



SANYO Semiconductors

DATA SHEET

CPH5520 — PNP / NPN Epitaxial Planar Silicon Transistors

High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers, gate drivers.

Features

- Composite type with a PNP transistor and an NPN transistor contained in one package, facilitating high-density mounting.
- Ultrasmall package facilitate miniaturization in end products. (0.9mm mounting height)

Specifications () : PNP

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|--------|--|-------------|------|
| Collector-to-Base Voltage | VCBO | | (-50)80 | V |
| Collector-to-Emitter Voltage | VCEO | | (-50)80 | V |
| Emitter-to-Base Voltage | VEBO | | (-)6 | V |
| Collector Current | IC | | (-)2 | A |
| Collector Current (Pulse) | ICP | | (-)5 | A |
| Base Current | IB | | (-)400 | mA |
| Collector Dissipation | PC | Mounted on a ceramic board (600mm ² X0.8mm) 1unit | 0.9 | W |
| Total Power Dissipation | PT | Mounted on a ceramic board (600mm ² X0.8mm) | 1.2 | W |
| Junction Temperature | TJ | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |

Marking : EW

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SANYO Semiconductor Co., Ltd.

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CPH520

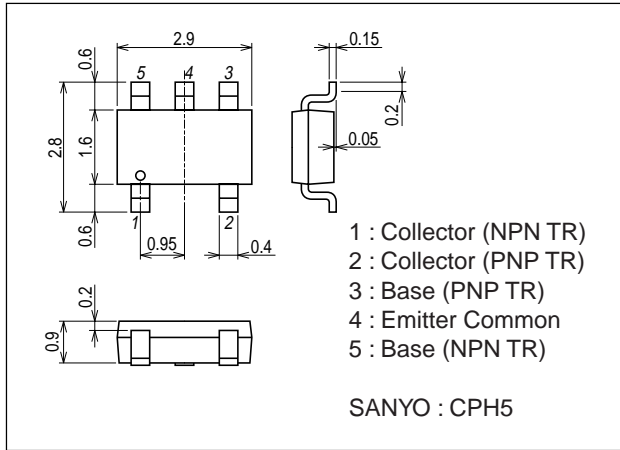
Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------------|---|---------|-----------|-----------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | ICBO | V _{CB} =(-)40V, I _E =0A | | | (-)1 | μA |
| Emitter Cutoff Current | IEBO | V _{EB} =(-)4V, I _C =0A | | | (-)1 | μA |
| DC Current Gain | h _{FE} | V _{CE} =(-)2V, I _C =(-)100mA | 200 | | 560 | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)10V, I _C =(-)300mA | | 420 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-)10V, f=1MHz | | (16)8 | | pF |
| Collector-to-Emitter Saturation Voltage | V _{CE(sat)} | I _C =(-)1A, I _B =(-)50mA | | (-165)130 | (-330)260 | mV |
| Base-to-Emitter Saturation Voltage | V _{BE(sat)} | I _C =(-)1A, I _B =(-)50mA | | (-)0.9 | (-)1.2 | V |
| Collector-to-Base Breakdown Voltage | V _{(BR)CBO} | I _C =(-)10μA, I _E =0A | (-50)80 | | | V |
| Collector-to-Emitter Breakdown Voltage | V _{(BR)CEO} | I _C =(-)1mA, R _{BE} =∞ | (-50)80 | | | V |
| Emitter-to-Base Breakdown Voltage | V _{(BR)EBO} | I _E =(-)10μA, I _C =0A | (-)6 | | | V |
| Turn-ON Time | t _{on} | See specified Test Circuit. | | (35)35 | | ns |
| Storage Time | t _{stg} | See specified Test Circuit. | | (200)330 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | (24)40 | | ns |

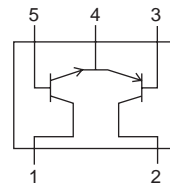
Package Dimensions

unit : mm (typ)

7017A-009



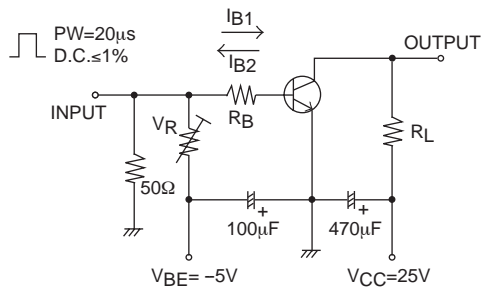
Electrical Connection



- 1 : Collector (NPN TR)
- 2 : Collector (PNP TR)
- 3 : Base (PNP TR)
- 4 : Emitter Common
- 5 : Base (NPN TR)

Top view

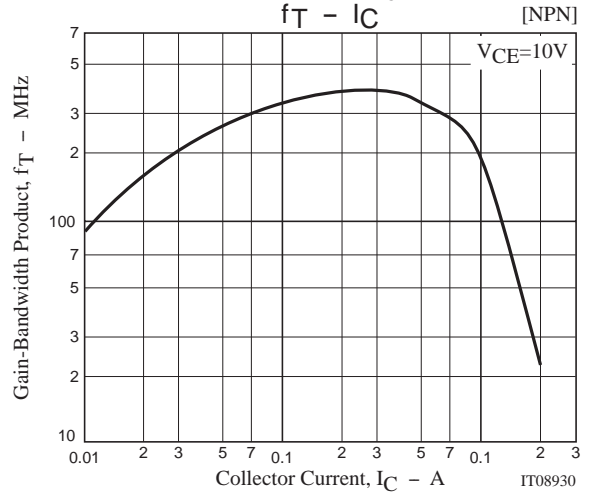
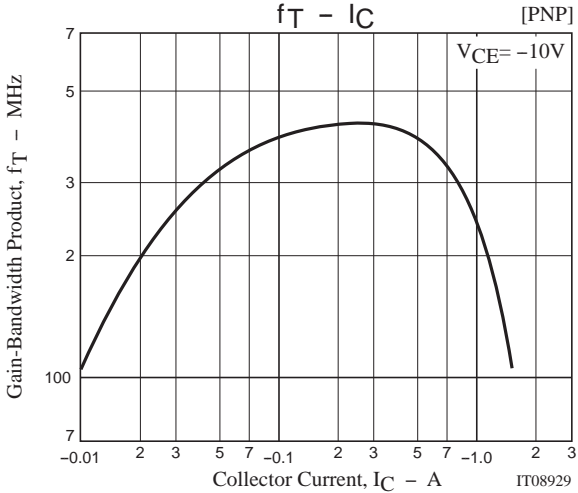
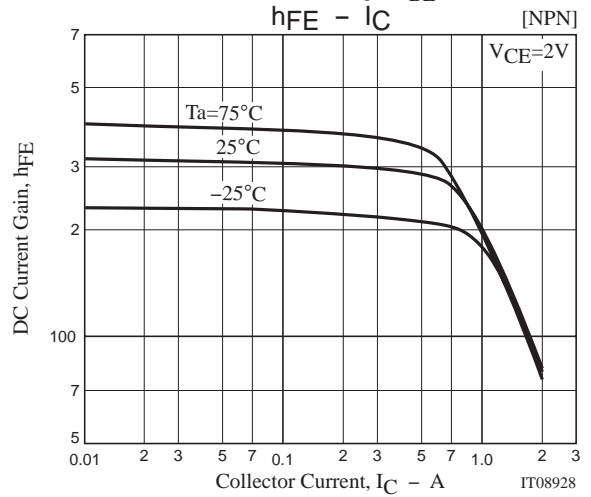
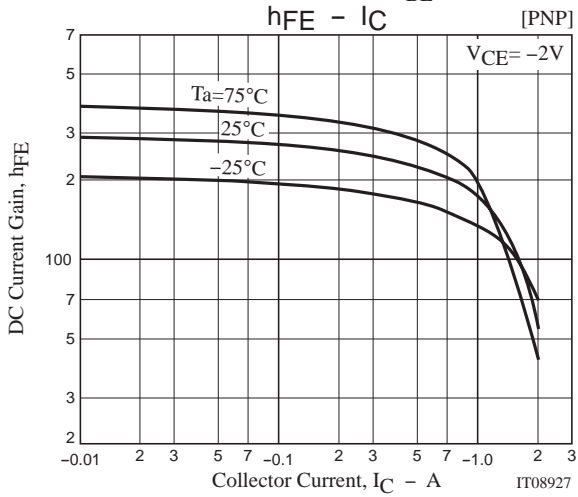
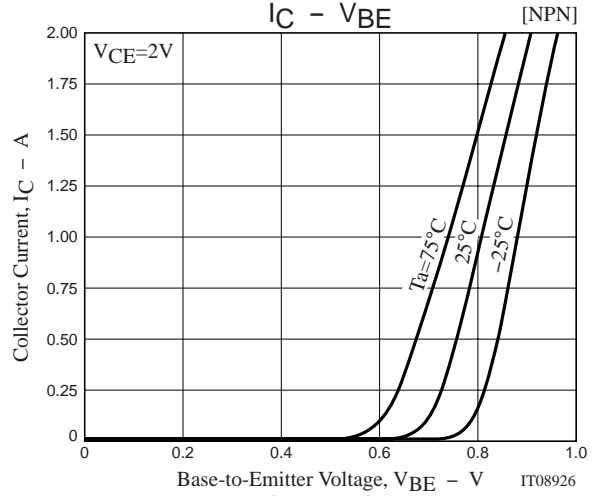
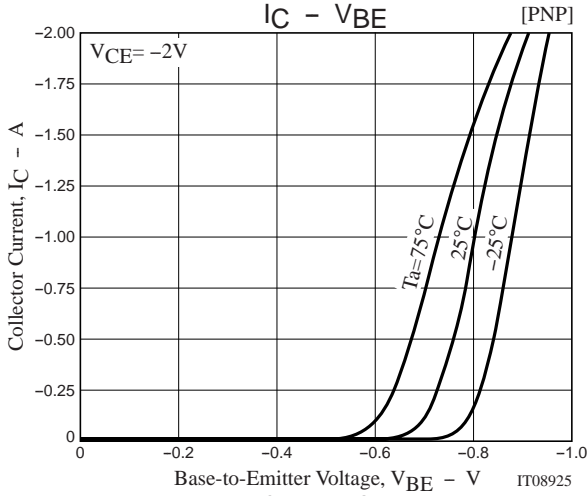
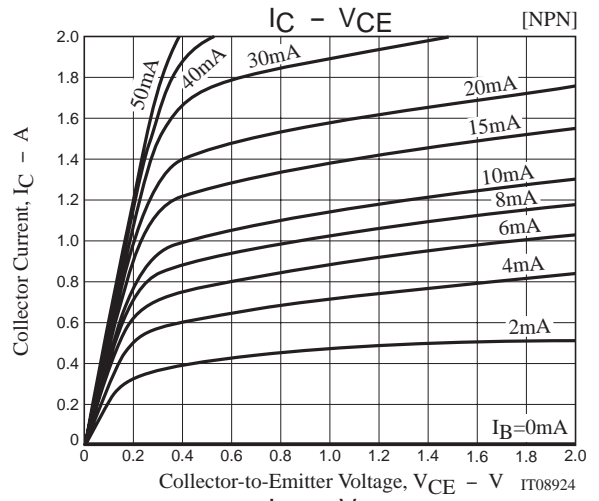
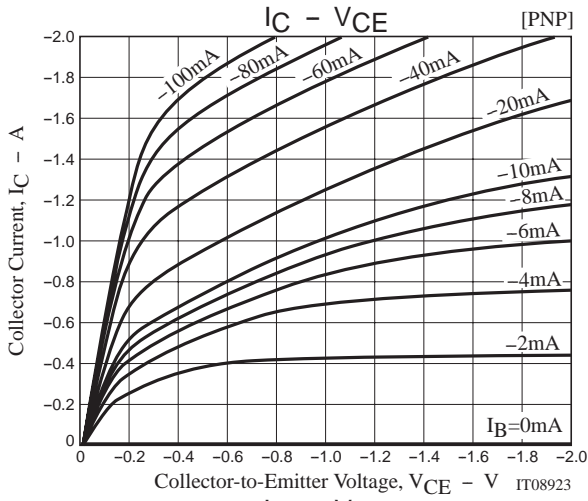
Switching Time Test Circuit



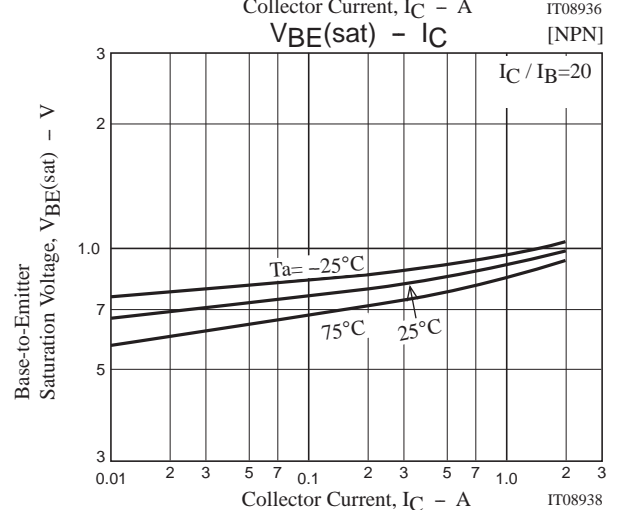
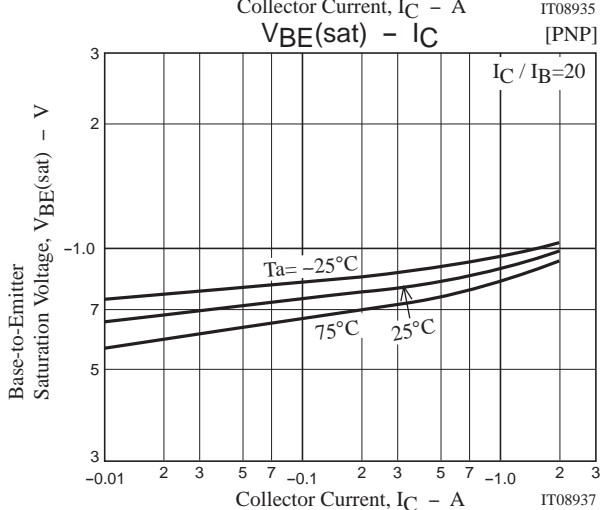
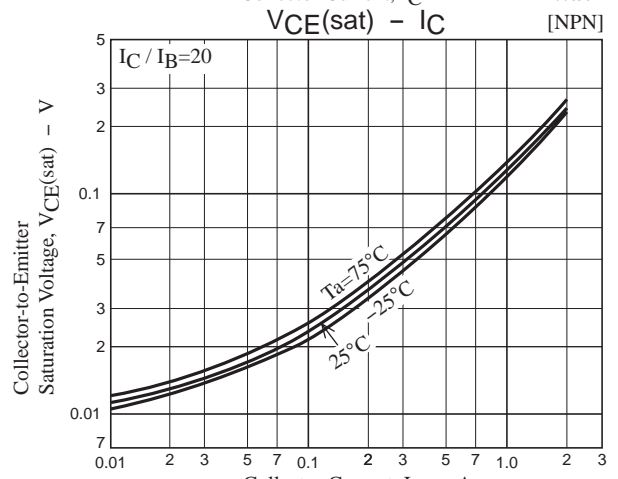
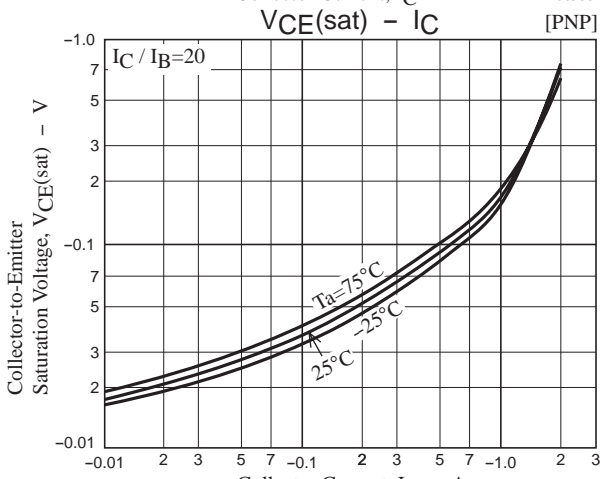
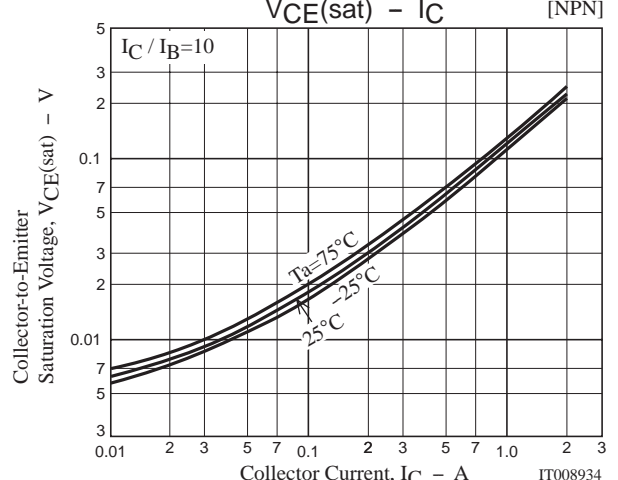
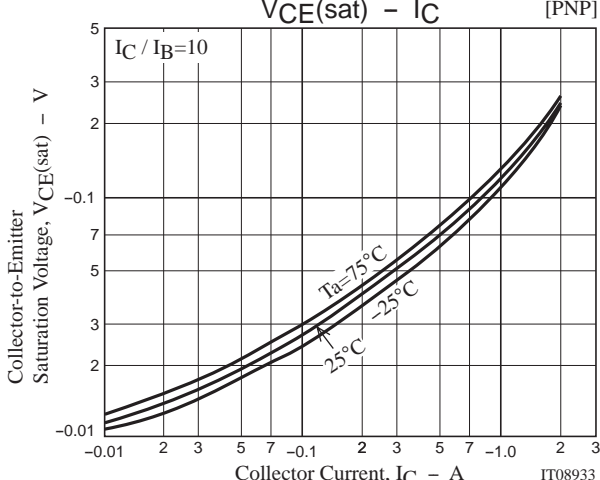
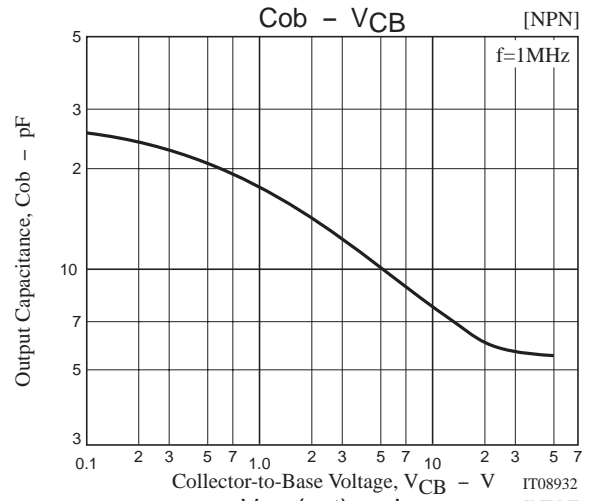
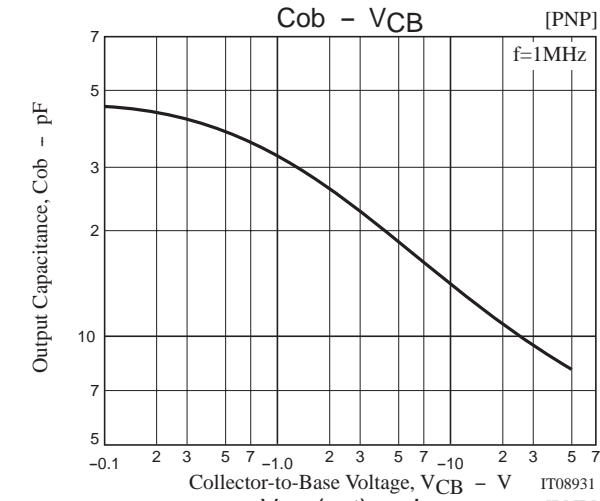
$$I_C = 10I_{B1} = -10I_{B2} = 0.7A$$

For PNP, the polarity is reversed.

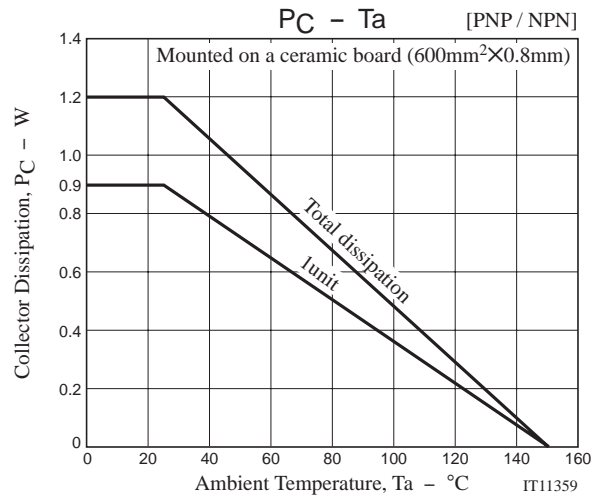
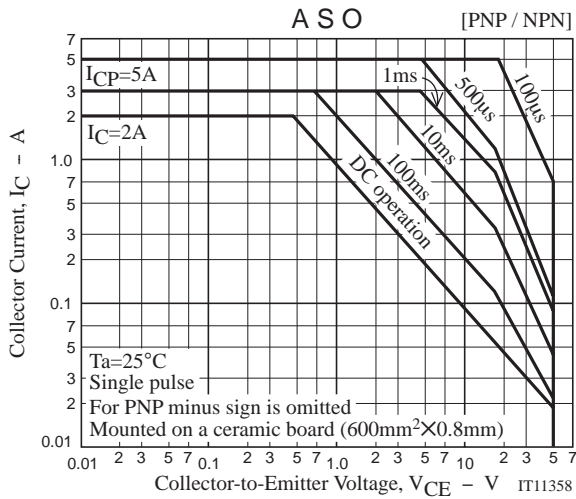
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