



2SA1541/2SC3956

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 : $C_{re}=2.2\text{pF/NPN}$, 2.7pF/PNP .
- Complementary PNP and NPN types.
- Adoption of FBET process.
- Micaless type : TO-126 plastic package.

() : 2SA1541

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 | | (-)200 | mA |
| Peak Collector Current | I_{CP} | | (-)300 | 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 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)2\text{V}$, $I_C=0$ | | | (-)1.0 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=(-)10\text{V}$, $I_C=(-)10\text{mA}$ | 40* | | 320* | |
| | h_{FE2} | $V_{CE}=(-)10\text{V}$, $I_C=(-)100\text{mA}$ | 20 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)30\text{V}$, $I_C=(-)50\text{mA}$ | | 300 | | MHz |

* h_{FE1} : The 2SA1541/2SC3956 are classified by 10mA h_{FE} as follows :

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

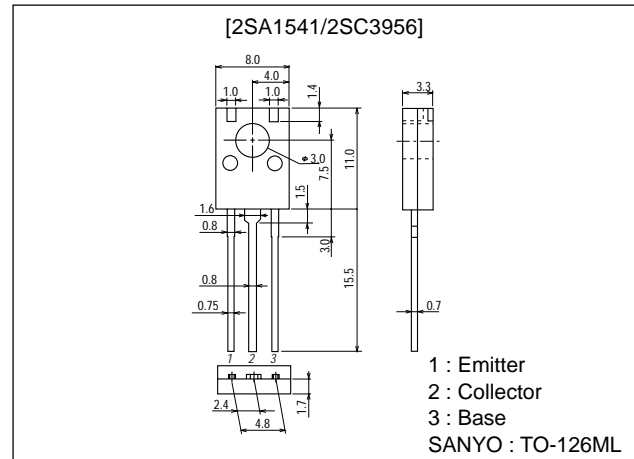
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Package Dimensions

unit:mm

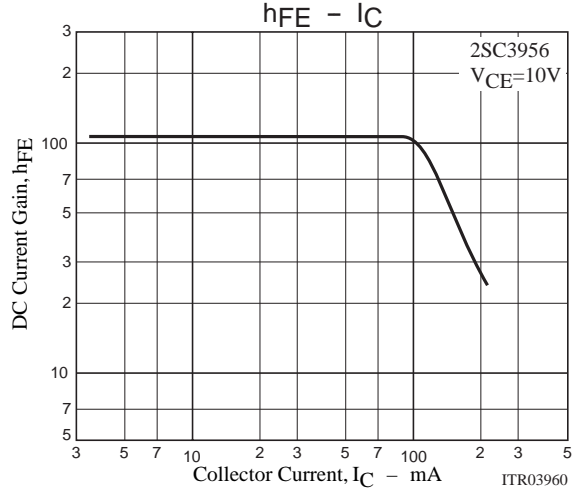
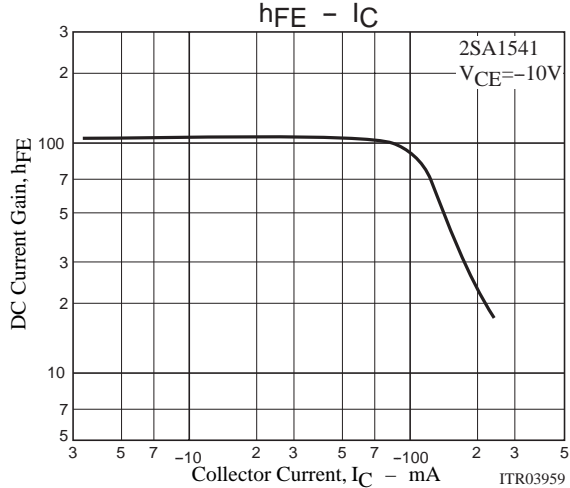
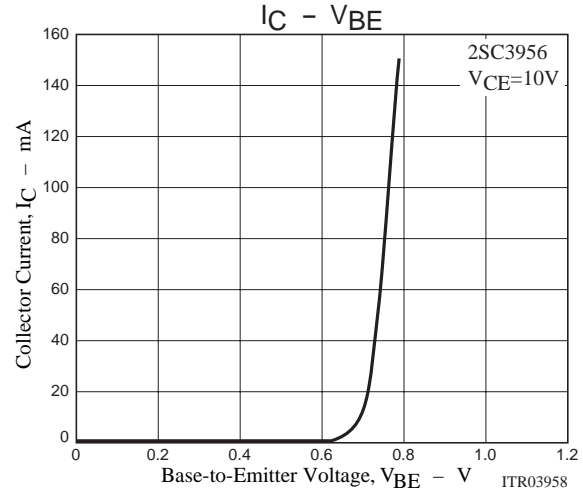
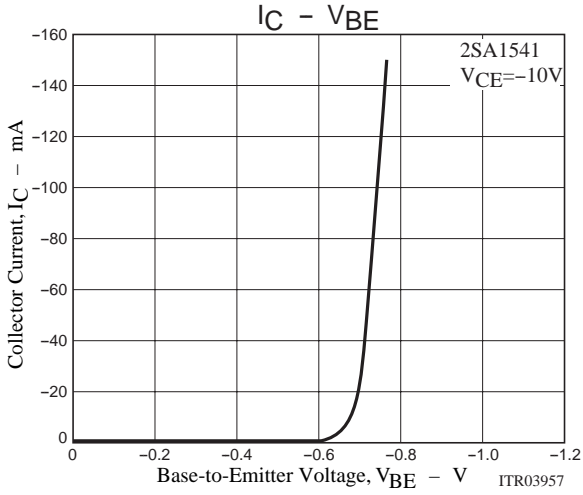
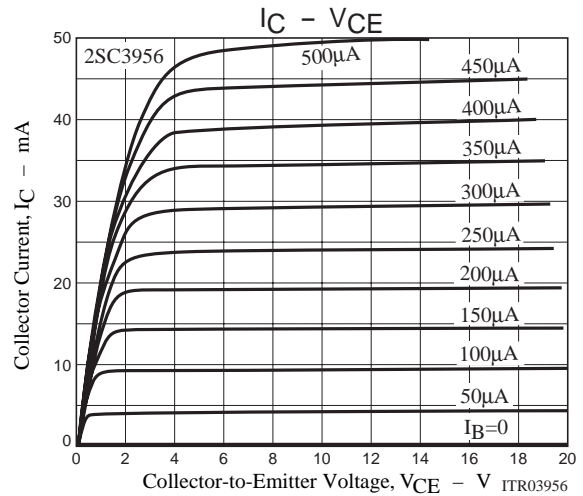
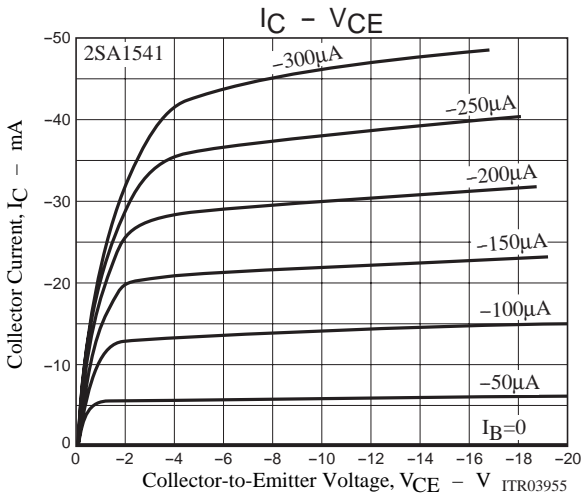
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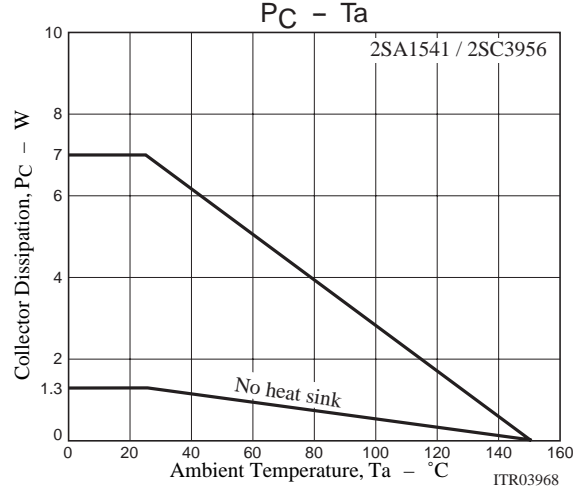
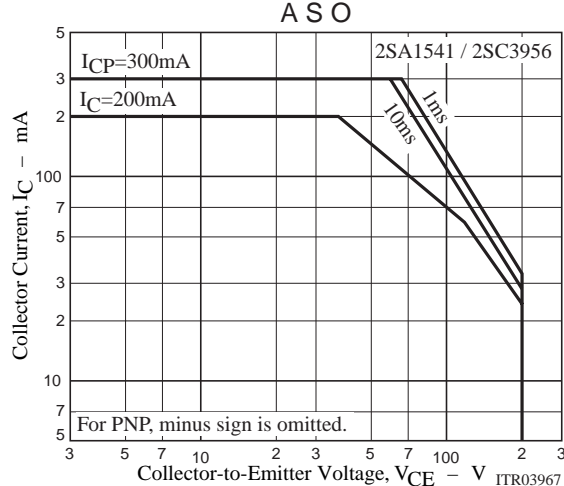
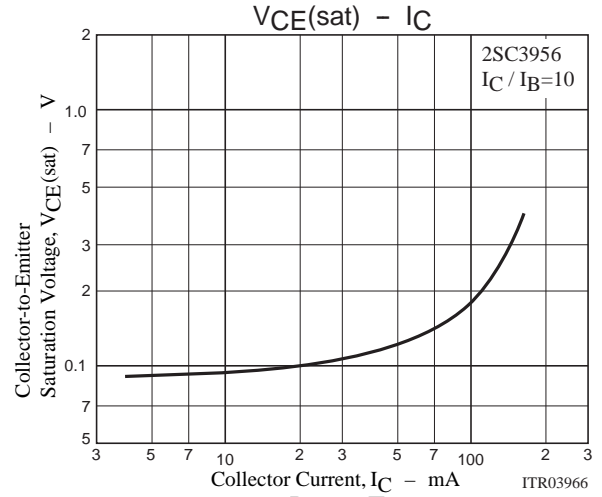
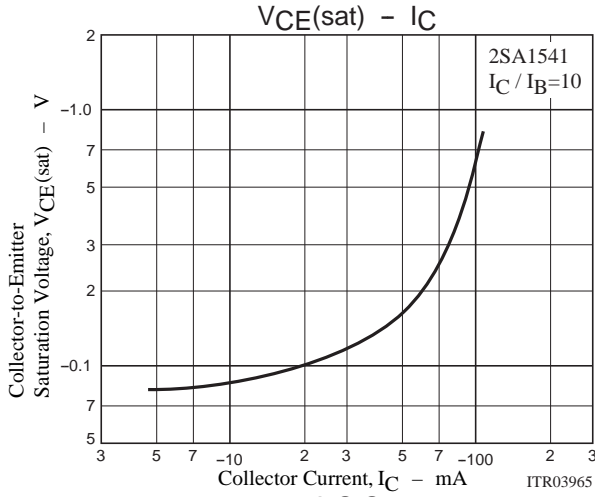
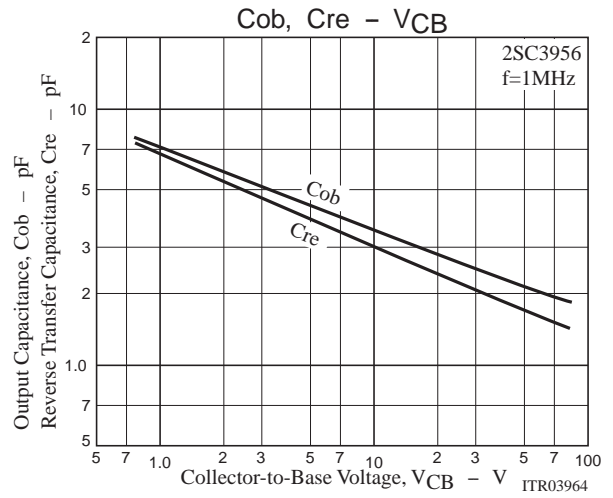
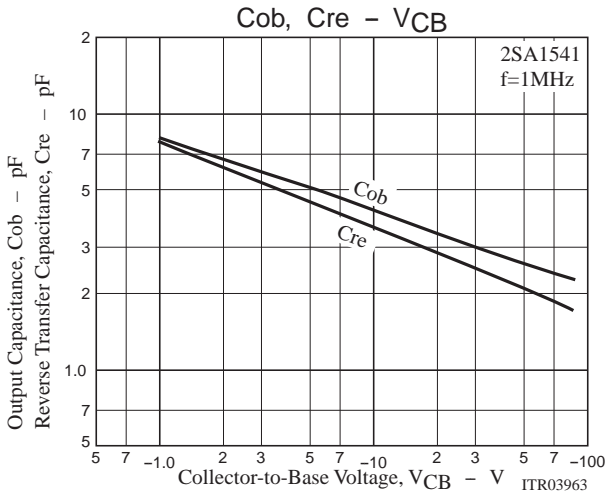
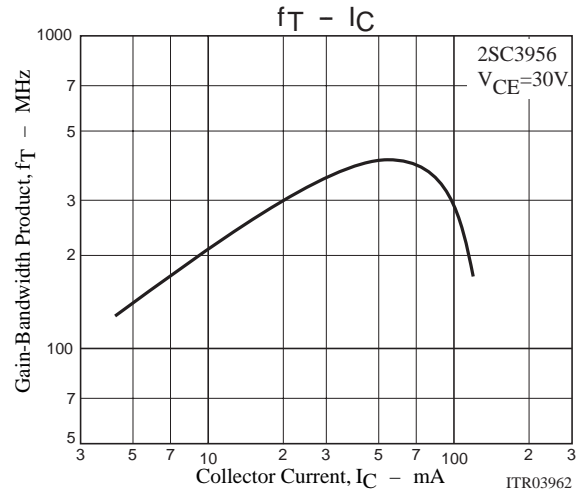
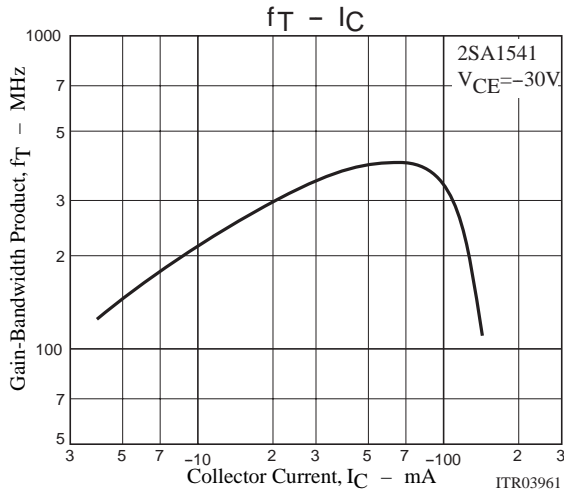
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---------------------------|---------|-------|--------|------|
| | | | min | typ | max | |
| Output Capacitance | C_{ob} | $V_{CB}=(-)30V, f=1MHz$ | | 2.7 | | pF |
| | | | | (3.2) | | pF |
| Reverse Transfer Capacitance | C_{re} | $V_{CB}=(-)30V, f=1MHz$ | | 2.2 | | pF |
| | | | | (2.7) | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)30mA, I_B=(-)3mA$ | | | (-1.0) | V |
| Emitter-to-Base Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)30mA, I_B=(-)3mA$ | | | (-1.0) | V |



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