



## 2SA1540/2SC3955

### High-Definition CRT Display Video Output Applications

#### Applications

- High-definition CRT display video output, wide-band amplifier.

#### Features

- High gain-bandwidth product :  $f_T=300\text{MHz}$ .
- High breakdown voltage :  $V_{CEO}=200\text{Vmin.}$
- Small reverse transfer capacitance and excellent high frequency characteristics :  $C_{re}=1.5\text{pF/NPN}$ ,  $1.8\text{pF/PNP}$ .
- Complementary PNP and NPN types.
- Adoption of FBET process.
- Micaless type : TO-126 plastic package.

( ) : 2SA1540

#### Specifications

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

| Parameter                    | Symbol    | Conditions             | Ratings     | Unit             |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                        | (-)200      | V                |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                        | (-)200      | V                |
| Emitter-to-Base Voltage      | $V_{EBO}$ |                        | (-)3        | V                |
| Collector Current            | $I_C$     |                        | (-)100      | mA               |
| Peak Collector Current       | $I_{CP}$  |                        | (-)200      | mA               |
| Collector Dissipation        | $P_C$     |                        | 1.3         | W                |
|                              |           | $T_c=25^\circ\text{C}$ | 7           | 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 | $I_{CBO}$ | $V_{CB}=(-)150\text{V}$ , $I_E=0$             |         |     | (-)0.1 | $\mu\text{A}$ |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB}=(-)2\text{V}$ , $I_C=0$               |         |     | (-)1.0 | $\mu\text{A}$ |
| DC Current Gain          | $h_{FE1}$ | $V_{CE}=(-)10\text{V}$ , $I_C=(-)10\text{mA}$ | 40*     |     | 320*   |               |
|                          | $h_{FE2}$ | $V_{CE}=(-)10\text{V}$ , $I_C=(-)50\text{mA}$ | 20      |     |        |               |
| Gain-Bandwidth Product   | $f_T$     | $V_{CE}=(-)30\text{V}$ , $I_C=(-)30\text{mA}$ |         | 300 |        | MHz           |

\* $h_{FE1}$  : The 2SA1540/2SC3955 are classified by 10mA  $h_{FE}$  as follows :

Continued on next page.

| Rank     | C        | D         | E          | F          |
|----------|----------|-----------|------------|------------|
| $h_{FE}$ | 40 to 80 | 60 to 120 | 100 to 200 | 160 to 320 |

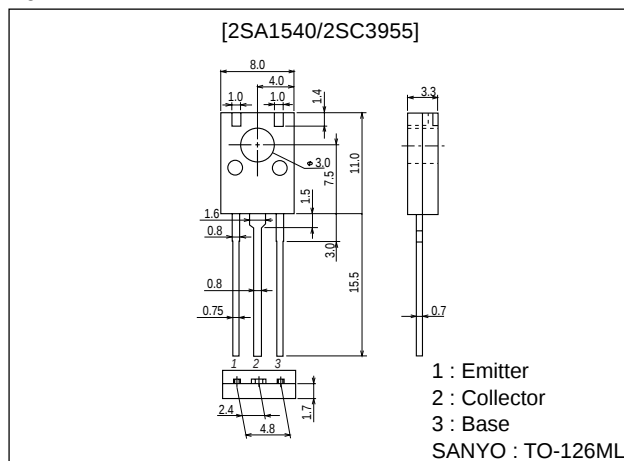
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#### Package Dimensions

unit:mm

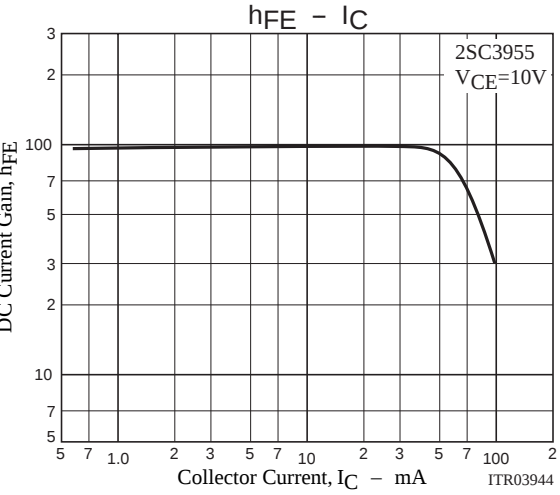
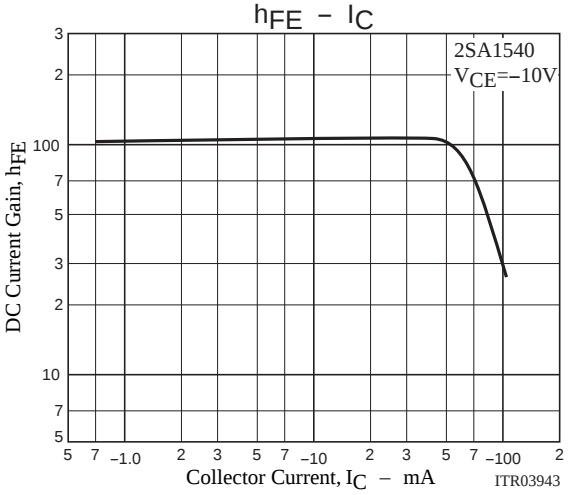
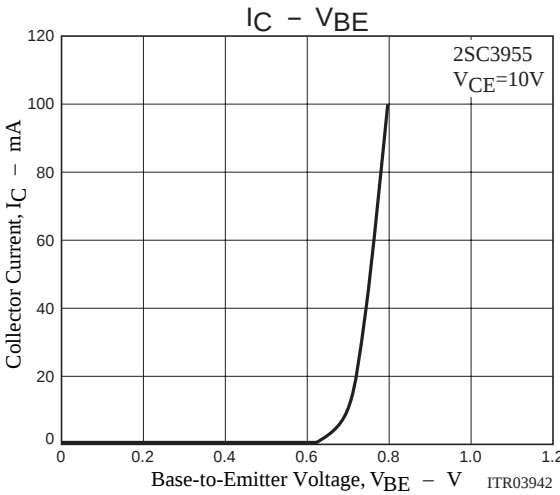
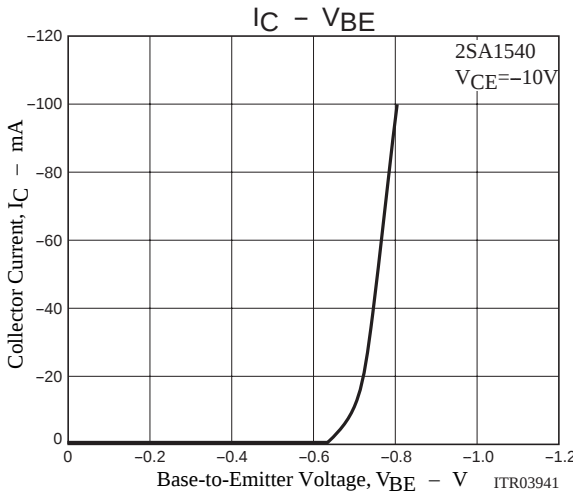
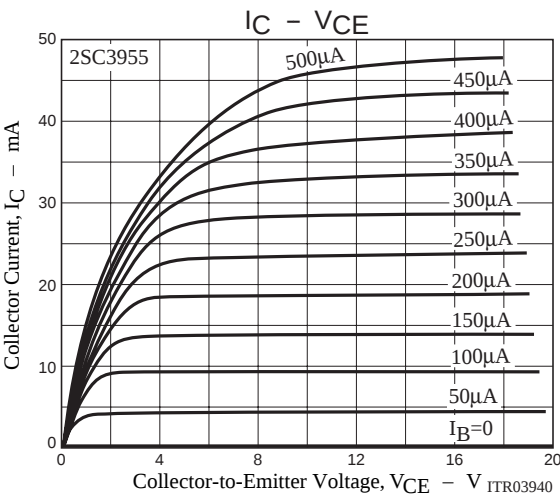
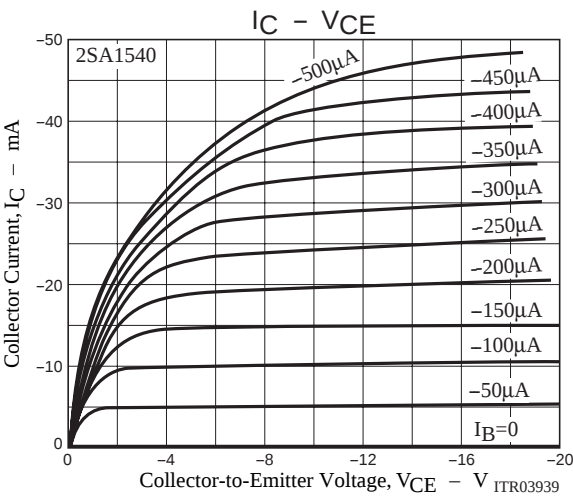
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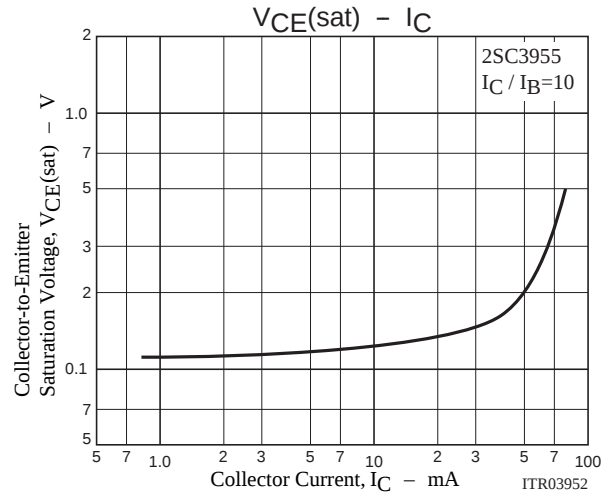
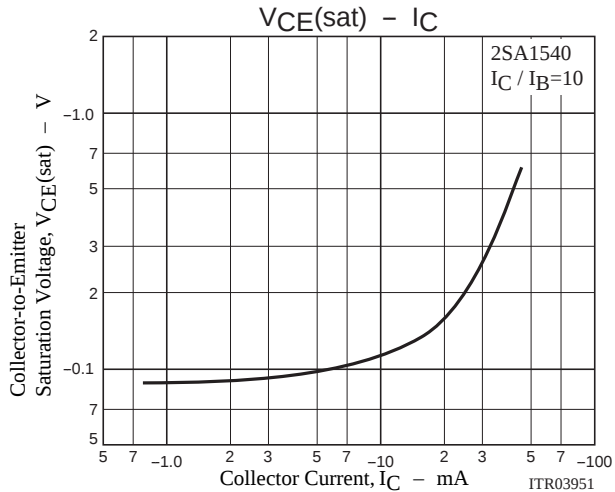
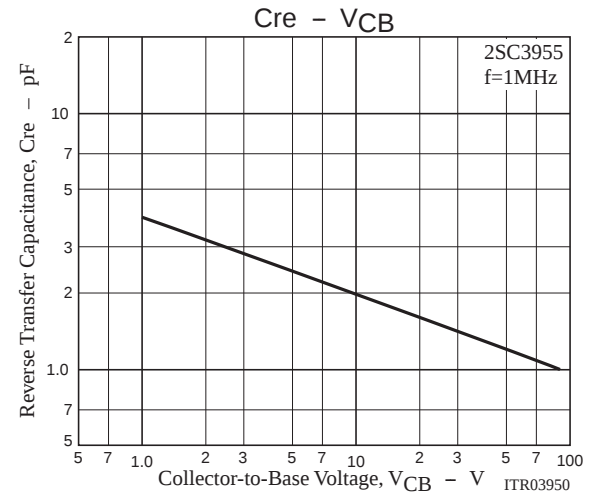
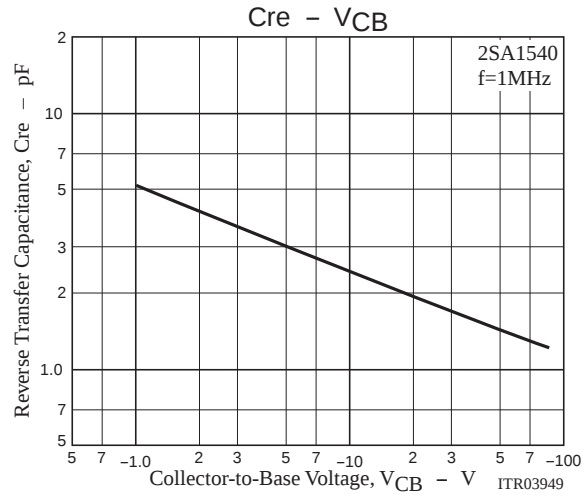
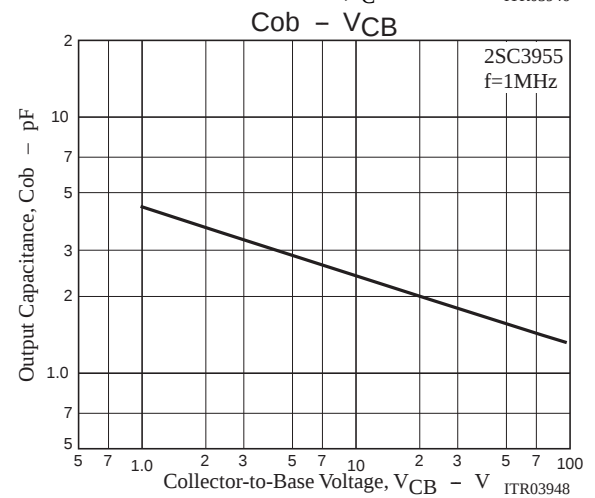
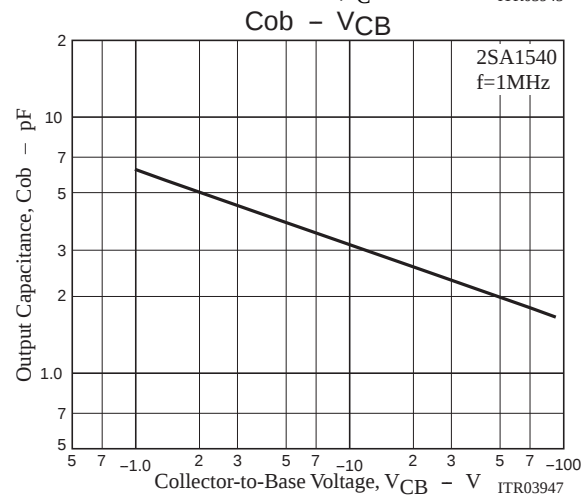
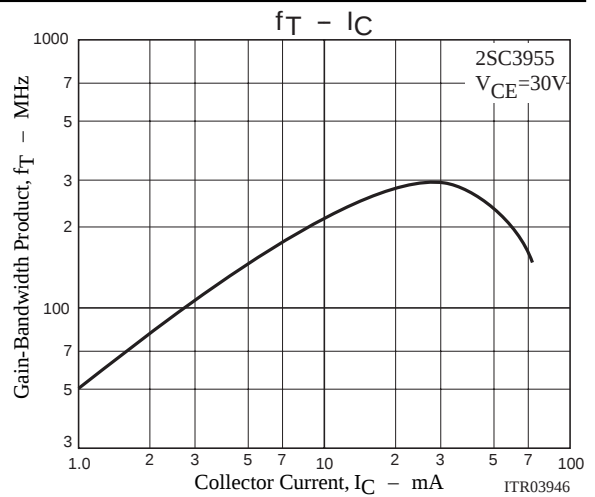
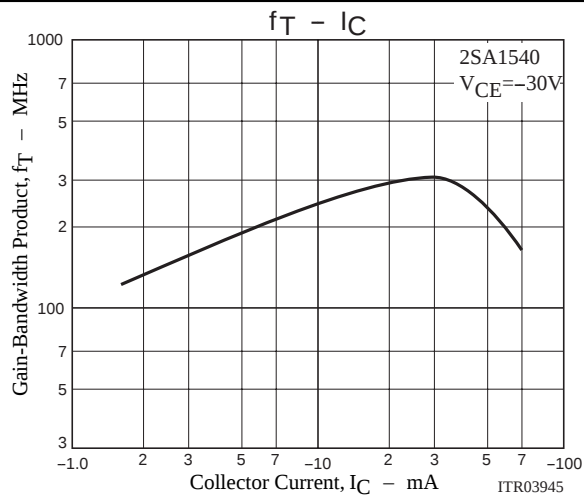
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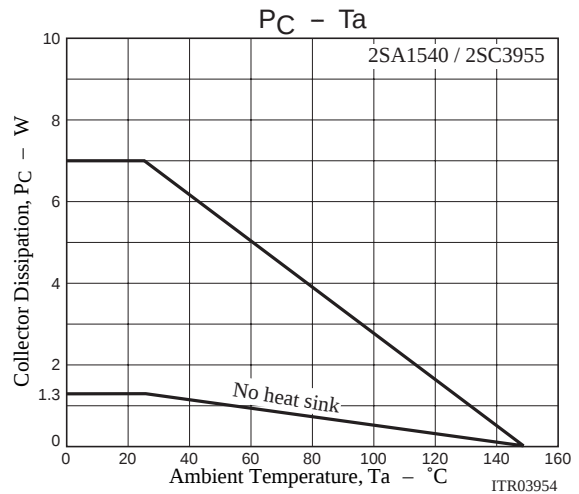
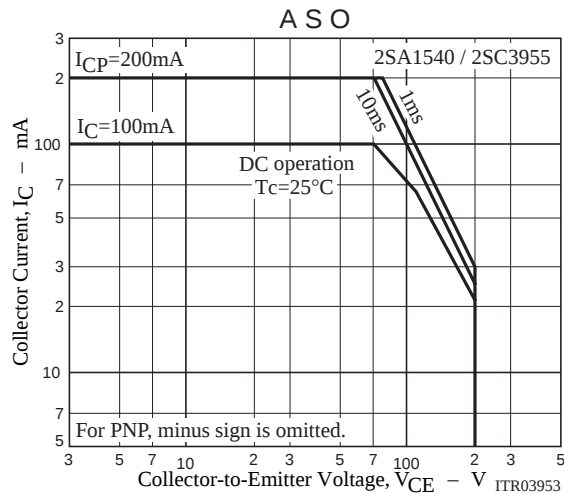
| Parameter                               | Symbol        | Conditions                | Ratings |       |          | Unit |
|-----------------------------------------|---------------|---------------------------|---------|-------|----------|------|
|                                         |               |                           | min     | typ   | max      |      |
| Output Capacitance                      | $C_{ob}$      | $V_{CB}=(-)30V, f=1MHz$   |         | 1.9   |          | pF   |
|                                         |               |                           |         | (2.4) |          | pF   |
| Reverse Transfer Capacitance            | $C_{re}$      | $V_{CB}=(-)30V, f=1MHz$   |         | 1.5   |          | pF   |
|                                         |               |                           |         | (1.8) |          | pF   |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)20mA, I_B=(-)2mA$ |         |       | $(-)1.0$ | V    |
| Emitter-to-Base Saturation Voltage      | $V_{BE(sat)}$ | $I_C=(-)20mA, I_B=(-)2mA$ |         |       | $(-)1.0$ | V    |



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