Ordering number:EN3643

PNP/NPN Epitaxial Planar Silicon Transistors

# 2SA1749/2SC4564

## High-Definition CRT Display Video Output Applications



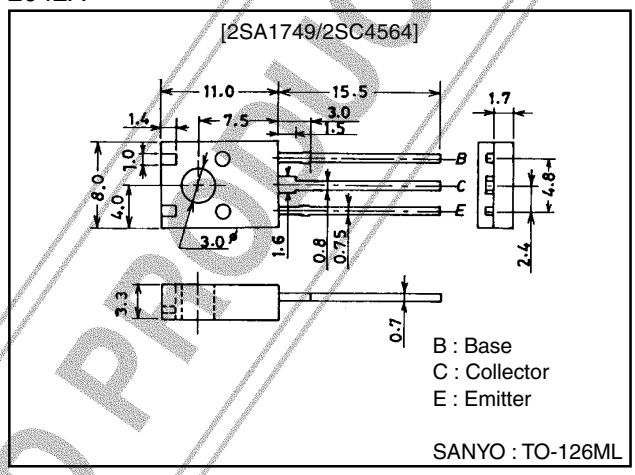
## Features

- High $f_T$ : $f_T$=400MHz (typ).
- High breakdown voltage : $V_{CEO}$≥200V min.
- High current.
- Small reverse transfer capacitance and excellent high frequnecy chacateristics : $C_{re}$=3.4pF (NPN) , 4.2pF (PNP).
- Complementary 2SA1749 and 2SC4564 types.
- Adoption of FBET process.

## Package Dimensions

unit:mm

2042A




( ) : 2SA1749

## Specifications

### Absolute Maximum Ratings at Ta = 25°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 | $I_C$ | | (–)300 | mA |
| Collector Current (Pulse) | $I_{CP}$ | | (–)600 | mA |
| Collector Dissipation | $P_C$ | | 1.3 | W |
| | | Tc=25°C | 10 | W |
| Junction Temperature | Tj | | 150 | °C |
| Storage Temperature | Tstg | | –55 to +150 | °C |

### Electrical Characteristics at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=(–)150V, $I_E$=0 | | | (–)0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=(–)2V, $I_C$=0 | | | (–)1.0 | μA |
| DC Current Gain | $h_{FE}1$ | $V_{CE}$=(–)10V, $I_C$=(–)50mA | 40* | | 320* | |
| | $h_{FE}2$ | $V_{CE}$=(–)10V, $I_C$=(–)250mA | 20 | | | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=(–)30V, $I_C$=(–)100mA | | 400 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=(–)30V, f=1MHz | | (5.0) | | pF |
| | | | | 4.2 | | pF |



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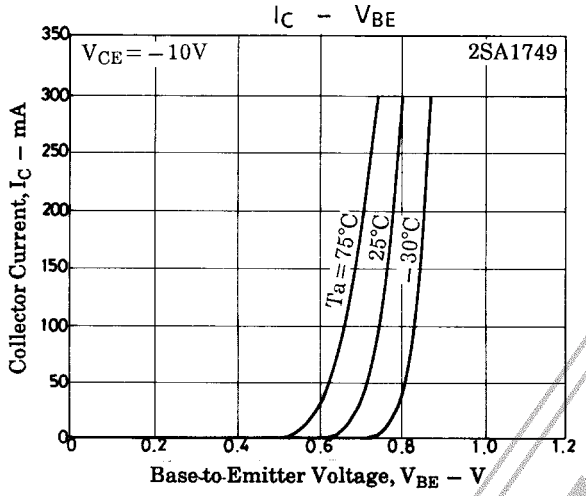
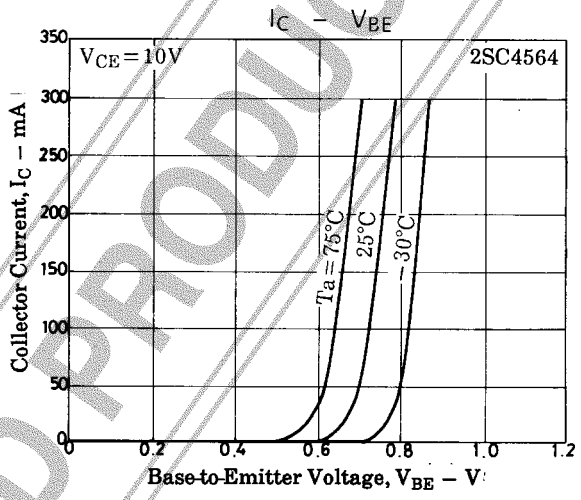
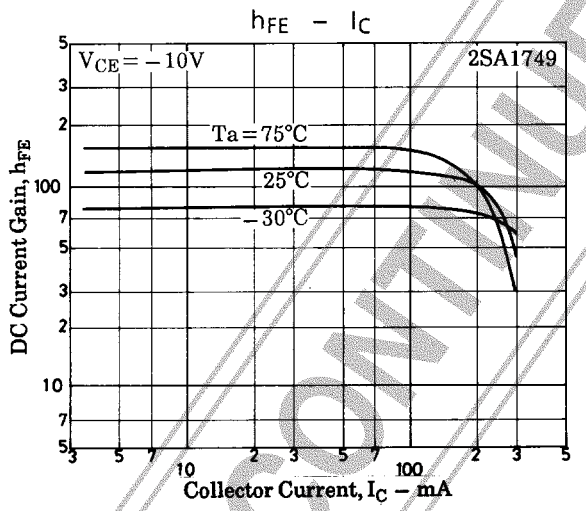
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Reverse Transfer Capacitance | $C_{re}$ | $V_{CB}$=(–)30V, f=1MHz | | (4.2) | | pF |
| | | | | 3.4 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=(–)50mA, $I_B$=(–)5mA | | | (–)1.0 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=(–)50mA, $I_B$=(–)5mA | | | (–)1.0 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=(–)10μA, $I_E$=0 | (–)200 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=(–)1mA, $R_{BE}$=∞ | (–)200 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=(–)100μA, $I_C$=0 | (–)3 | | | V |

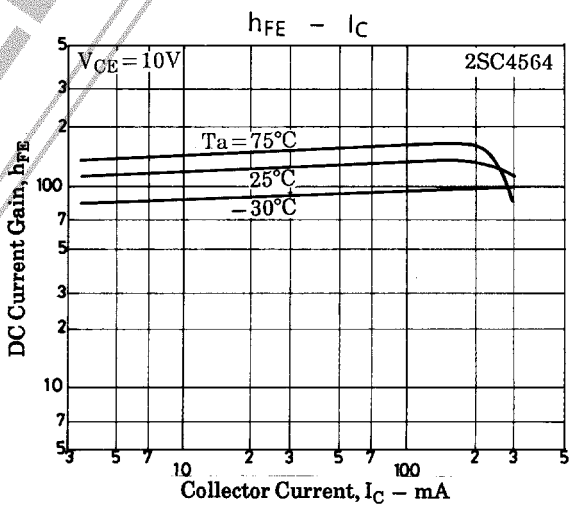
* : The 2SA1749/2SC4564 are classified by 50mA $h_{FE}$ as follows :

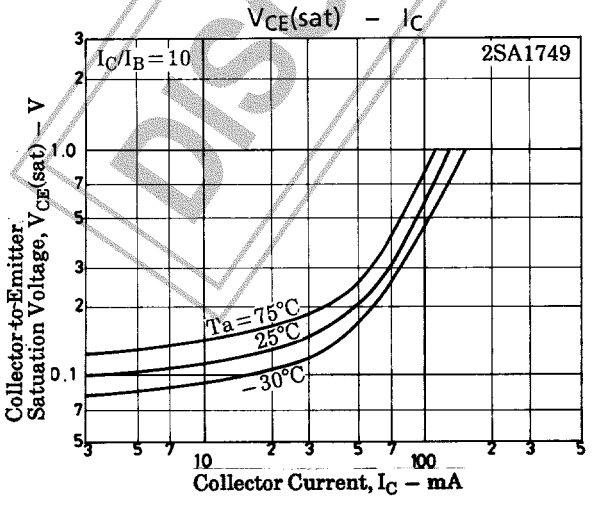
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | C | 80 | 60 | D | 120 | 100 | E | 200 | 160 | F | 320 |

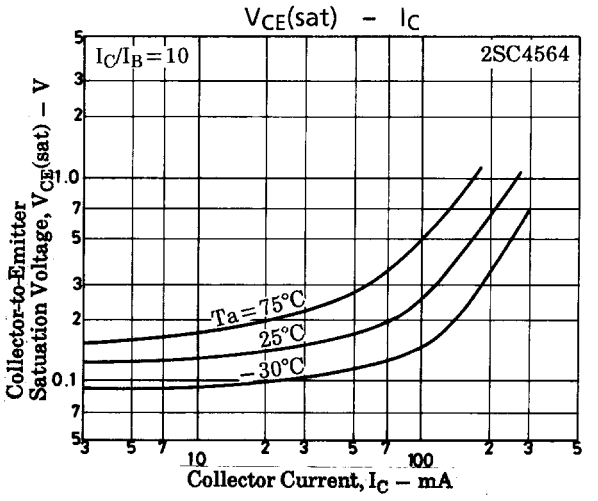


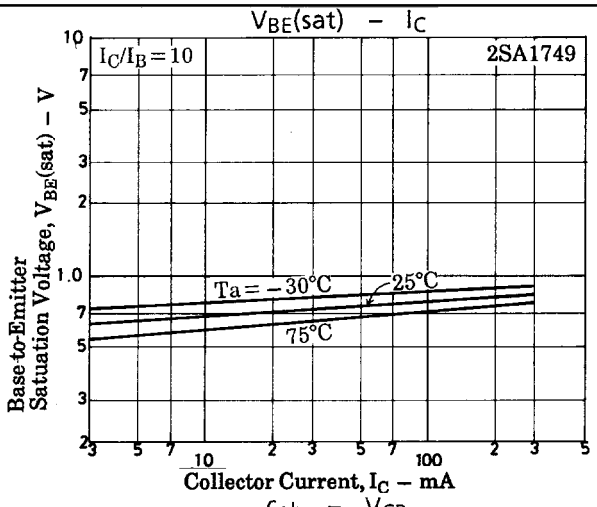



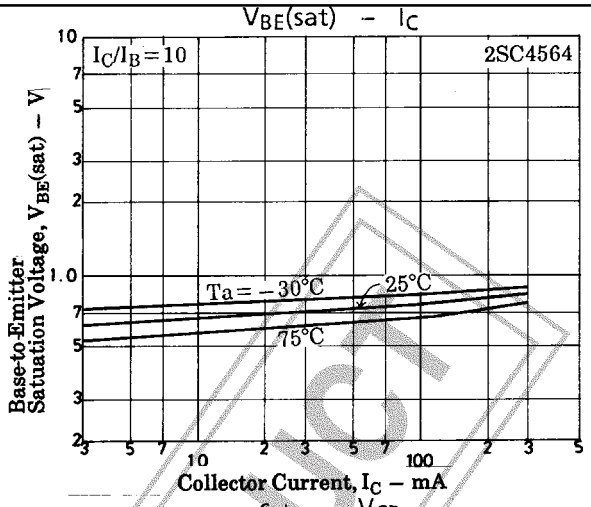



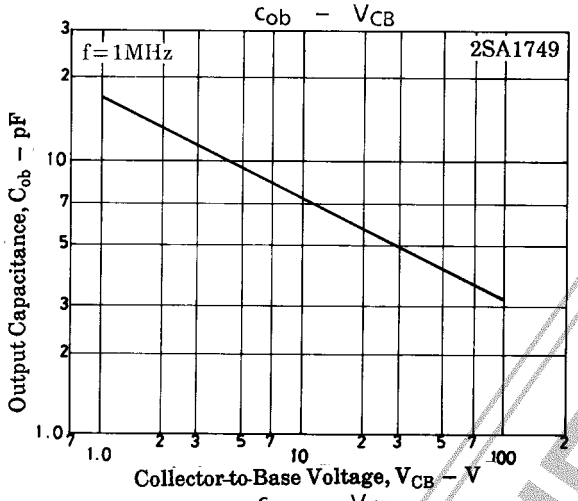



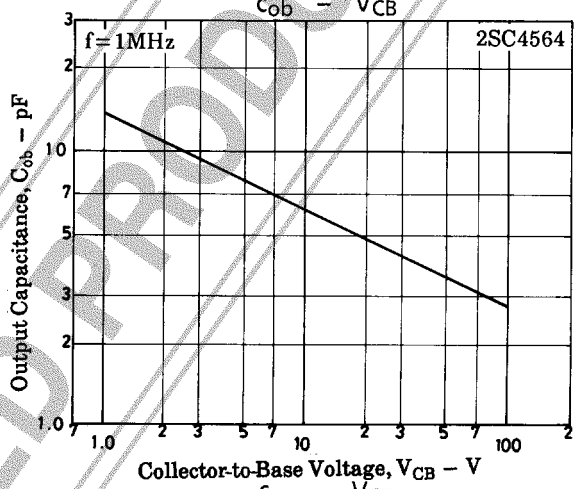
$V_{BE}(sat)$ – $I_C$



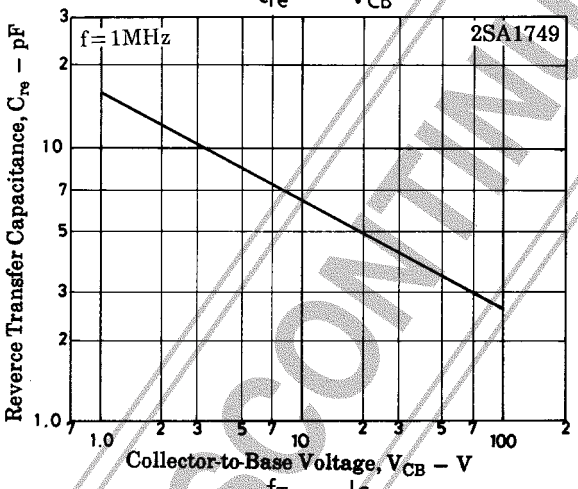



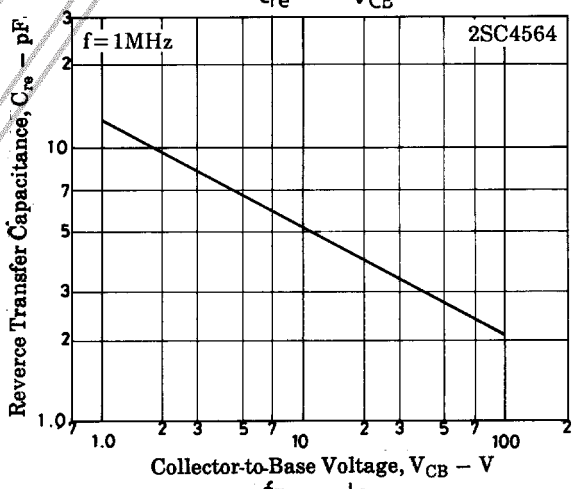

$C_{ob}$ – $V_{CB}$




$C_{re}$ – $V_{CB}$




$f_T$ – $I_C$