

2SA1676, 2SC4396



2059

T-37-13
T-35-11

PNP/NPN Epitaxial Planar
Silicon Transistors

Switching Applications (with Bias Resistances R1=47kΩ, R2=47kΩ)

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Applications

- Switching circuit, inverter circuit, interface circuit, driver circuit

Features

- On-chip bias resistance (R1=47kohms, R2=47kohms)
- Very small-sized package permitting 2SA1676/2SC4396-applied sets to be made smaller and slimmer

(): 2SA1676

Absolute Maximum Ratings at Ta=25°C

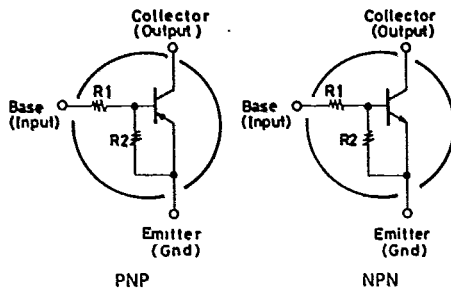
| | | | unit |
|------------------------------|------------------|-------------|------|
| Collector to Base Voltage | V _{CB0} | (-)50 | V |
| Collector to Emitter Voltage | V _{CEO} | (-)50 | V |
| Emitter to Base Voltage | V _{EBO} | (-)10 | V |
| Collector Current | I _C | (-)100 | mA |
| Peak Collector Current | i _{cp} | (-)200 | mA |
| Collector Dissipation | P _C | 150 | mW |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature | T _{stg} | -55 to +150 | °C |

Electrical Characteristics at Ta=25°C

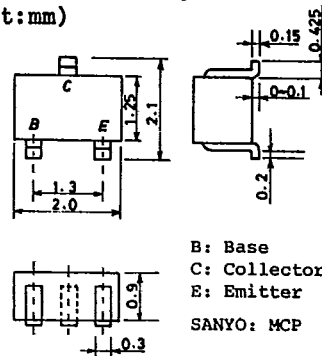
| | | | min | typ | max | unit |
|--------------------------|----------------------|---|--------|--------|--------|------|
| Collector Cutoff Current | I _{CB0} | V _{CB} =(-)40V, I _E =0 | | | (-)0.1 | uA |
| Collector Cutoff Current | I _{CEO} | V _{CE} =(-)40V, I _B =0 | | | (-)0.5 | uA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =(-)5V, I _C =0 | (-)30 | (-)53 | (-)80 | uA |
| DC Current Gain | h _{FE} | V _{CE} =(-)5V, I _C =(-)5mA | 50 | | | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)10V, I _C =(-)5mA | | 250 | | MHz |
| | | | | (200) | | MHz |
| Output Capacitance | c _{ob} | V _{CB} =(-)10V, f=1MHz | | 3.3 | | pF |
| | | | | (5.1) | | pF |
| C-E Saturation Voltage | V _{CE(sat)} | I _C =(-)5mA, I _B =(-)0.25mA | | (-)0.1 | (-)0.3 | V |
| C-B Breakdown Voltage | V _{(BR)CBO} | I _C =(-)10uA, I _E =0 | (-)50 | | | V |
| C-E Breakdown Voltage | V _{(BR)CEO} | I _C =(-)100uA, R _{BE} =∞ | (-)50 | | | V |
| Input OFF-State Voltage | V _{I(off)} | V _{CE} =(-)5V, I _C =(-)100uA | (-)0.8 | (-)1.1 | (-)1.5 | V |
| Input ON-State Voltage | V _{I(on)} | V _{CE} =(-)0.2V, I _C =(-)5mA | (-)1.0 | (-)2.5 | (-)5.0 | V |
| Input Resistance | R1 | | 32 | 47 | 62 | kohm |
| Resistance Ratio | R1/R2 | | 0.9 | 1.0 | 1.1 | |

Marking 2SA1676:BL, 2SC4396:BY

Electrical Connection



Case Outline 2059 (unit:mm)



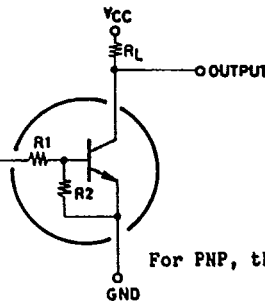
Sample Application Circuit

Input ON-State voltage: 5V or more

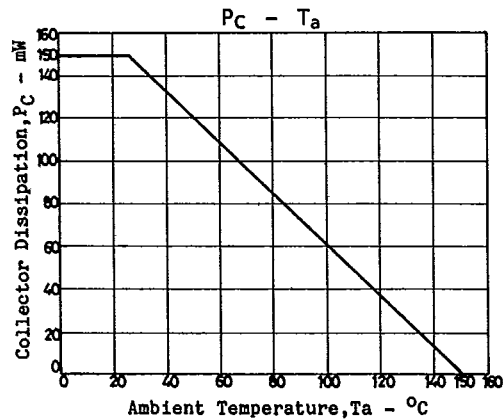
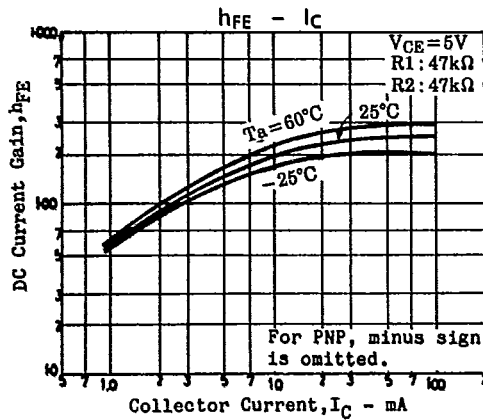
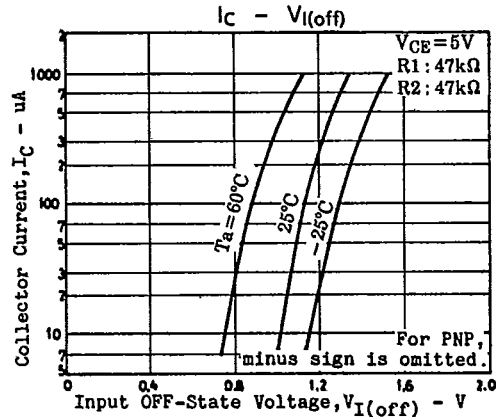
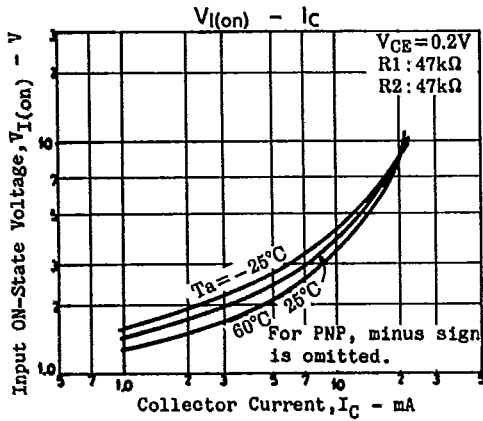
Input OFF-State voltage: 0.8V or less



INPUT



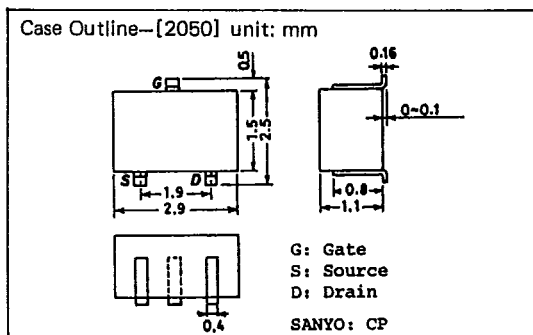
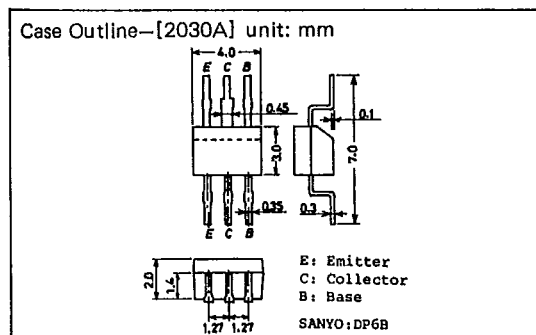
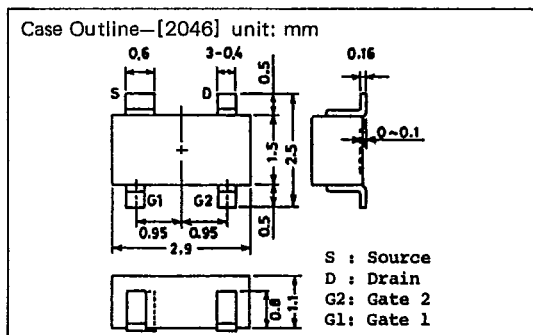
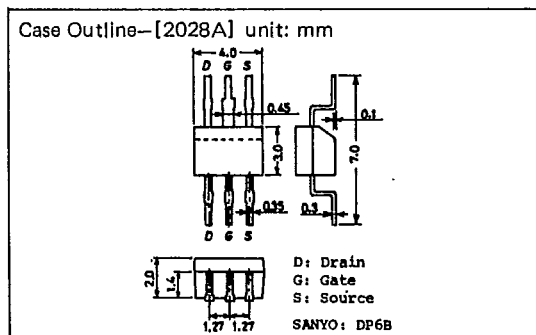
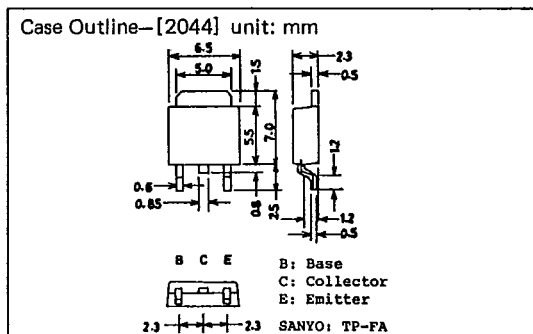
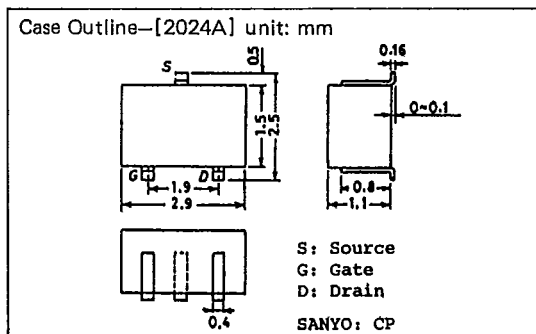
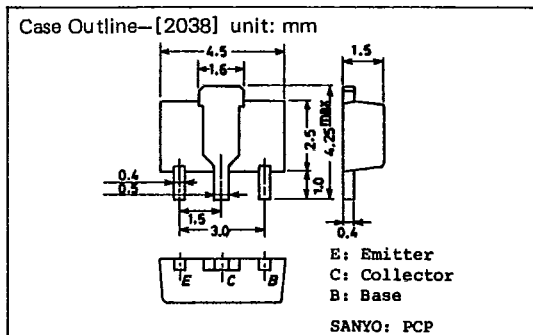
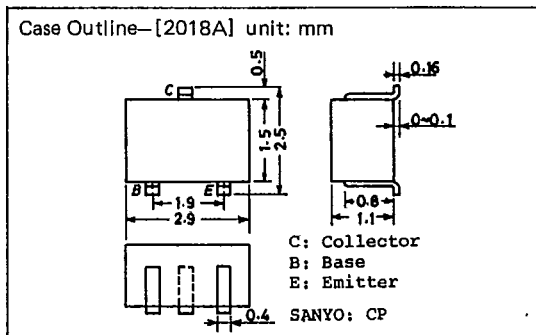
For PNP, the polarity is reversed.



T-91-20

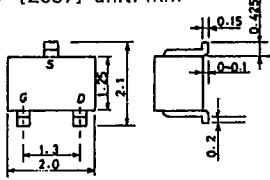
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- All of Sanyo surface mount 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.



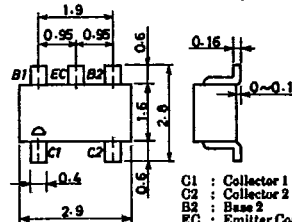
T-91-20

Case Outline—[2057] unit: mm



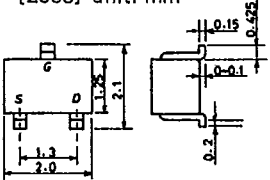
S: Source
G: Gate
D: Drain
SANYO: MCP

Case Outline—[2066] unit: mm



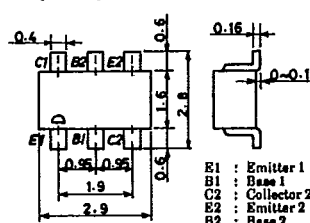
C1 : Collector 1
C2 : Collector 2
B2 : Base 2
EC : Emitter Common
B1 : Base 1
SANYO : CP6

Case Outline—[2058] unit: mm



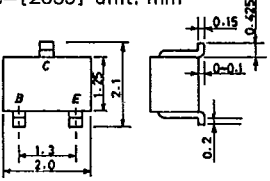
G: Gate
S: Source
D: Drain
SANYO: MCP

Case Outline—[2067] unit: mm



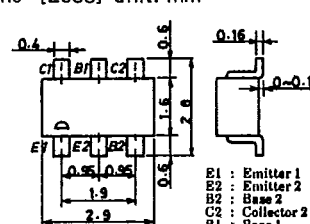
E1 : Emitter 1
B1 : Base 1
C2 : Collector 2
E2 : Emitter 2
B2 : Base 2
C1 : Collector 1
SANYO : CP6

Case Outline—[2059] unit: mm



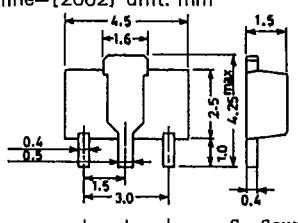
B: Base
C: Collector
E: Emitter
SANYO: MCP

Case Outline—[2068] unit: mm



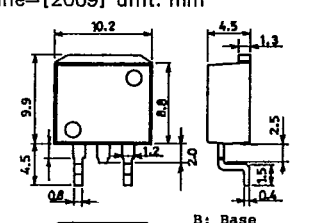
B1 : Emitter 1
E2 : Emitter 2
B2 : Base 2
C2 : Collector 2
B1 : Base 1
C1 : Collector 1
SANYO : CP6

Case Outline—[2062] unit: mm



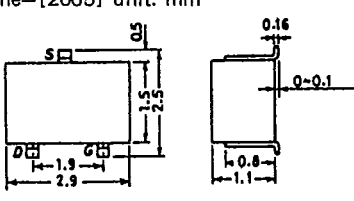
S: Source
D: Drain
G: Gate
SANYO: PCP

Case Outline—[2069] unit: mm



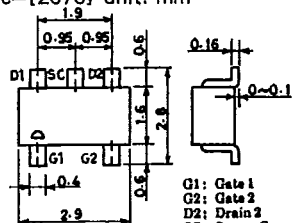
B: Base
C: Collector
E: Emitter
SANYO: SMP

Case Outline—[2065] unit: mm



S: Source
D: Drain
G: Gate
SANYO: CP

Case Outline—[2070] unit: mm



G1 : Gate 1
G2 : Gate 2
D2 : Drain 2
SC : Source Common
D1 : Drain 1
SANYO : CP6

T-9120

