



2SA1405/2SC3599

Ultrahigh-Definition CRT Display Video Output Applications

Applications

- Ultrahigh-definition CRT display.
- Video output.
- Color TV chroma output.
- Wide-band amp.

Features

- High f_T : f_T typ=500MHz.
- High breakdown voltage: $V_{CEO} \geq 120V$.
- Small reverse transfer capacitance and excellent high-frequency characteristic
: $C_{re}=2.5pF$ (NPN), 3.8pF (PNP).
- Complementary pair with the 2SA1405/2SC3599.
- Adoption of FBET process.

() : 2SA1405

Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------|-------------|------------|
| Collector-to-Base Voltage | V_{CBO} | | (-)120 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | (-)120 | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-)4 | V |
| Collector Current | I_C | | (-)300 | mA |
| Collector Current (Pulse) | I_{CP} | | (-)600 | mA |
| Collector Dissipation | P_C | | 1.2 | W |
| | | $T_c=25^\circ C$ | 8 | W |
| Junction Temperature | T_j | | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ C$ |

Electrical Characteristics at $T_a = 25^\circ C$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|------------------------------|---------|-------|--------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=(-)80V, I_E=0$ | | | (-)0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)2V, I_C=0$ | | | (-)1.0 | μA |
| DC Current Gain | h_{FE1} | $V_{CB}=(-)10V, I_C=(-)50mA$ | 40* | | 320* | |
| | h_{FE2} | $V_{CE}=(-)10V, I_C=250mA$ | 20 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)10V, I_C=(-)50mA$ | | 500 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)70mA, I_B=(-)7mA$ | | | 0.6 | V |
| | | | | | (-)0.8 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)70mA, I_B=(-)7mA$ | | | (-)1.0 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-)120 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-)120 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)100\mu A, I_C=0$ | (-)4 | | | V |
| Output Capacitance | C_{ob} | $V_{CB}=(-)30V, f=1MHz$ | | 2.9 | | pF |
| | | | | (4.3) | | pF |
| Reverse Transfer Capacitance | C_{re} | $V_{CB}=(-)30V, f=1MHz$ | | 2.5 | | pF |
| | | | | (3.8) | | pF |

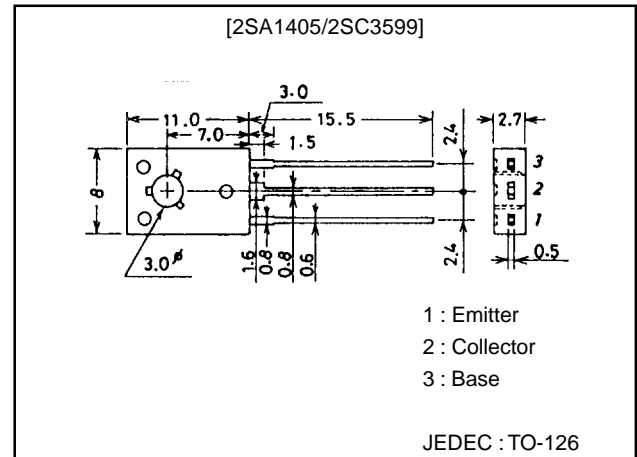
* : The 2SA1405/2SC3599 are classified by 50mA h_{FE} as follows :

| | | | | | | | | | | | |
|----|---|----|----|---|-----|-----|---|-----|-----|---|-----|
| 40 | C | 80 | 60 | D | 120 | 100 | E | 200 | 160 | F | 320 |
|----|---|----|----|---|-----|-----|---|-----|-----|---|-----|

Package Dimensions

unit:mm

2009B

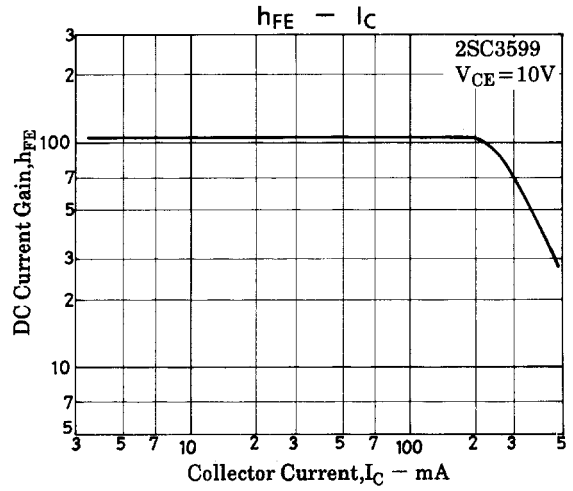
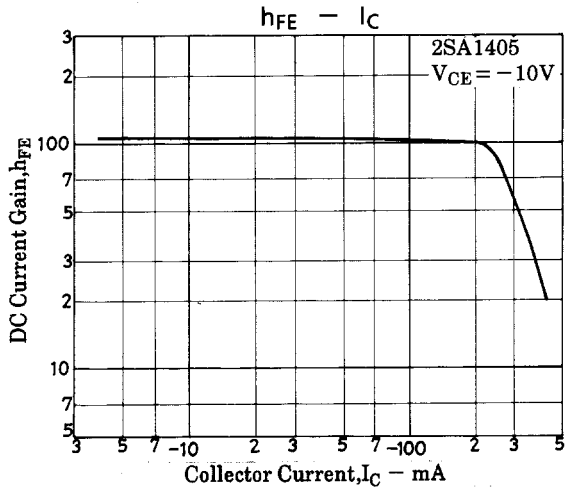
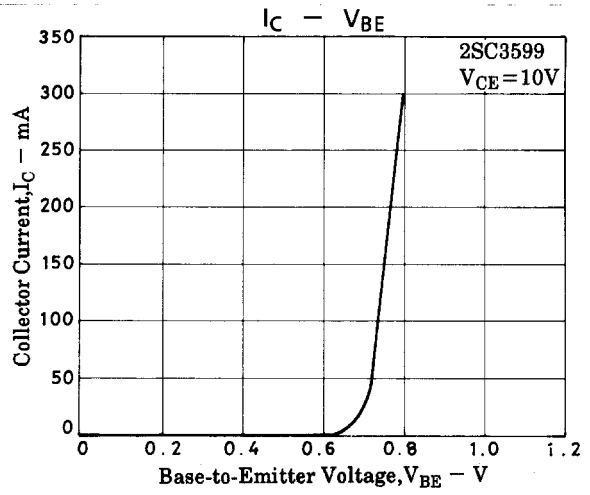
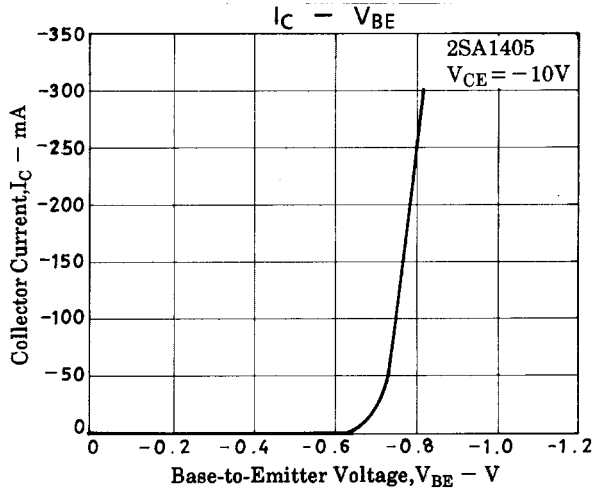
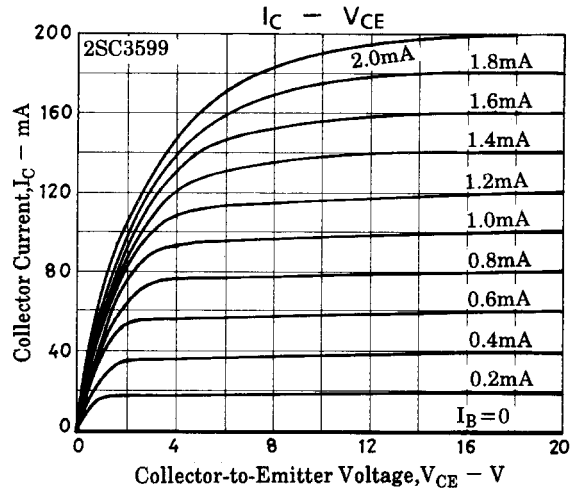
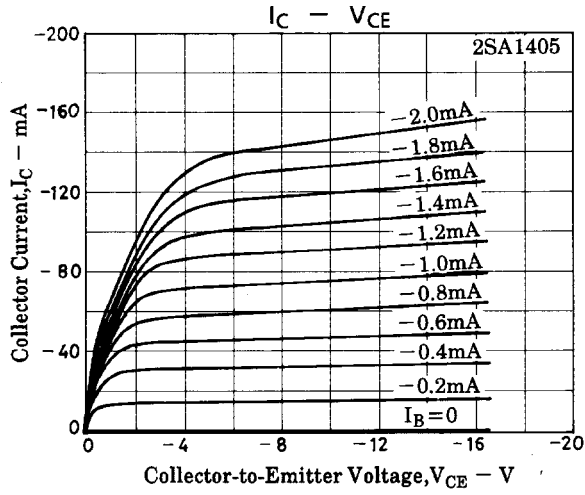


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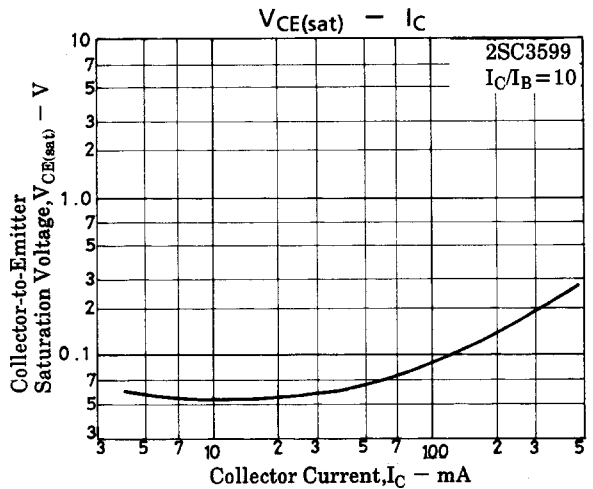
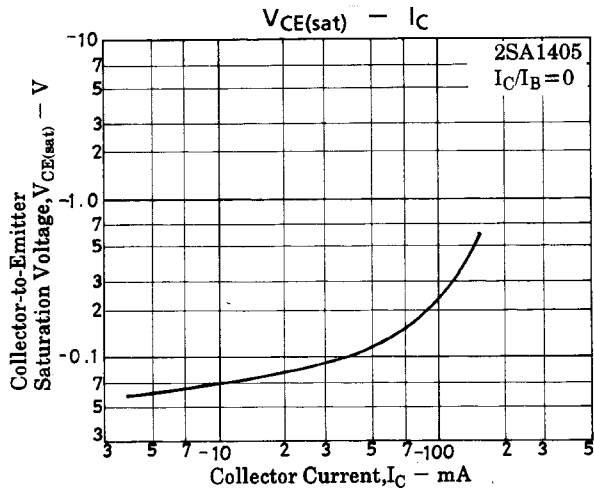
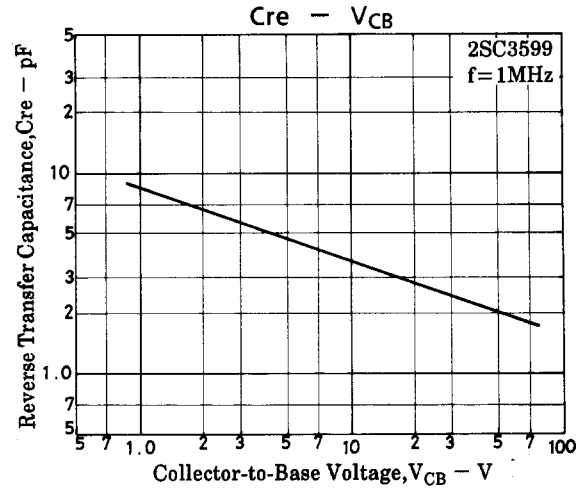
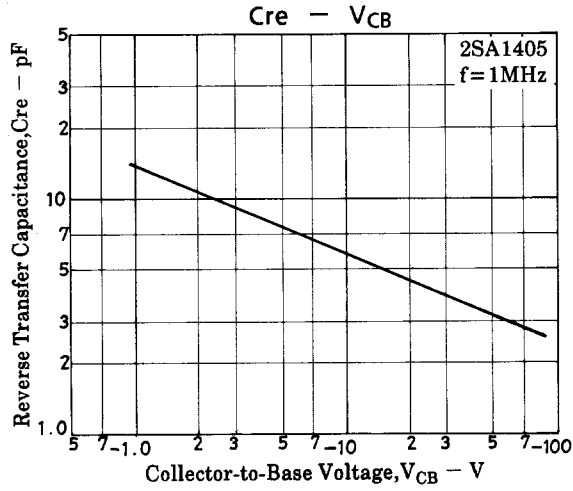
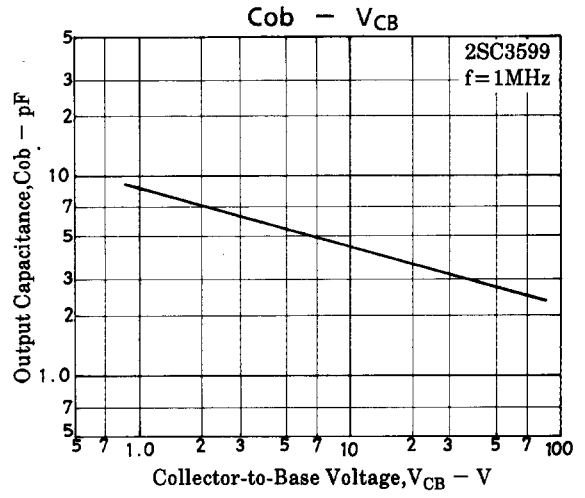
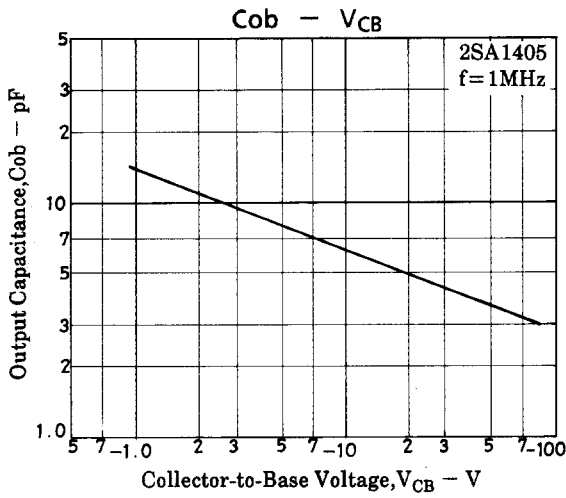
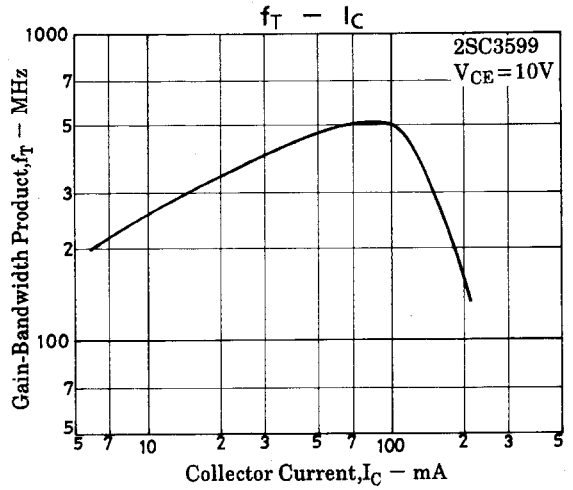
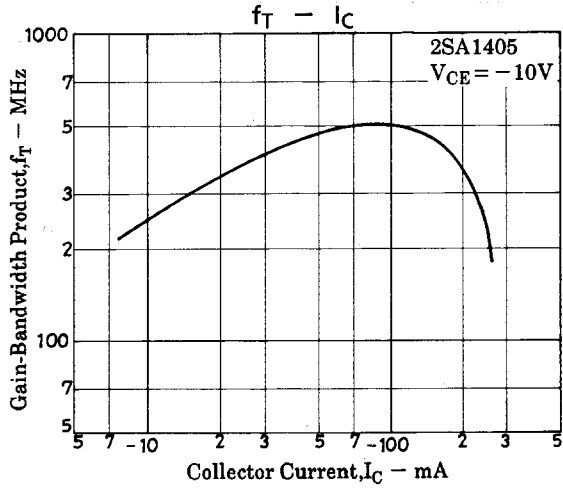
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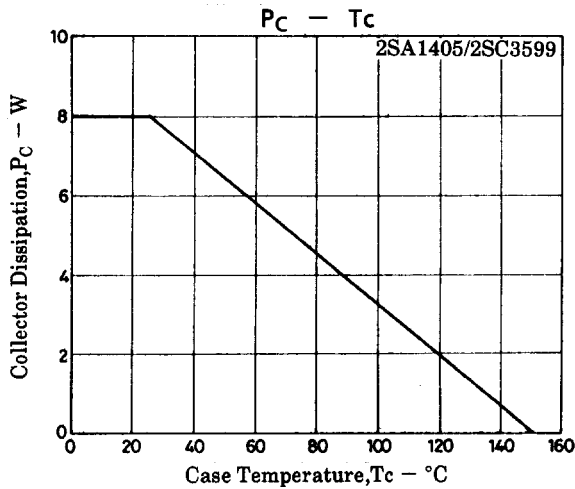
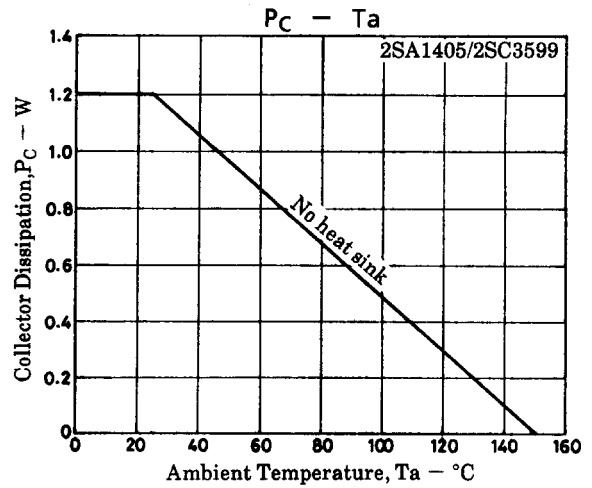
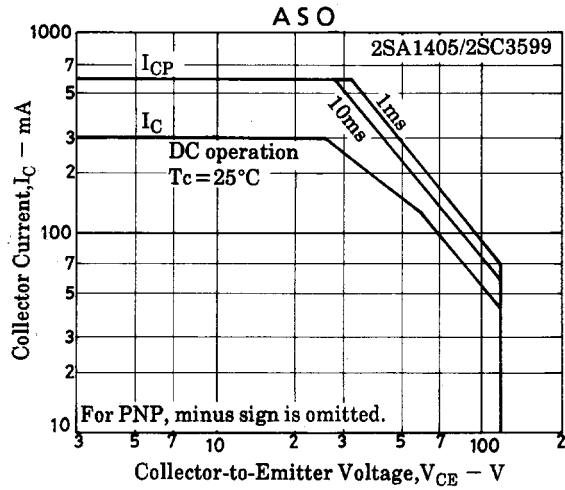
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