



SANYO Semiconductors

DATA SHEET

2SA1511/2SC3901

PNP/NPN Epitaxial Planar Silicon Transistors
 Switching Applications
 (with Bias Resistance)

Applications

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

Features

- On-chip bias resistance: $R1=4.7k\Omega$
- Small-sized package: SPA

() : 2SA1511

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

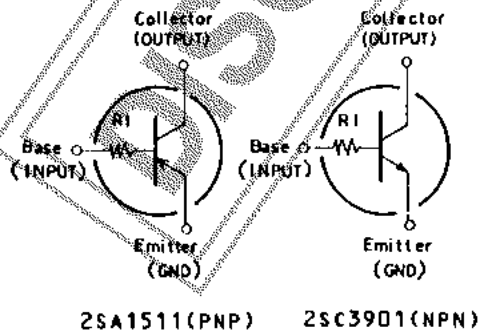
| | | unit |
|------------------------------|-----------|------------------------|
| Collector to Base Voltage | V_{CBO} | (-) 50 V |
| Collector to Emitter Voltage | V_{CEO} | (-) 50 V |
| Emitter to Base Voltage | V_{EBO} | (-) 5 V |
| Collector Current | I_C | (-) 100 mA |
| Collector Current (Pulse) | I_{CP} | (-) 200 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 $T_a=25^\circ C$

| | | min | typ | max | unit |
|---|---|--------|--------------|---------|------------|
| Collector Cutoff Voltage | I_{CBO} $V_{CB} = (-) 40V, I_E = 0$ | | | (-) 0.1 | μA |
| Emitter Cutoff Voltage | I_{EBO} $V_{EB} = (-) 5V, I_C = 0$ | | | (-) 0.1 | μA |
| DC Current Gain | h_{FE} $V_{CE} = (-) 5V, I_C = (-) 10mA$ | 100 | | | |
| Gain-Bandwidth Product | f_T $V_{CE} = (-) 10V, I_C = (-) 5mA$ | | 250 (200) | | MHz MHz |
| Output Capacitance | c_{ob} $V_{CB} = (-) 10V, f = 1MHz$ | | 3.7 (5.5) | | pF pF |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ $I_C = (-) 10mA, I_B = (-) 0.5mA$ | | (-) 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 |

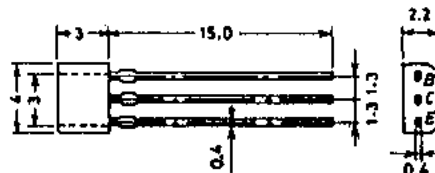
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Electrical Connection



Case Outline 2033

(unit:mm)



B: Base
 C: Collector
 E: Emitter

SANYO: SPA

Specifications and information herein are subject to change without notice.

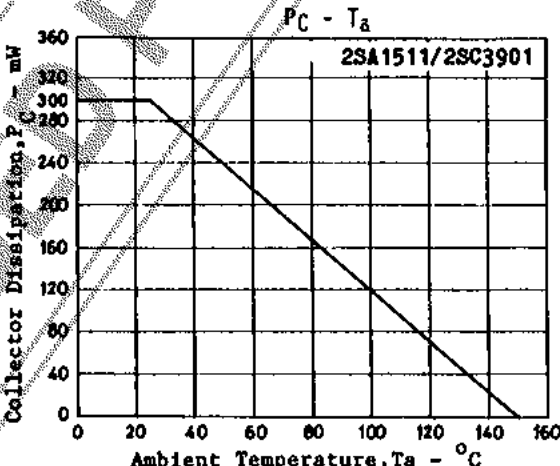
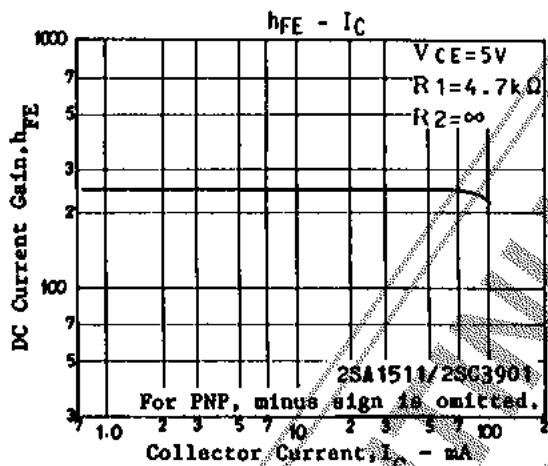
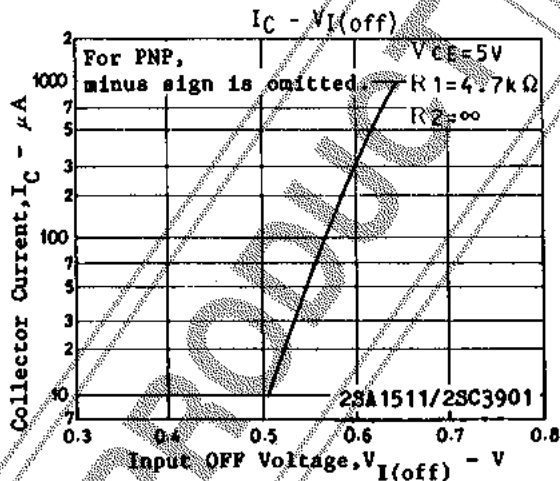
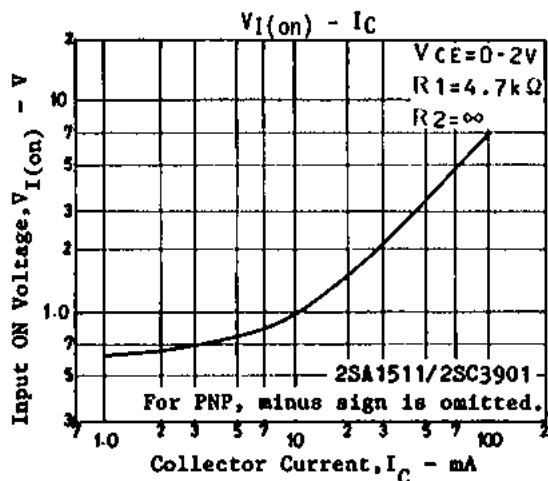
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2SA1511/2SC3901

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| | | | min | typ | max | unit |
|-------------------------|--------------|---|--------|---------|--------|------------|
| Input OFF Voltage | $V_{I(off)}$ | $V_{CE} = (-)5V,$ $I_{CE} = (-)100\mu A$ | (-)0.4 | (-)0.55 | (-)0.8 | V |
| Input ON-State Voltage | $V_{I(on)}$ | $V_{CE} = (-)0.2V,$ $I_{CE} = (-)10mA$ | (-)0.6 | (-)1.0 | (-)2.0 | V |
| Input OFF-State Voltage | R_1 | | 3.3 | 4.7 | 6.1 | k Ω |



DISCONTINUED