Ordering number:EN4536

# FP209

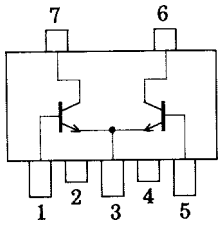
NPN Epitaxial Planar Silicon Transistor

## Driver Applications

## Features

- Composite type with 2 transistors (NPN) contained in one package, facilitating high-density mounting.
- The FP209 is formed with 2 chips being equivalent to the 2SD1621, placed in one package.

### Electrical Connection




1:Base (NPN TR)
2, 7:Collector (NPN TR)
3:Emitter Common
4, 6:Collector (NPN TR)
5:Base (NPN TR)

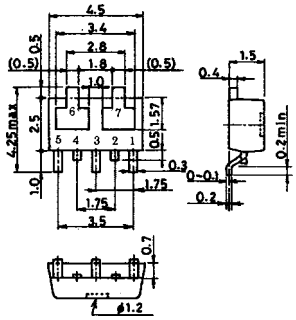
(Top view)

## Package Dimensions

unit:mm

2097A

[FP209]




1:Base (NPN TR)
2, 7:Collector (NPN TR)
3:Emitter Common
4, 6:Collector (NPN TR)
5:Base (NPN TR)

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(Bottom view)

## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | 30 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | 25 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | 6 | V |
| Collector Current | $I_C$ | | 2 | A |
| Collector Current (Pulse) | $I_{CP}$ | | 5 | A |
| Base Current | $I_B$ | | 400 | mA |
| Collector Dissipation | $P_C$ | Mounted on ceramic board (250mm²×0.8mm) 1unit | 0.8 | W |
| Total Dissipation | $P_T$ | Mounted on ceramic board (250mm²×0.8mm) | 1.1 | W |
| Junction Temperature | Tj | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

### Electrical Characteristics at Ta=25˚C

| Parameter | Symbol | Conditons | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=20V, $I_E$=0 | | | 100 | nA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=4V, $I_C$=0 | | | 100 | nA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=2V, $I_C$=100mA | 140 | | 400 | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=10V, $I_C$=50mA | | 150 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=10V, f=1MHz | | 19 | | pF |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C$=1.5A, $I_B$=75mA | | 0.18 | 0.4 | V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C$=1.5A, $I_B$=75mA | | 0.85 | 1.2 | V |
| C-B Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=10μA, $I_E$=0 | 30 | | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=1mA, $R_{BE}$=∞ | 25 | | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=10μA, $I_C$=0 | 6 | | | V |
| Turn-ON Time | $t_{on}$ | See specified Test Circuit | | 60 | | ns |
| Storage Time | $t_{stg}$ | See specified Test Circuit | | 500 | | ns |
| Fall Time | $t_f$ | See specified Test Circuit | | 25 | | ns |

Marking:209


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## Switching Time Test Circuit