Ordering number:ENN2254

PNP/NPN Epitaxial Planar Silicon Transistors

# 2SA1480/2SC3790

## High-Definiton CRT Display Video Output Applications

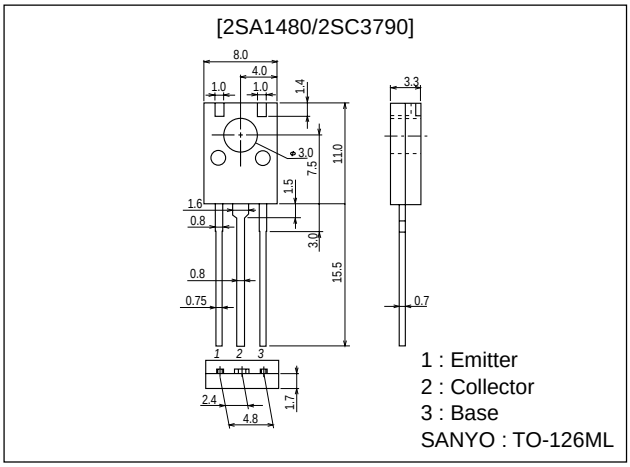
## Features

- High breakdown voltage ($V_{CEO}$≥300V).
- Small reverse transfer capacitance and excellent high frequency characteristic
  : $C_{re}$=1.8pF (NPN), 2.3pF (PNP).
- Adoption of MBIT process.

## Package Dimensions

unit:mm

2042B




( ) : 2SA1480

## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | (–)300 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | (–)300 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | (–)5 | V |
| Collector Current | $I_C$ | | (–)100 | mA |
| Peak Collector Current | $I_{CP}$ | | (–)200 | mA |
| Collector Dissipation | $P_C$ | | 1.5 | W |
| | | Tc=25˚C | 7 | 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 | $I_{CBO}$ | $V_{CB}$=(–)200V, $I_E$=0 | | | (–)0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=(–)4V, $I_C$=0 | | | (–)0.1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=(–)10V, $I_C$=(–)10mA | 40* | | 320* | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=(–)30V, $I_C$=(–)10mA | | 150 | | MHz |

* : The 2SA1480/2SC3790 are classified by 10mA $h_{FE}$ as follows :

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

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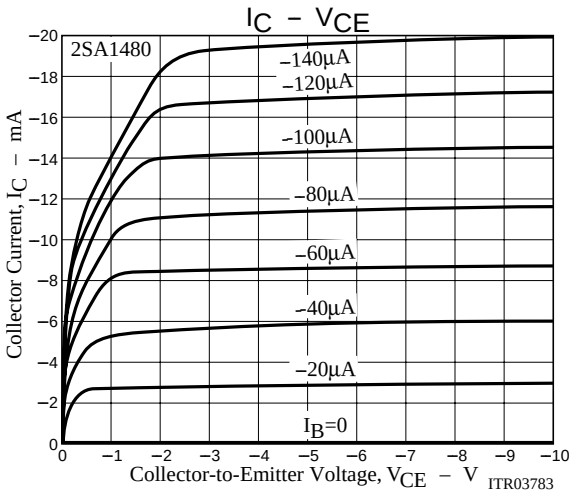
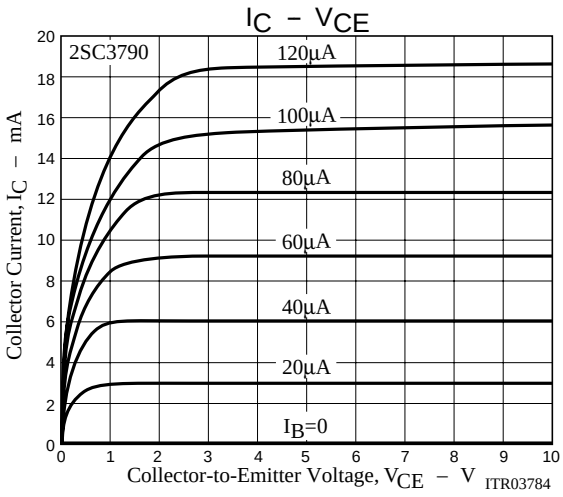
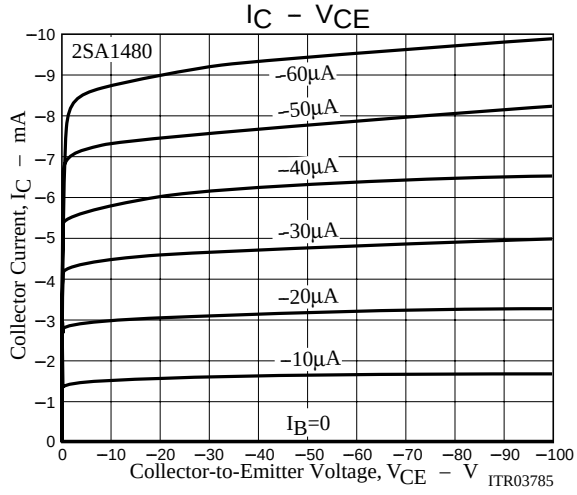
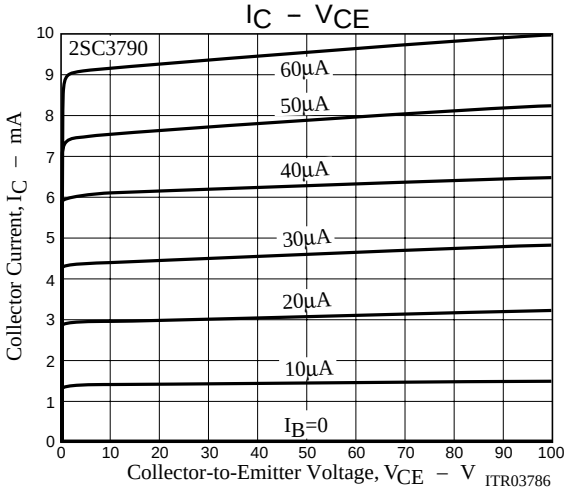
Continued from preceding page.

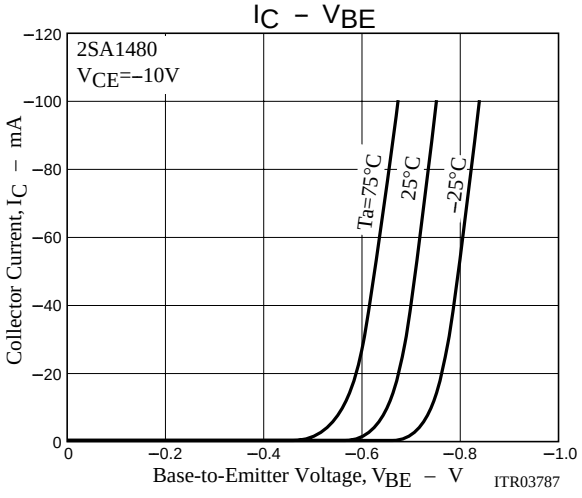
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=(–)30V, f=1MHz | | 2.6 | | pF |
| | | | | (3.1) | | pF |
| Reverse Transfer Capacitance | $C_{re}$ | $V_{CB}$=(–)30V, f=1MHz | | 1.8 | | pF |
| | | | | (2.3) | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=(–)20mA, $I_B$=(–)2mA | | | (–)0.6 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=(–)20mA, $I_B$=(–)2mA | | | (–)1.0 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=(–)10μA, $I_E$=0 | (–)300 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=(–)1mA, $R_{BE}$=∞ | (–)300 | | | V |
| Emitter-to-Base Breakdown Votage | $V_{(BR)EBO}$ | $I_E$=(–)10μA, $I_C$=0 | (–)5 | | | V |

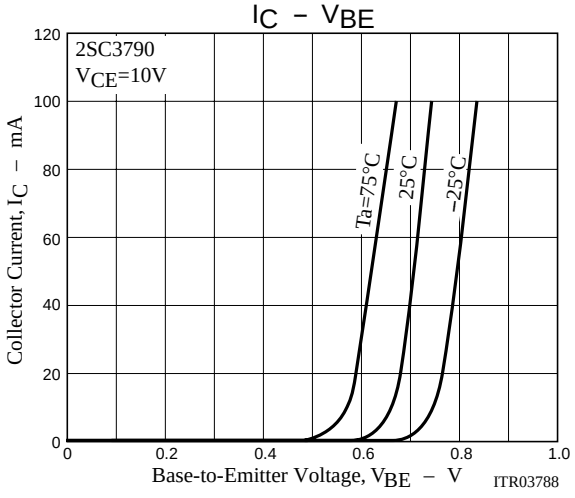


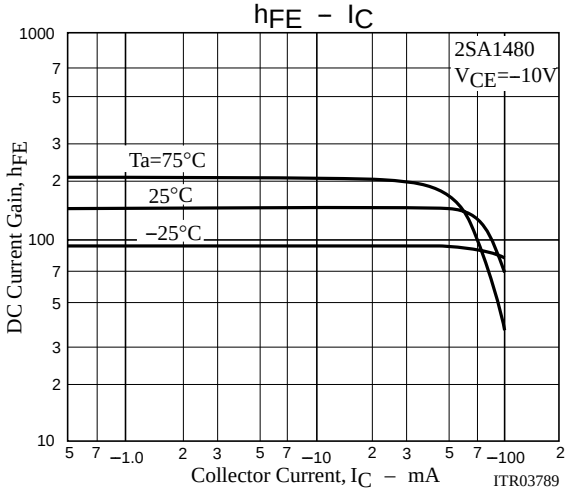



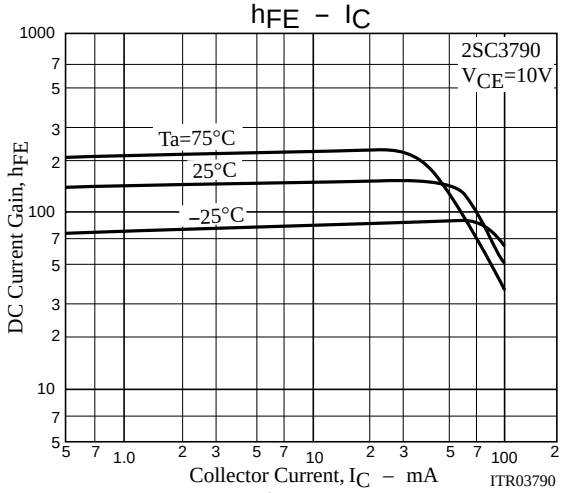



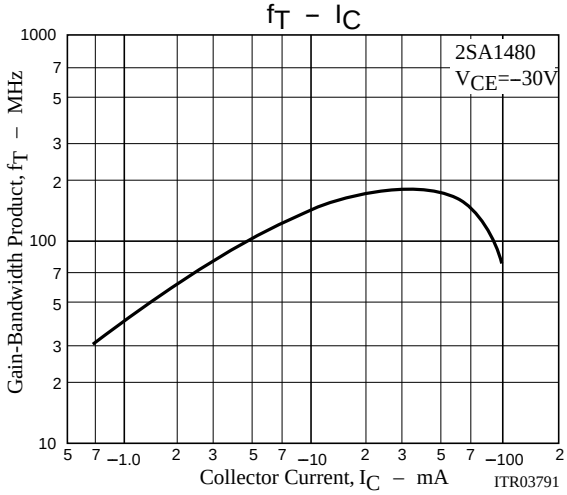
$h_{FE}$ – $I_C$



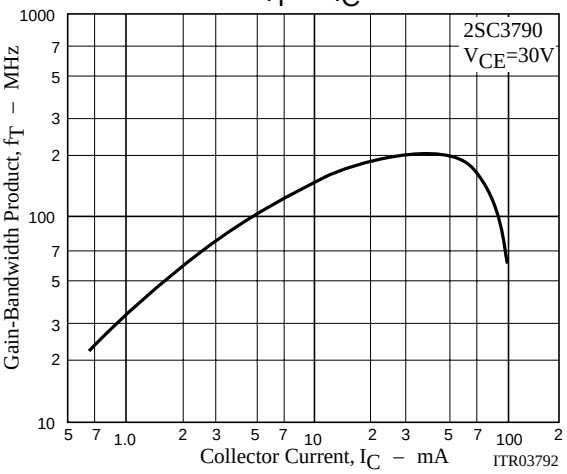

$h_{FE}$ – $I_C$



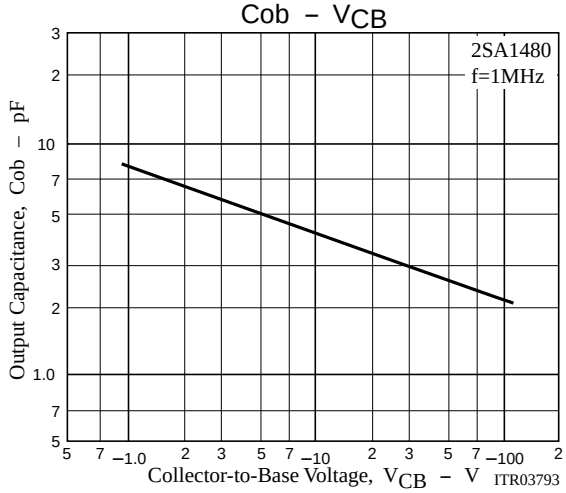

$f_T$ – $I_C$



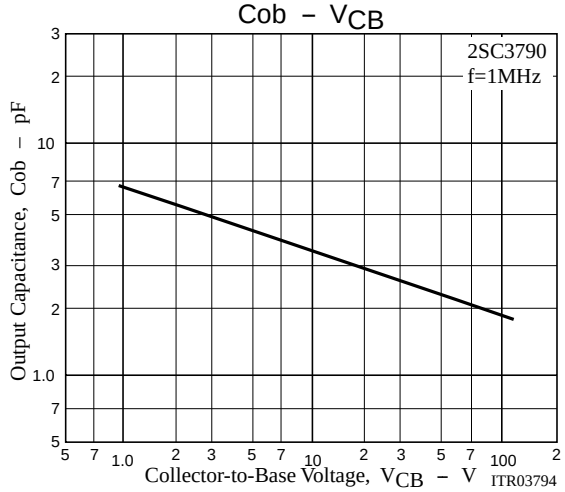

$f_T$ – $I_C$



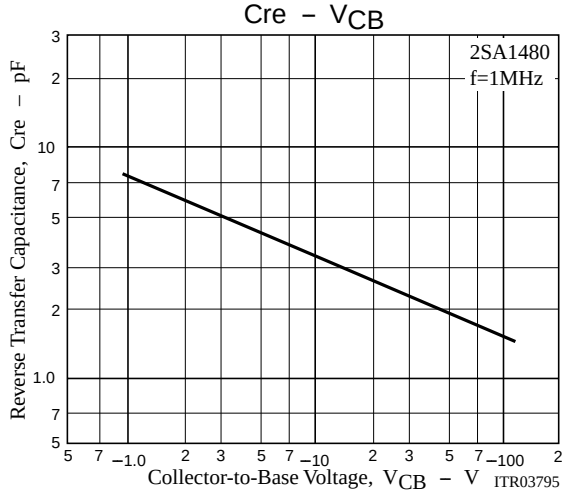

Cob – $V_{CB}$



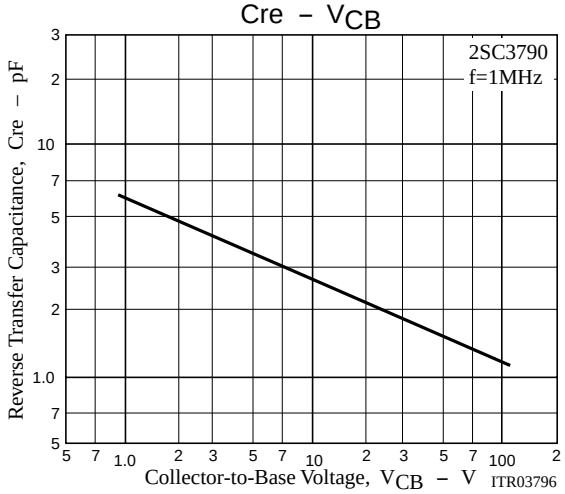

Cob – $V_{CB}$



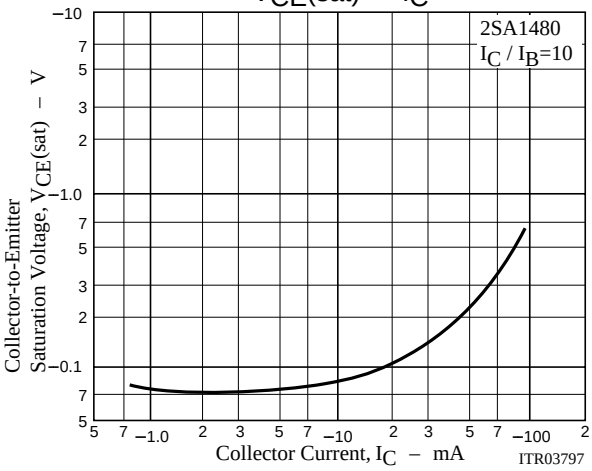

Cre – $V_{CB}$



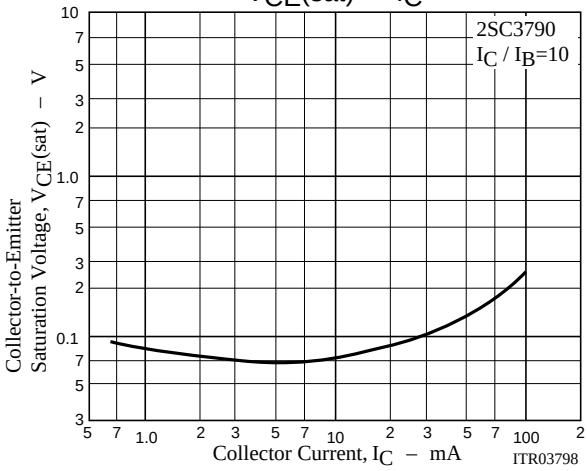

Cre – $V_{CB}$



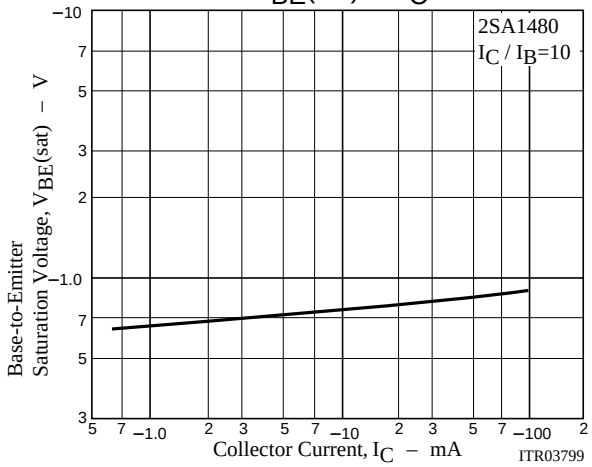
$V_{CE}(sat)$ – $I_C$



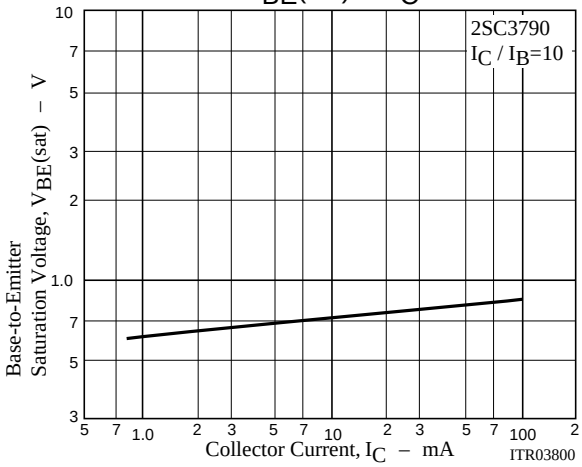

$V_{CE}(sat)$ – $I_C$



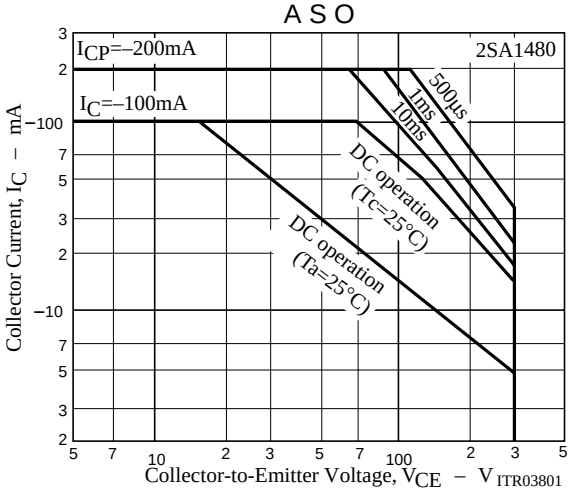

$V_{BE}(sat)$ – $I_C$



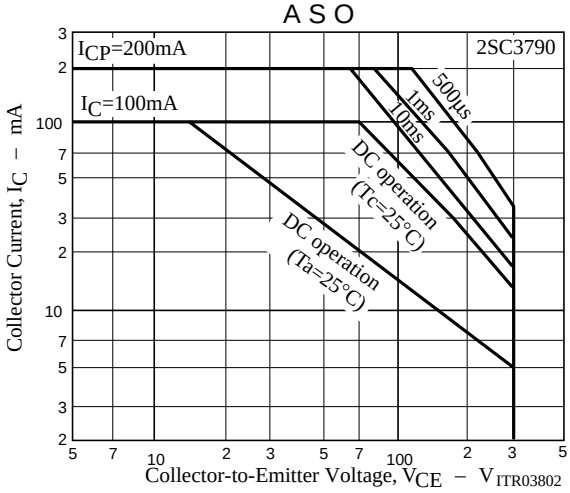

$V_{BE}(sat)$ – $I_C$




A S O




A S O




$P_C$ – Ta