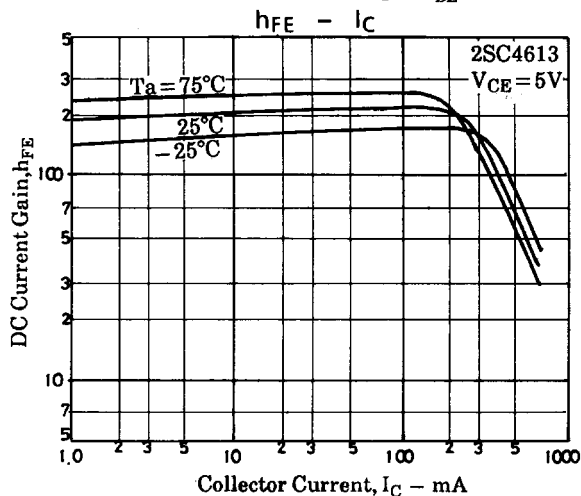
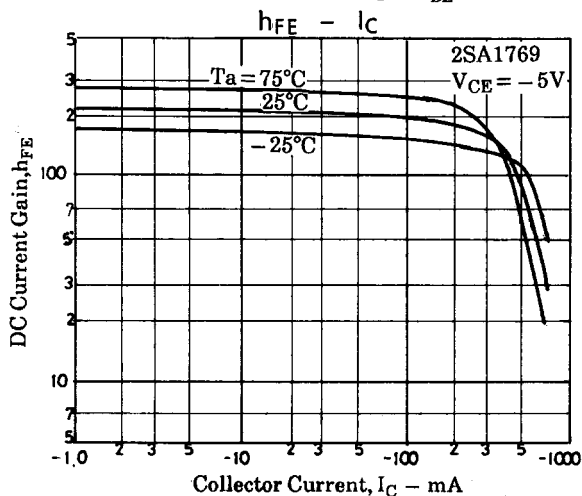
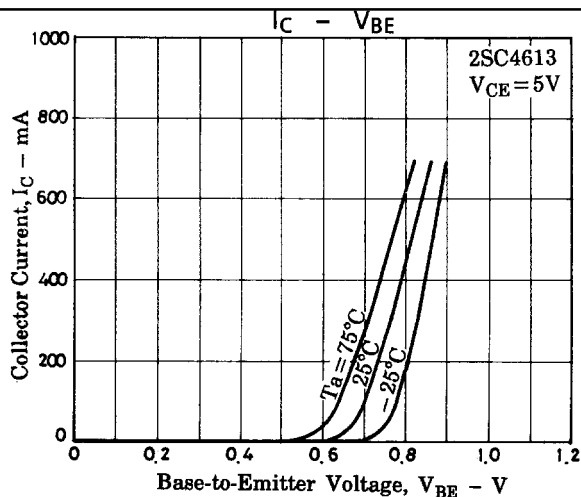
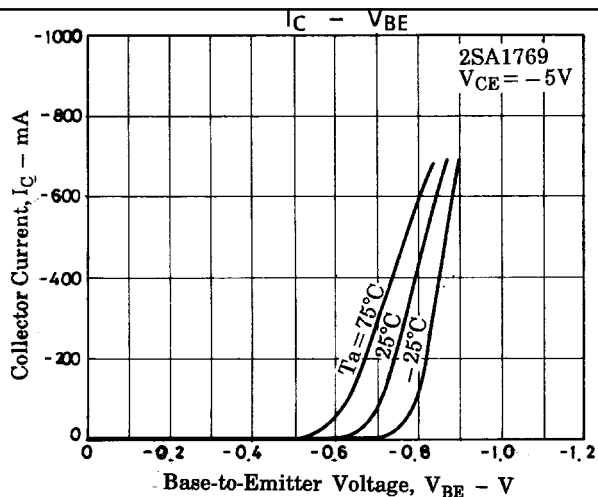
Switching Time Test Circuit



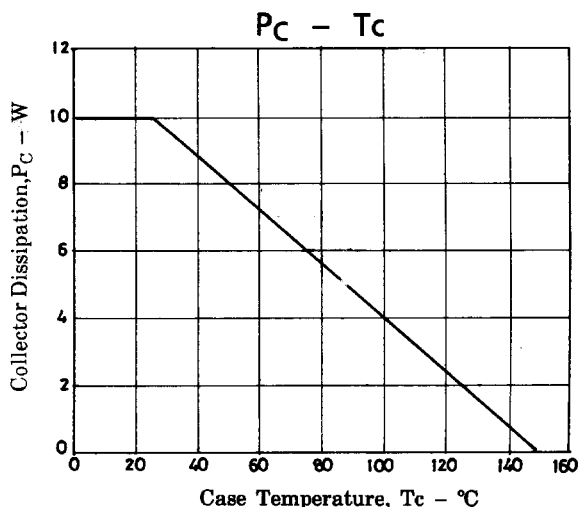
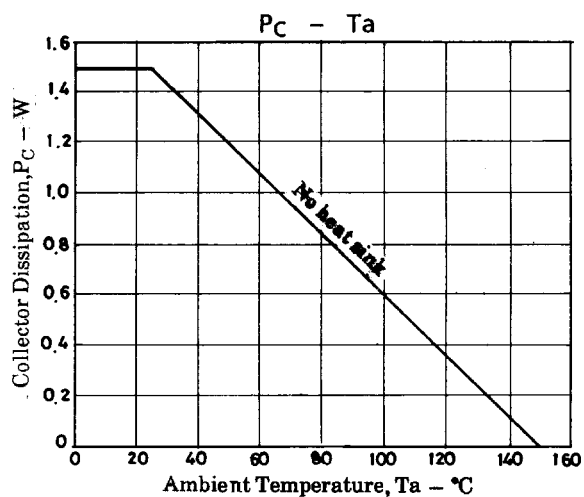
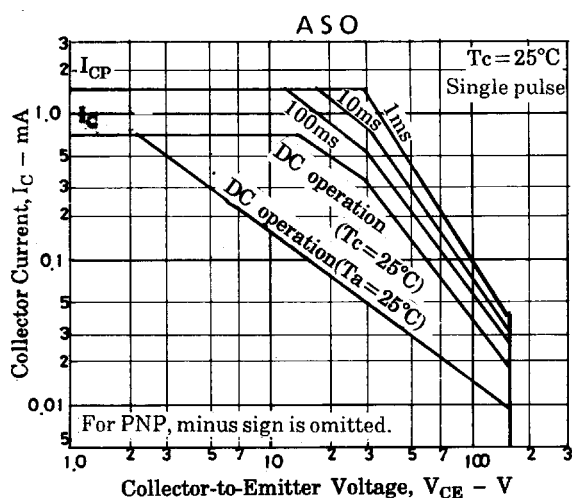
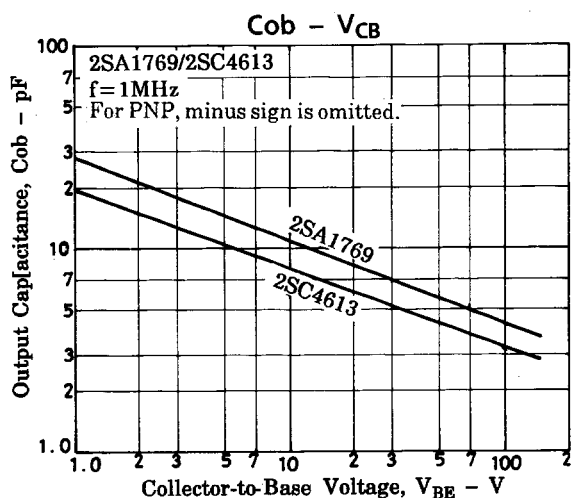
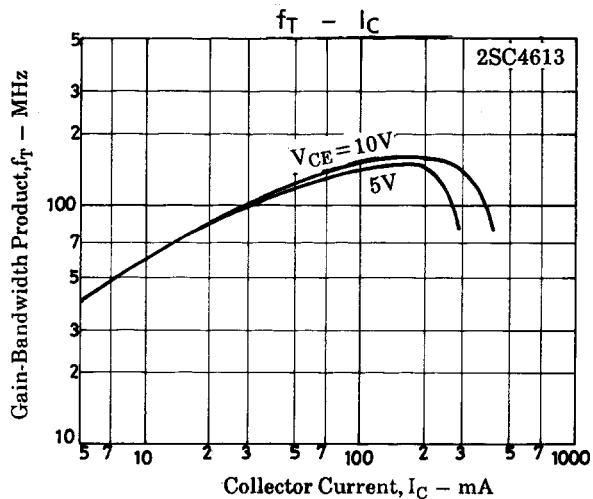
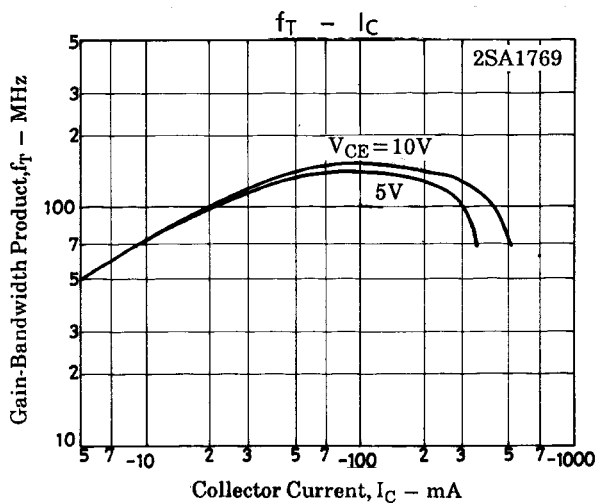
$20I_{B1} = -20I_{B2} = I_C = 300mA$
 (For PNP, the polarity is reversed).
 Unit (resistance : Ω , capacitance : F)



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