

SANYO

No.1287C

2SA1345/2SC3399

PNP/NPN Epitaxial Planar Silicon Transistors

Switching Applications
(with Bias Resistance)

Applications

Switching circuit, inverter, interface circuit, driver

Features

- Built-in bias resistor ($R_1=47k\Omega$, $R_2=47k\Omega$).
- Small-sized package (SPA).

(): 2SA1345

Absolute Maximum Ratings/ $T_a=25^\circ\text{C}$

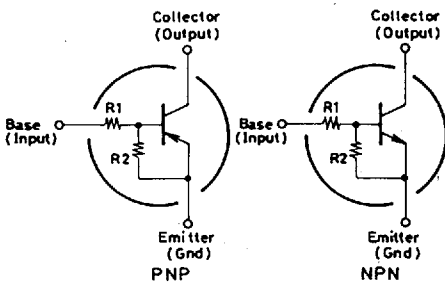
| | | | unit |
|------------------------------|-----------|-------------|------------------|
| Collector to Base Voltage | V_{CB0} | (-)50 | V |
| Collector to Emitter Voltage | V_{CE0} | (-)50 | V |
| Emitter to Base Voltage | V_{EB0} | (-)10 | V |
| Collector Current | I_C | (-)100 | mA |
| Collector Current(Pulse) | I_{CP} | (-)200 | mA |
| Collector Dissipation | P_C | 300 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics/ $T_a=25^\circ\text{C}$

| | | | min | typ | max | unit |
|---|---------------|---|--------|--------------|--------|---------------|
| Collector Cutoff Current | I_{CBO} | $V_{CB}=(-)40V, I_E=0$ | | | (-)0.1 | μA |
| Collector Cutoff Current | I_{CEO} | $V_{CE}=(-)40V, I_B=0$ | | | (-)0.5 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)5V, I_C=0$ | (-)30 | (-)53 | (-)80 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=(-)5V, I_C=(-)5\text{mA}$ | 50 | | | |
| Gain-bandwidth product | f_T | $V_{CE}=(-)10V, I_C=(-)5\text{mA}$ | | 250 (200) | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10V, f=1\text{MHz}$ | | 3.7 (5.5) | | pF |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)5\text{mA}, I_B=(-)0.25\text{mA}$ | (-)0.1 | (-)0.3 | | V |

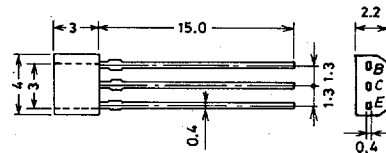
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Electrical Connection



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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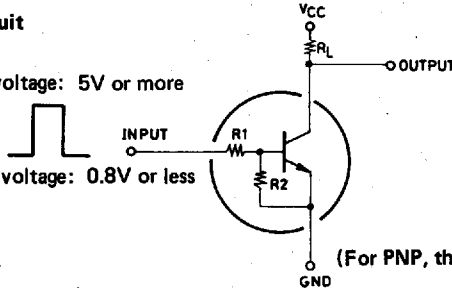
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| | | | min | typ | max | unit | |
|--|---------------|--------------------------------------|-----|-----|-----|------|------------|
| Collector to Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = (-)10\mu A, I_E = 0$ | (-) | | 50 | V | |
| Collector to Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)100\mu A, R_{BE} = \infty$ | (-) | | 50 | V | |
| Input Off Voltage | $V_{I(off)}$ | $V_{CE} = (-)5V, I_C = (-)100\mu A$ | (-) | 0.8 | 1.1 | 1.5 | V |
| Input On Voltage | $V_{I(on)}$ | $V_{CE} = (-)0.2V, I_C = (-)5mA$ | (-) | 1.0 | 2.5 | 5.0 | V |
| Input Resistance | R_1 | | | 32 | 47 | 62 | k Ω |
| Input Resistance Ratio | R_1/R_2 | | | 0.9 | 1.0 | 1.1 | - |

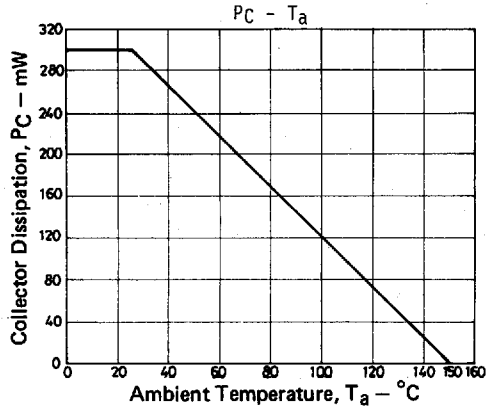
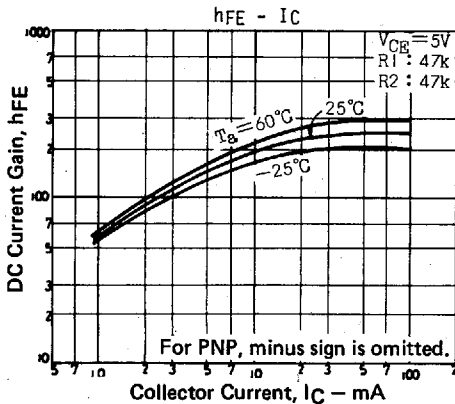
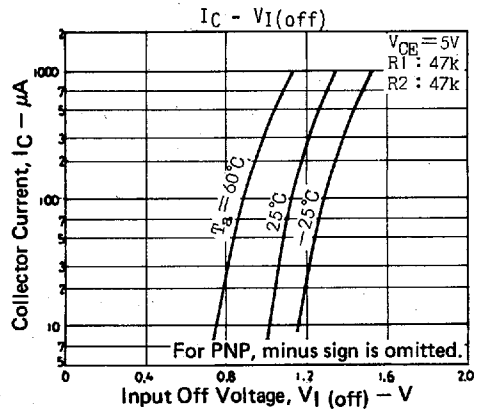
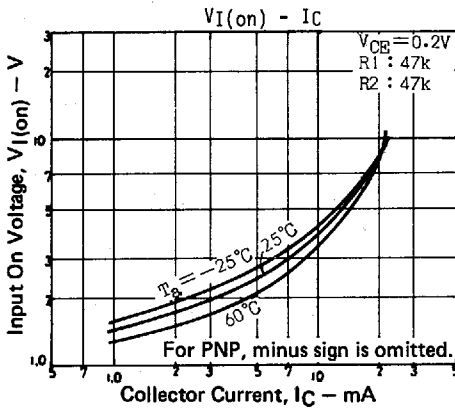
■ Sample Application Circuit

Input ON-state voltage: 5V or more

Input OFF-state voltage: 0.8V or less



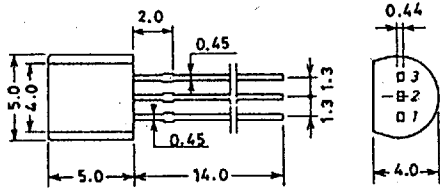
(For PNP, the polarity is reversed.)



CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- All of Sanyo lead formed small signal transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

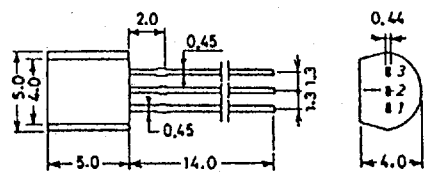
Case Outline 2003A/2003B (unit : mm)



JEDEC : TO-92
EIAJ : SC-43
SANYO : NP

1 : Emitter
2 : Collector
3 : Base

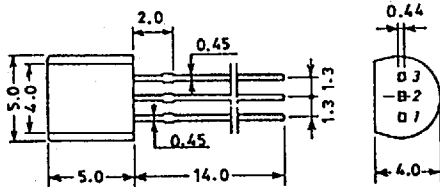
Case Outline 2019A/2019B (unit : mm)



JEDEC : TO-92
EIAJ : SC-43
SANYO : NP

1 : Source
2 : Gate
3 : Drain

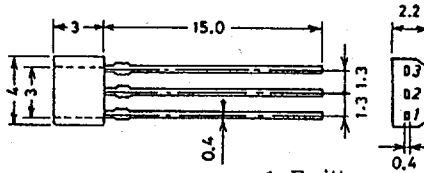
Case Outline 2004A (unit : mm)



JEDEC : TO-92
EIAJ : SC-43
SANYO : NP

1 : Base
2 : Emitter
3 : Collector

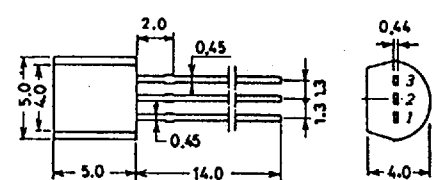
Case Outline 2033 (unit : mm)



1 : Emitter
2 : Collector
3 : Base

SANYO : SPA

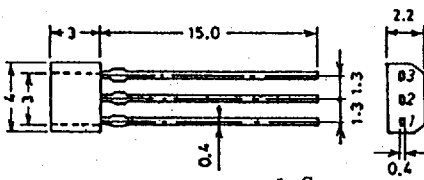
Case Outline 2005A (unit : mm)



JEDEC : TO-92
EIAJ : SC-43
SANYO : NP

1 : Drain
2 : Source
3 : Gate

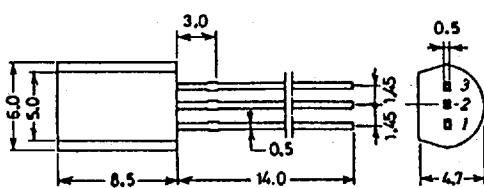
Case Outline 2034/2034A (unit : mm)



1 : Source
2 : Gate
3 : Drain

SANYO : SPA

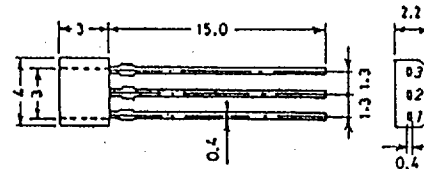
Case Outline 2006A (unit : mm)



EIAJ : SC-51
SANYO : MP

1 : Emitter
2 : Collector
3 : Base

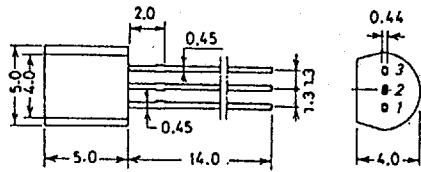
Case Outline 2040 (unit : mm)



1 : Drain
2 : Source
3 : Gate

SANYO : SPA

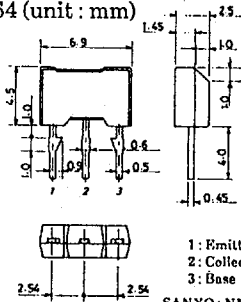
Case Outline 2061 (unit : mm)



JEDEC : TO-92
EIAJ : SC-43
SANYO : NP

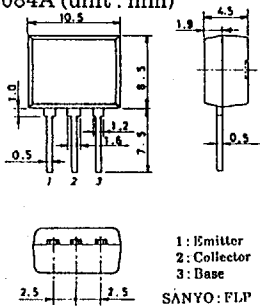
1 : Emitter
2 : Base
3 : Collector

Case Outline 2064 (unit : mm)



1 : Emitter
2 : Collector
3 : Base
SANYO : NMP

Case Outline 2084A (unit : mm)



1 : Emitter
2 : Collector
3 : Base
SANYO : FLP