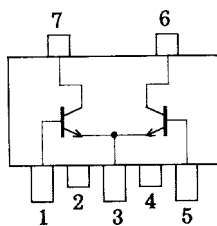


**FP209**

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

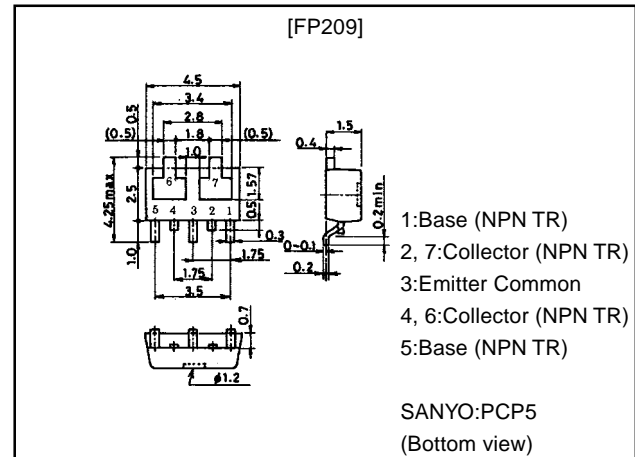
- 1:Base (NPN TR)
2, 7:Collector (NPN TR)
3:Emitter Common
4, 6:Collector (NPN TR)
5:Base (NPN TR)

(Top view)

Package Dimensions

unit:mm

2097A



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

SANYO:PCP5
(Bottom view)

Specifications**Absolute Maximum Ratings at Ta = 25°C**

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|--|-------------|------|
| Collector-to-Base Voltage | V_{CB0} | | 30 | V |
| Collector-to-Emitter Voltage | V_{CE0} | | 25 | V |
| Emitter-to-Base Voltage | V_{EB0} | | 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 (250mm ² ×0.8mm) 1unit | 0.8 | W |
| Total Dissipation | P_T | Mounted on ceramic board (250mm ² ×0.8mm) | 1.1 | W |
| Junction Temperature | T_j | | 150 | °C |
| Storage Temperature | T_{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta=25°C

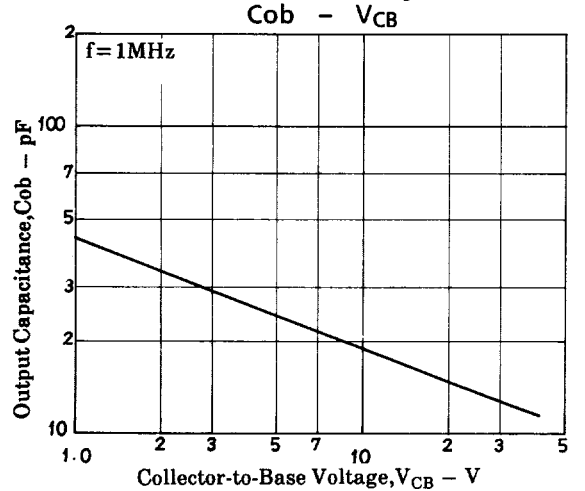
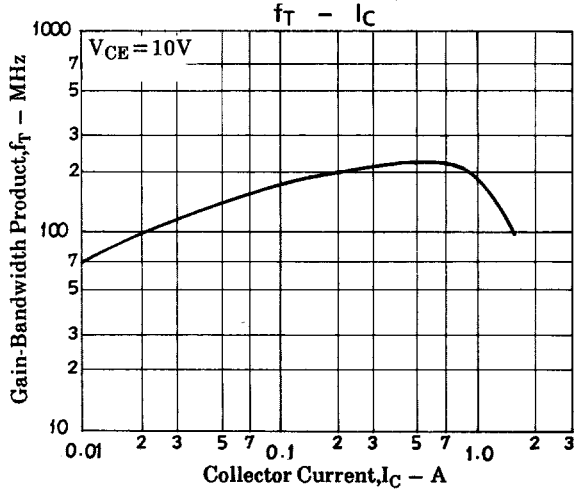
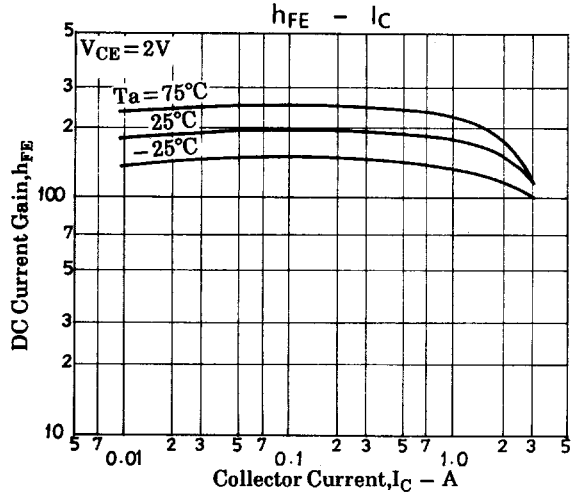
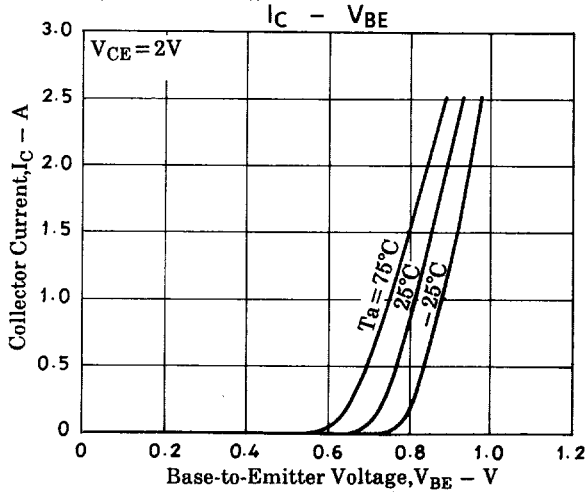
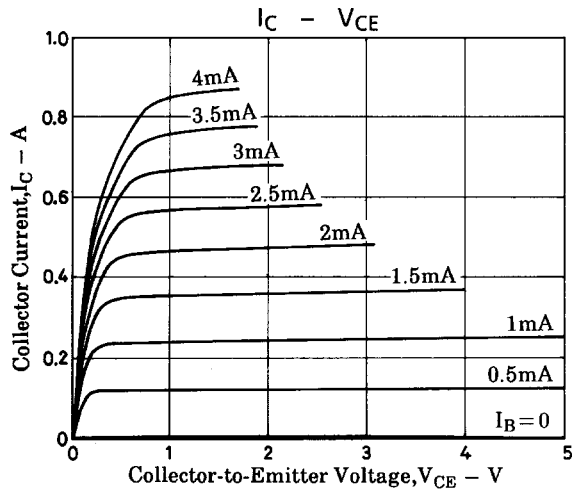
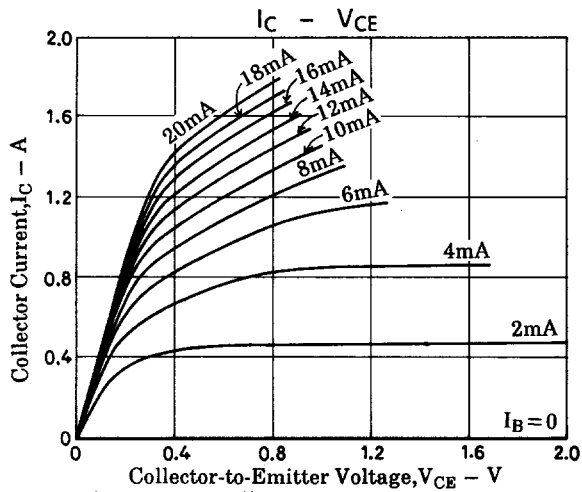
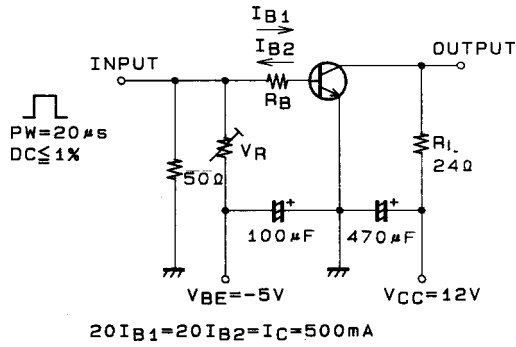
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|---------------|----------------------------|---------|------|-----|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=20V, I_E=0$ | | | 100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=4V, I_C=0$ | | | 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 | C_{ob} | $V_{CB}=10V, f=1MHz$ | | 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 | $V_{(BR)CBO}$ | $I_C=10\mu A, I_E=0$ | 30 | | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1mA, R_{BE}=\infty$ | 25 | | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=10\mu A, I_C=0$ | 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 |

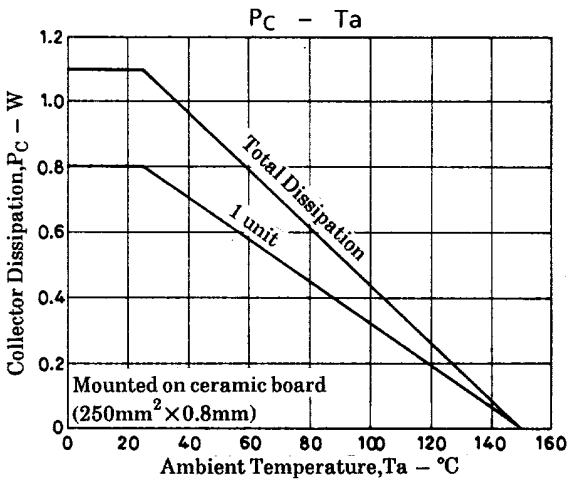
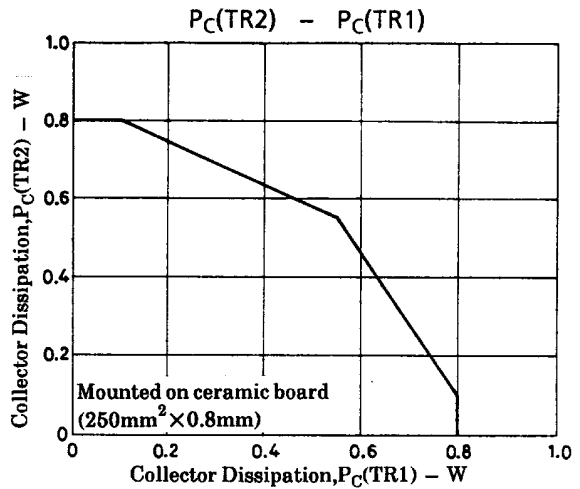
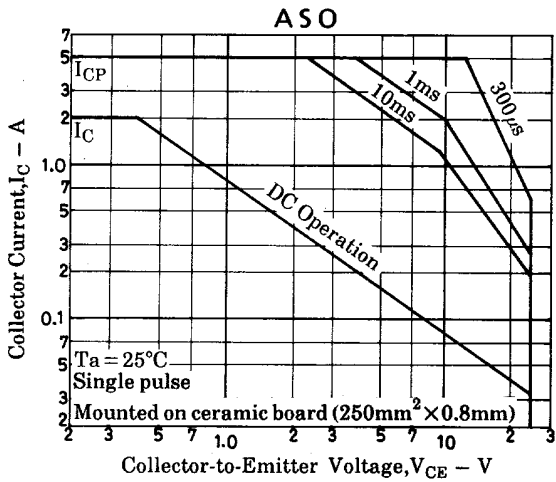
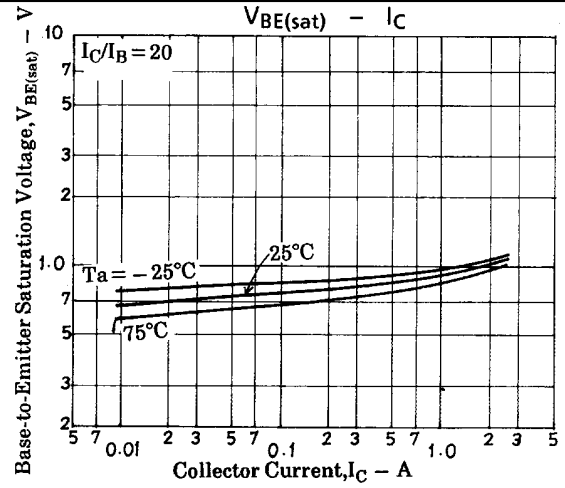
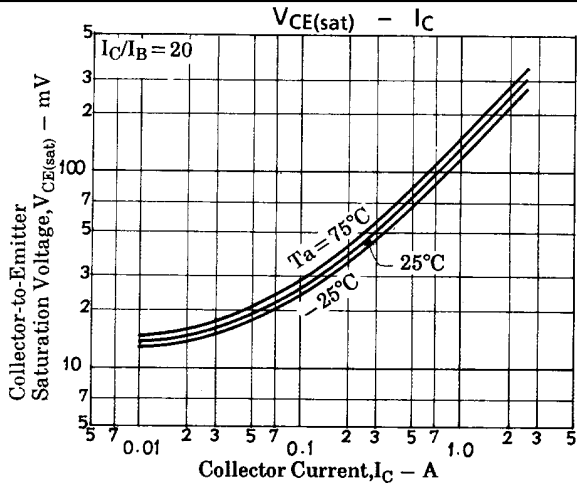
Marking:209

SANYO Electric Co.,Ltd. Semiconductor Business Headquarters

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Switching Time Test Circuit





■ No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.

■ Anyone purchasing any products described or contained herein for an above-mentioned use shall:

- ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
- ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of May, 1998. Specifications and information herein are subject to change without notice.