



## 2SA1522/2SC3916

### Switching Applications (with Bias Resistance)

#### Applications

- Switching circuits, inverter circuits, interface circuits, driver circuits.

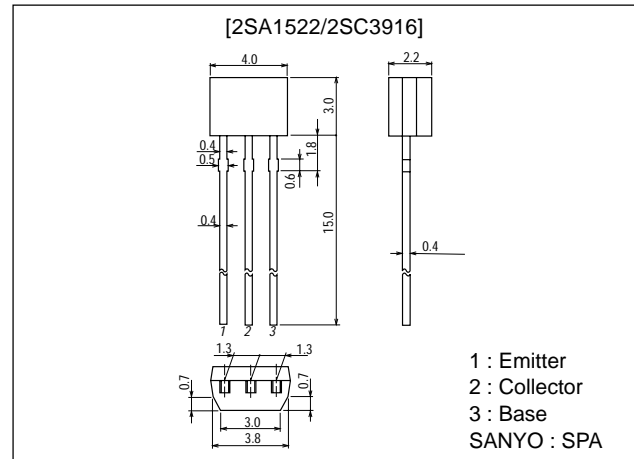
#### Features

- On-chip bias resistance :  $R_1=10k\Omega$ ,  $R_2=10k\Omega$ .
- Small-sized package : SPA.
- Large current capacity :  $I_C=500mA$ .

#### Package Dimensions

unit:mm

2033A



() : 2SA1522

#### Specifications

Absolute Maximum Ratings at  $T_a = 25^\circ C$ 

| Parameter                    | Symbol    | Conditions | Ratings     | Unit       |
|------------------------------|-----------|------------|-------------|------------|
| Collector-to-Base Voltage    | $V_{CB0}$ |            | (-)-50      | V          |
| Collector-to-Emitter Voltage | $V_{CEO}$ |            | (-)-50      | V          |
| Emitter-to-Base Voltage      | $V_{EBO}$ |            | (-)-10      | V          |
| Collector Current            | $I_C$     |            | (-)-500     | mA         |
| Collector Current (Pulse)    | $I_{CP}$  |            | (-)-800     | mA         |
| Collector Dissipation        | $P_C$     |            | 300         | mW         |
| Junction Temperature         | $T_j$     |            | 150         | $^\circ C$ |
| Storage Temperature          | $T_{stg}$ |            | -55 to +150 | $^\circ C$ |

Electrical Characteristics at  $T_a = 25^\circ C$ 

| Parameter                | Symbol    | Conditions              | Ratings |         |         | Unit    |
|--------------------------|-----------|-------------------------|---------|---------|---------|---------|
|                          |           |                         | min     | typ     | max     |         |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}=-40V, I_E=0$    |         |         | (-)-0.1 | $\mu A$ |
|                          | $I_{CEO}$ | $V_{CE}=-40V, I_B=0$    |         |         | (-)-0.5 | $\mu A$ |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB}=-5V, I_C=0$     | (-)-195 | (-)-250 | (-)-360 | $\mu A$ |
| DC Current Gain          | $h_{FE}$  | $V_{CE}=-5V, I_C=-10mA$ | 50      |         |         |         |
| Gain-Bandwidth Product   | $f_T$     | $V_{CE}=-10V, I_C=-5mA$ |         | 250     |         | MHz     |
|                          |           |                         |         | (200)   |         | MHz     |

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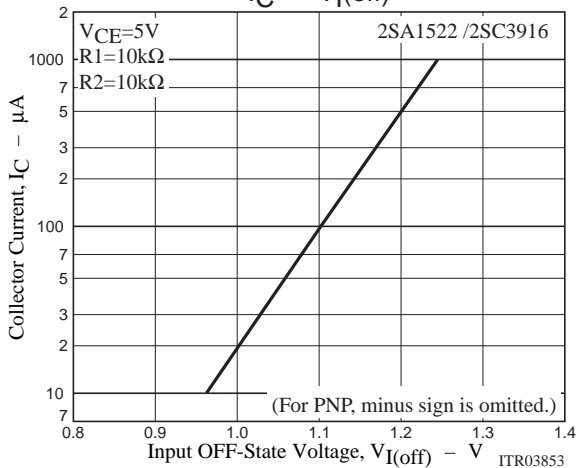
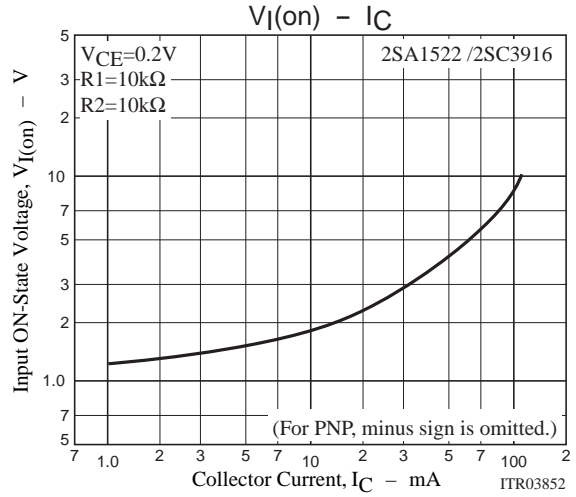
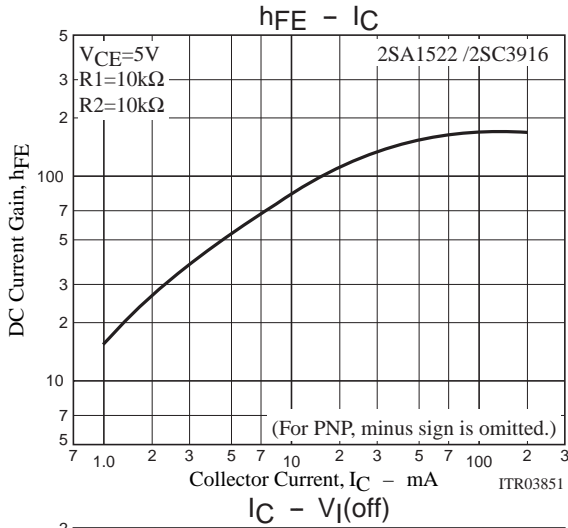
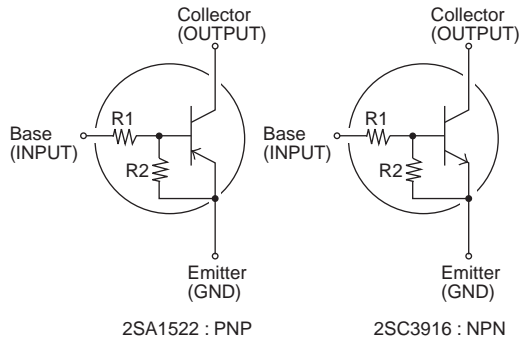
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| Parameter                               | Symbol        | Conditions                       | Ratings |        |        | Unit       |
|---|---------------|----------------------------------|---------|--------|--------|------------|
|   |               |                                  | min     | typ    | max    |            |
| Output Capacitance                      | $C_{ob}$      | $V_{CB}=(-)10V, f=1MHz$          |         | 3.7    |        | pF         |
|   |               |                                  |         | (5.5)  |        | pF         |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)20mA, I_B=(-)1mA$        |         | (-)0.1 | (-)0.3 | V          |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$          | (-)50   |        |        | V          |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C=(-)100\mu A, R_{BE}=\infty$ | (-)50   |        |        | V          |
| Input OFF-State Voltage                 | $V_{I(off)}$  | $V_{CE}=(-)5V, I_C=(-)100\mu A$  | (-)0.8  | (-)1.1 | (-)1.5 | V          |
| Input ON-State Voltage                  | $V_{I(on)}$   | $V_{CE}=(-)0.2V, I_C=(-)10mA$    | (-)1.0  | (-)2.0 | (-)4.0 | V          |
| Input Resistance                        | R1            |                                  | 7       | 10     | 13     | k $\Omega$ |
| Resistance Ratio                        | R1/R2         |                                  | 0.9     | 1.0    | 1.1    |            |

## Electrical Connection



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