Ordering number : EN0779E

SANYO Semiconductors

DATA SHEET

# 2SA1209 / 2SC2911

PNP / NPN Epitaxial Planar Silicon Transistors

## 160V / 140mA High-Voltage Switching and AF 100W Predriver Applications

### Features

- Adoption of FBET process.
- High breakdown voltage.
- Good linearity of $h_{FE}$ and small Cob.
- Fast switching time.

### Specifications ( ) : 2SA1209

**Absolute Maximum Ratings** at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | (-)180 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | (-)160 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | (-)5.0 | V |
| Collector Current | $I_C$ | | (-)140 | mA |
| Collector Current (Pulse) | $I_{CP}$ | | (-)200 | mA |
| Collector Dissipation | $P_C$ | | 1.0 | W |
| | | Tc=25°C | 10 | W |
| Junction Temperature | Tj | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |


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## Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=(-)80V, $I_E$=0A | | | (-)0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=(-)4V, $I_C$=0A | | | (-)0.1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=(-)5V, $I_C$=(-)10mA | 100* | | 400* | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=(-)10V, $I_C$=(-)10mA | | 150 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=(-)10V, f=1MHz | | (4.0)3.0 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE}$(sat) | $I_C$=(-)50mA, $I_B$=(-)5mA | | (-0.14)0.07 | (-0.4)0.3 | V |
| Turn-On Time | $t_{on}$ | See specified Test Circuit. | | 0.1 | | μs |
| Storage Time | $t_{stg}$ | See specified Test Circuit. | | 1.5 | | μs |
| Fall Time | $t_f$ | See specified Test Circuit. | | 0.1 | | μs |

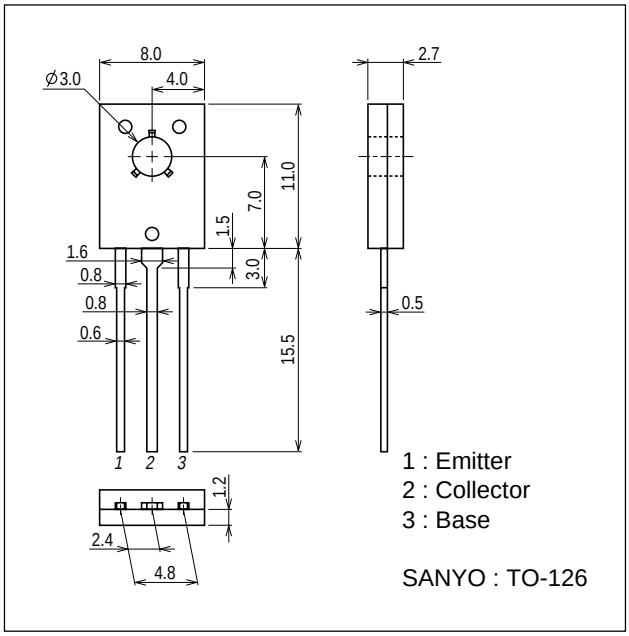
* : The 2SA1209/2SC2911 are classified by 10mA $h_{FE}$ as follows :

| Rank | R | S | T |
|---|---|---|---|
| $h_{FE}$ | 100 to 200 | 140 to 280 | 200 to 400 |

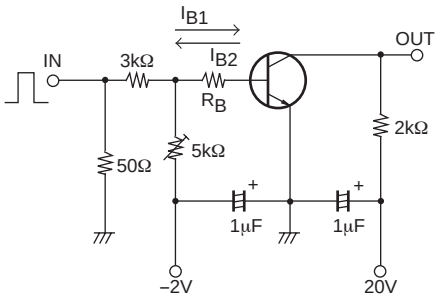
## Package Dimensions

unit : mm (typ)

7515-002

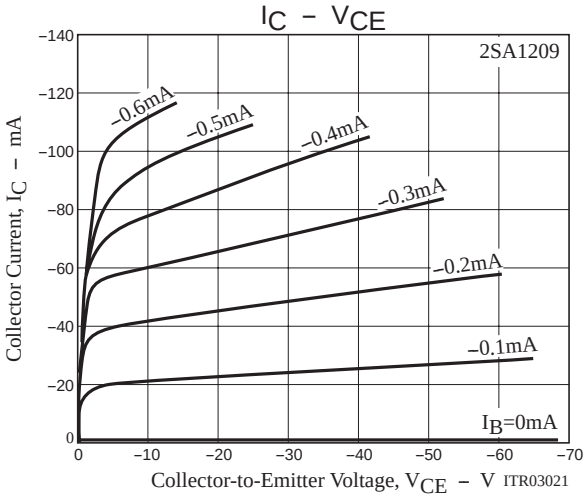


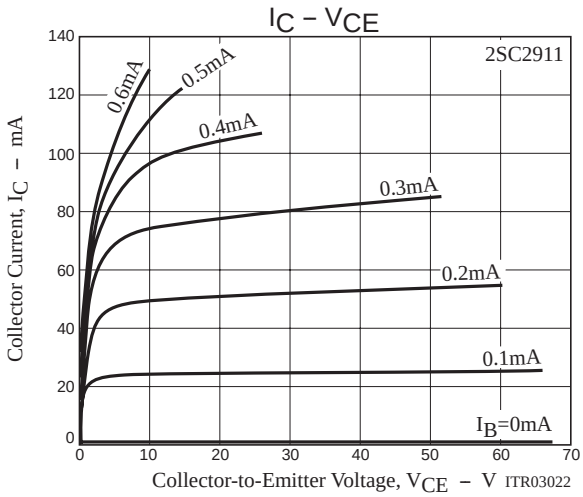

## Switching Time Test Circuit




$I_C$=10$I_{B1}$=−10$I_{B2}$=10mA

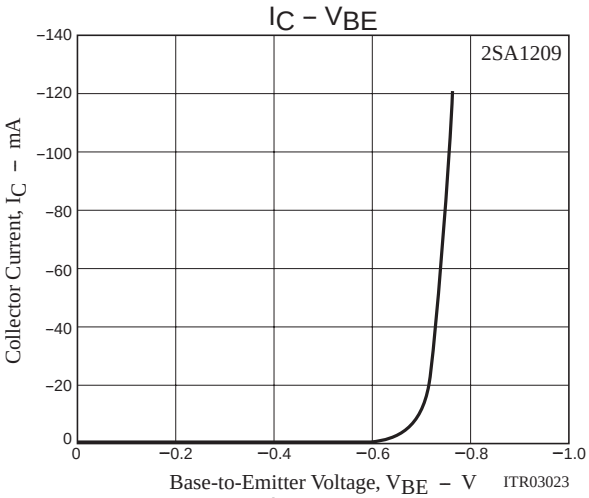
For PNP, minus sign is omitted.

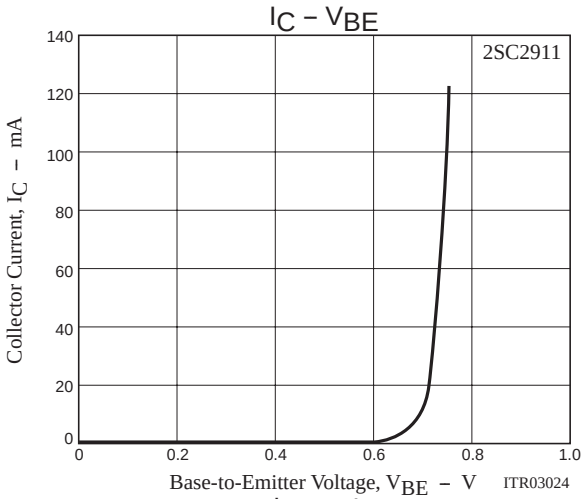


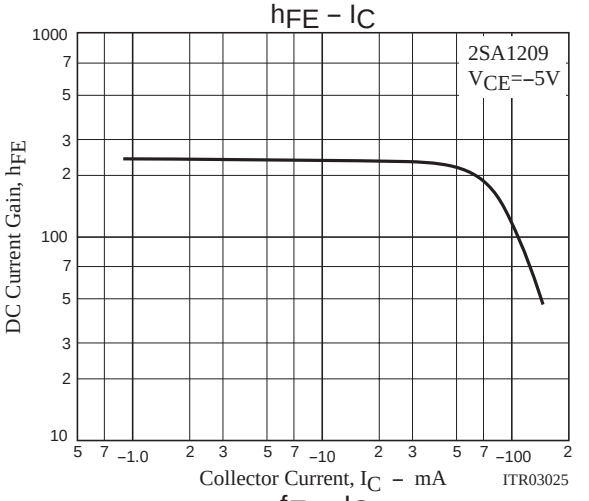



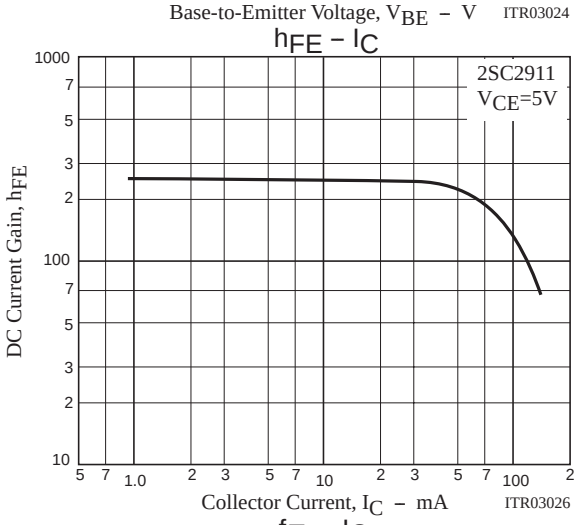


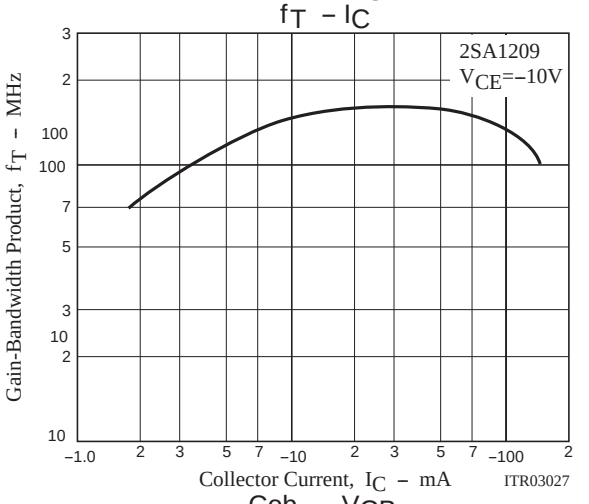

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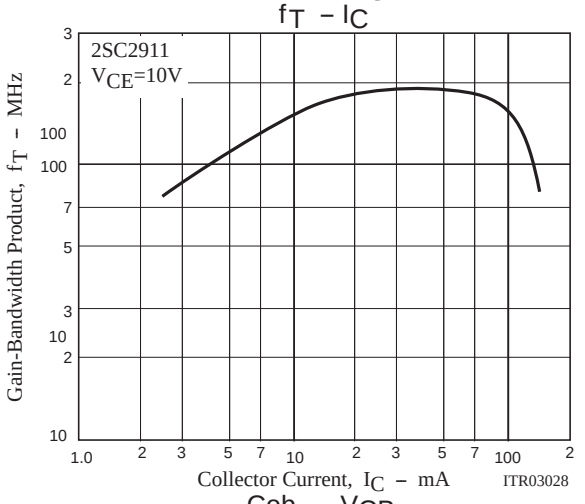


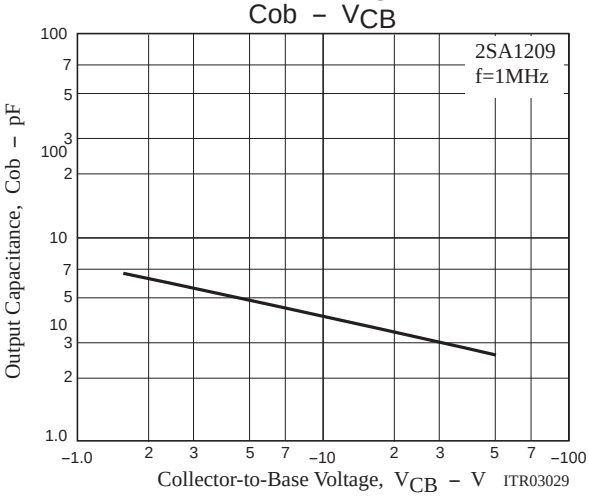



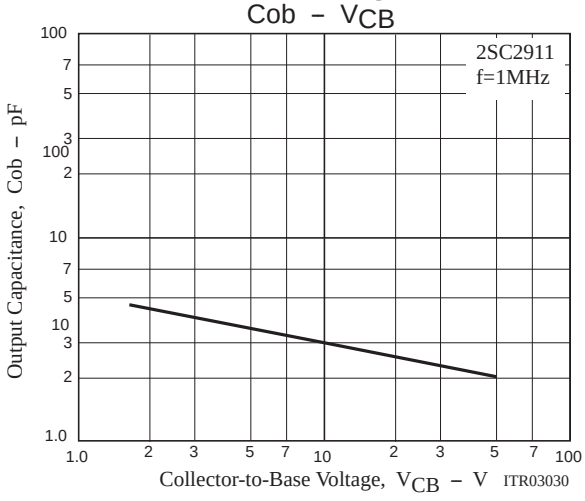



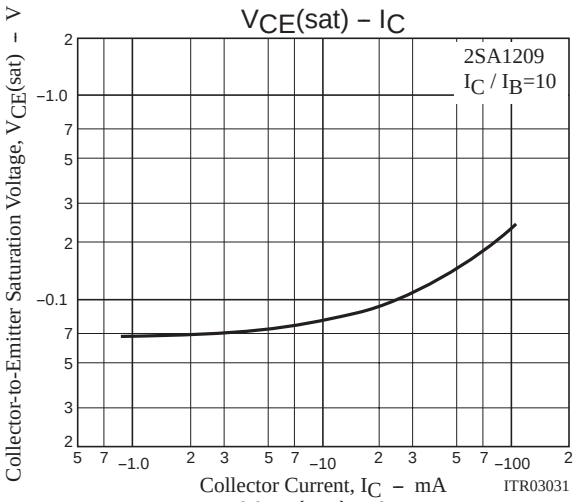



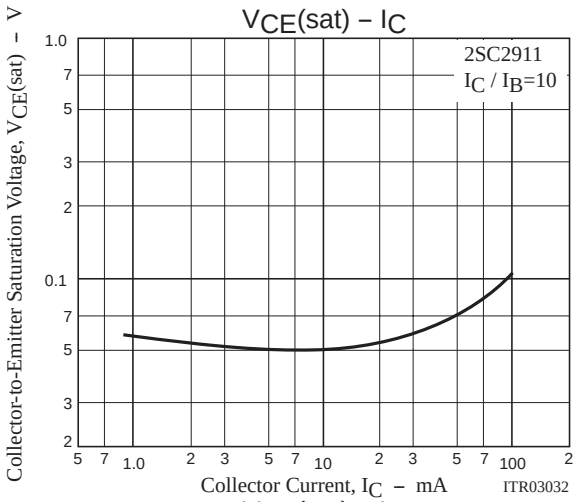



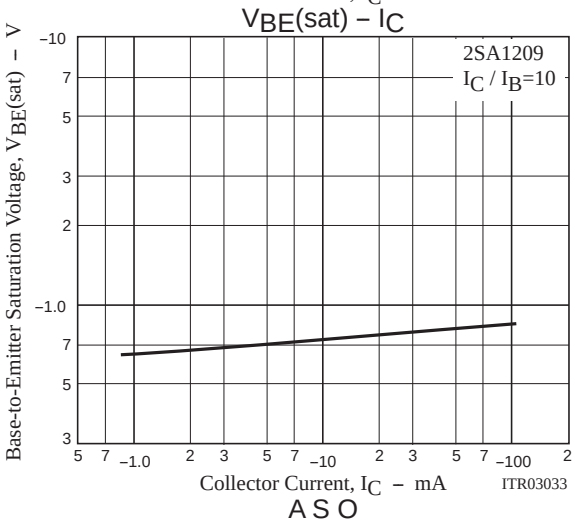



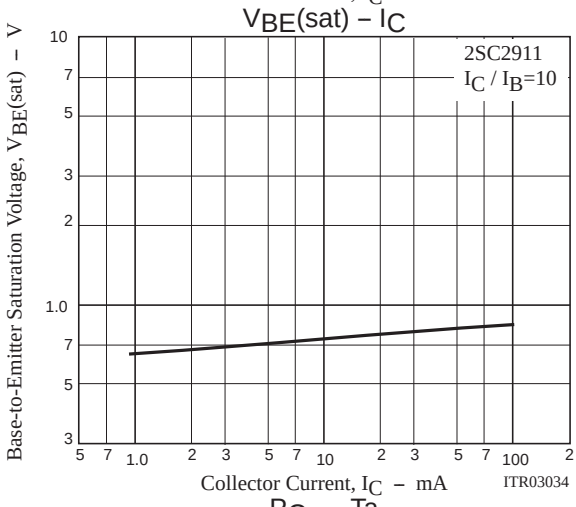


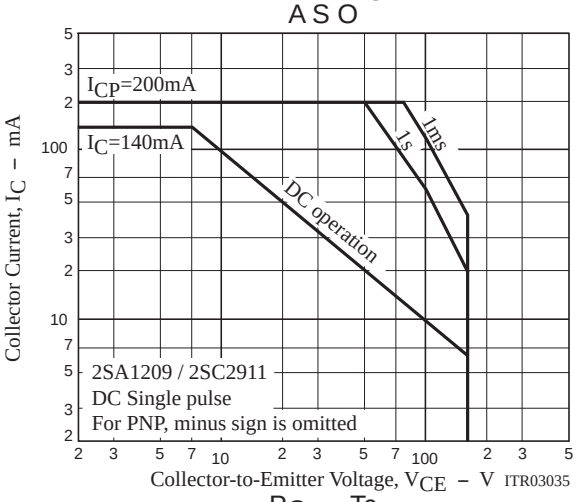

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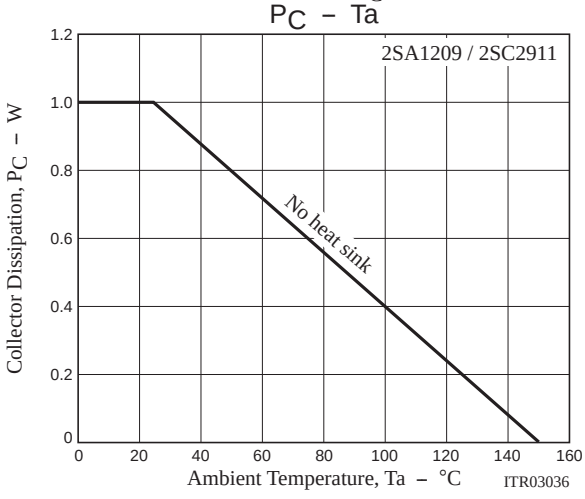


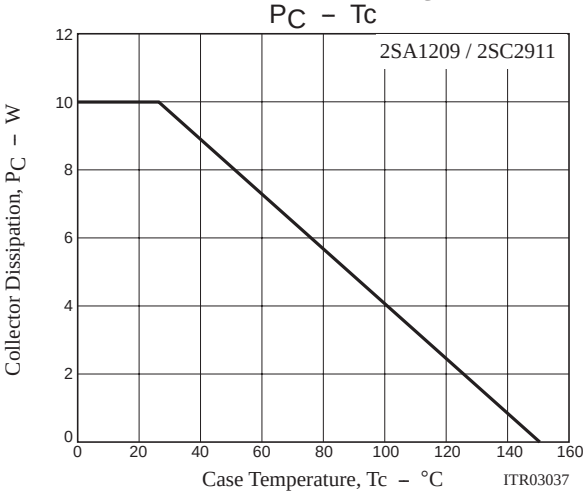






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