



SANYO Semiconductors

DATA SHEET

CPH5516 — PNP / NPN Epitaxial Planar Silicon Transistors High-Current Switching Applications

Applications

- Relay drivers, Lamp drivers, Motor drivers, IGBT gate drive.

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 | V _{CB0} | | (-30) 40 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-) 30 | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-) 5 | V |
| Collector Current | I _C | | (-) 2 | A |
| Collector Current (Pulse) | I _{CP} | PW≤1s | (-) 6 | A |
| Base Current | I _B | | (-) 400 | mA |
| Collector Dissipation | P _C | Mounted on a ceramic board (600mm ² X0.8mm) | 0.9 | W |
| Total Power Dissipation | P _T | Mounted on a ceramic board (600mm ² X0.8mm) | 1.2 | 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} =(-) 30V, I _E =0A | | | (-) 0.1 | μA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =(-) 4V, I _C =0A | | | (-) 0.1 | 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 | | (440) 400 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-) 10V, f=1MHz | | (17) 12 | | pF |

Marking : EK

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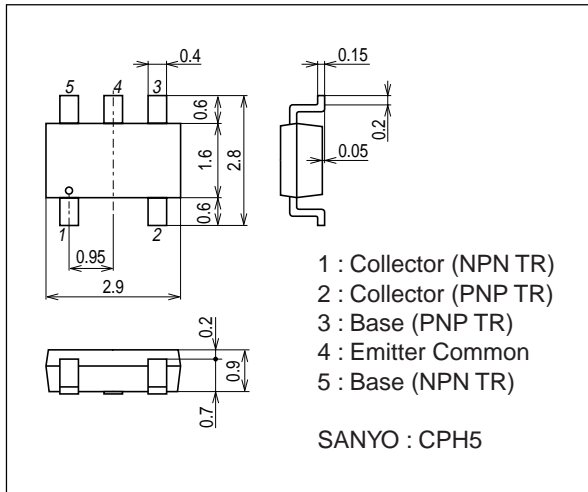
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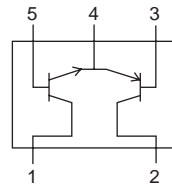
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|------------------------------|----------|------------|------------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-) 1.5A, I_B=(-) 75mA$ | | (-170) 160 | (-260) 240 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-) 1.5A, I_B=(-) 75mA$ | | (-) 0.94 | (-) 1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-) 10\mu A, I_E=0A$ | (-30) 40 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-) 1mA, R_{BE}=\infty$ | (-) 30 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-) 10\mu A, I_C=0A$ | (-) 5 | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | (45) 40 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | (200) 350 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | (23) 30 | | ns |

Package Dimensions

unit : mm
7017-009

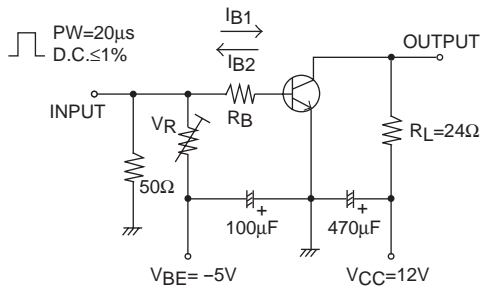


Electrical Connection

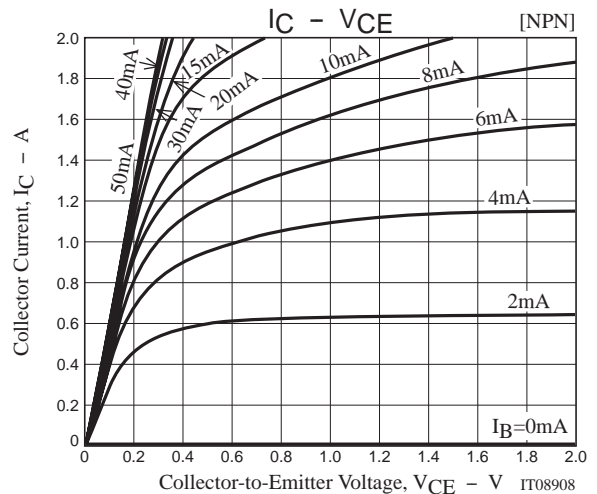
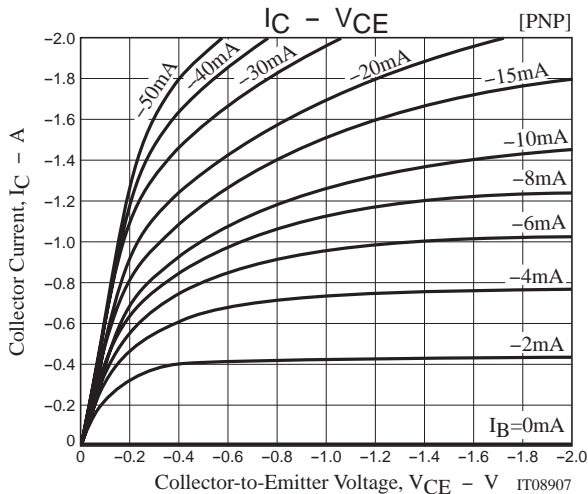


- 1 : Collector (NPN TR)
- 2 : Collector (PNP TR)
- 3 : Base (PNP TR)
- 4 : Emitter Common
- 5 : Base (NPN TR)

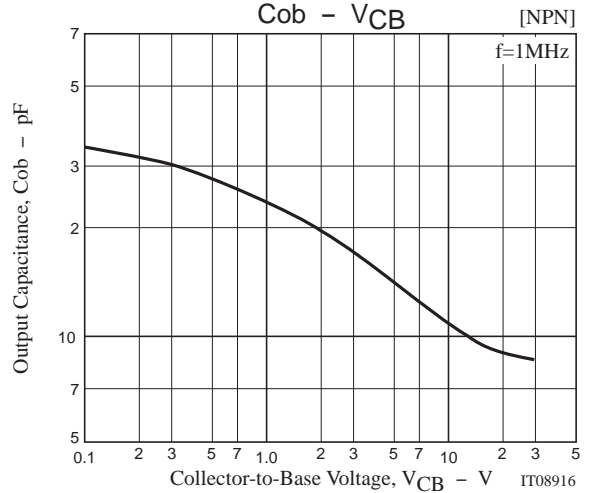
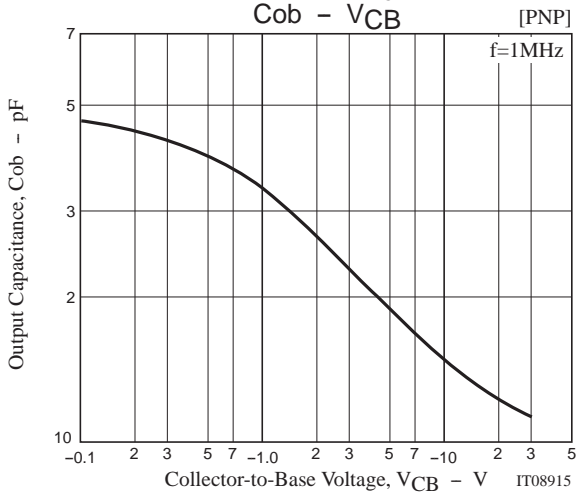
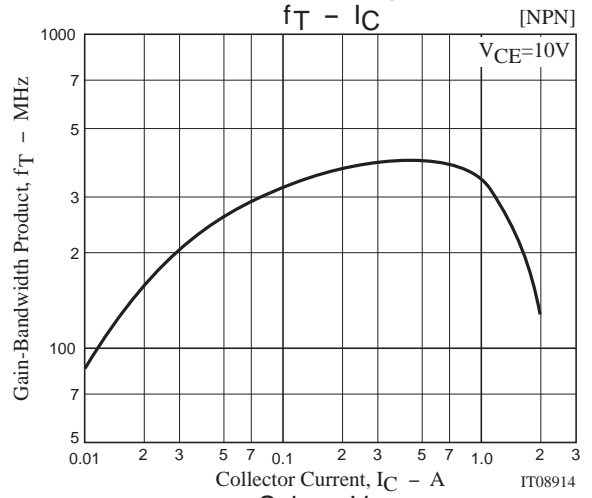
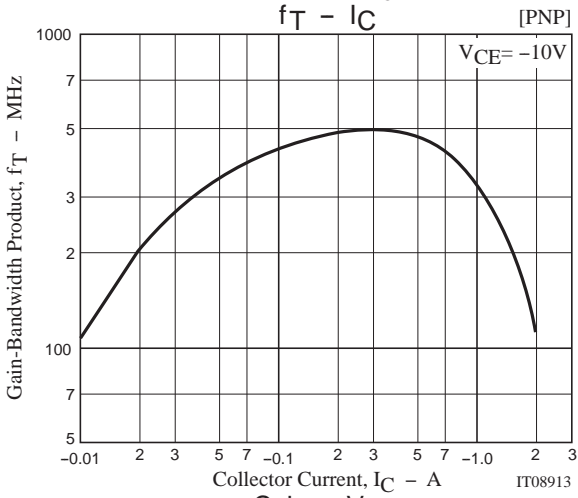
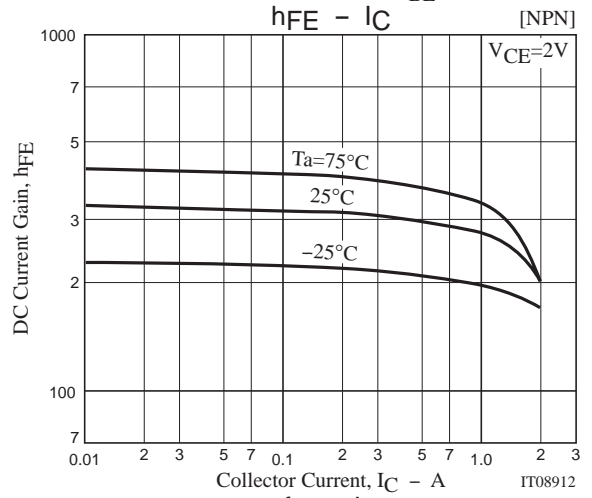
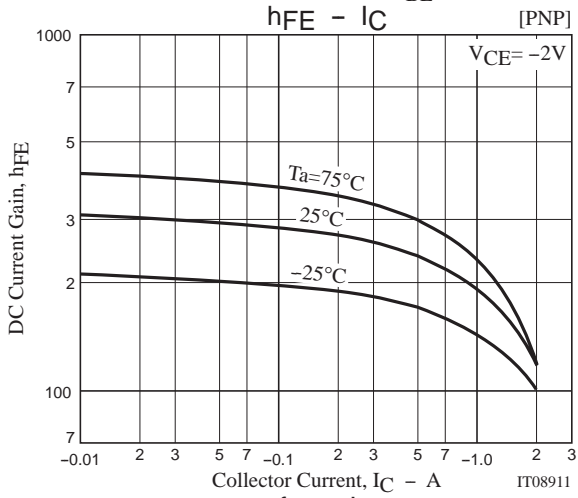
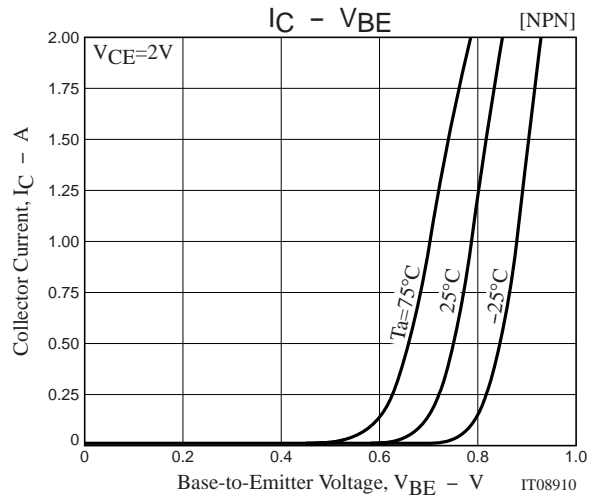
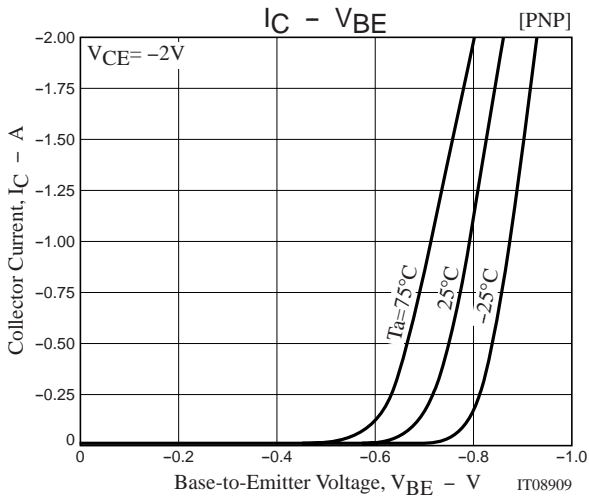
Switching Time Test Circuit



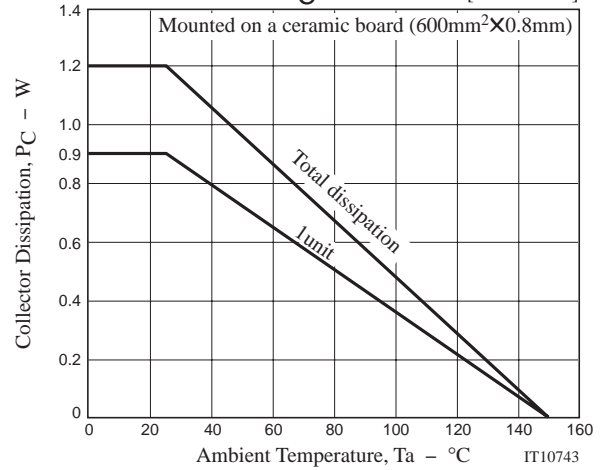
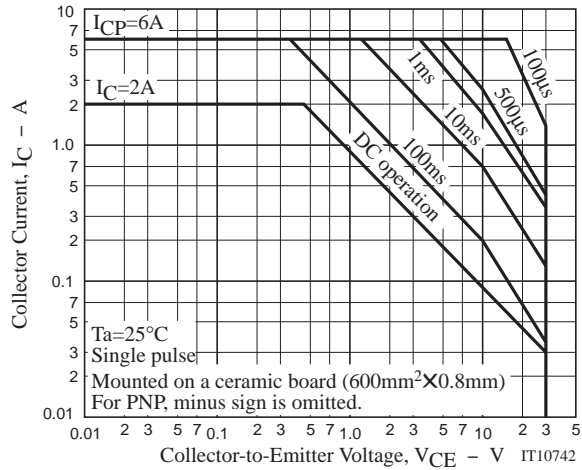
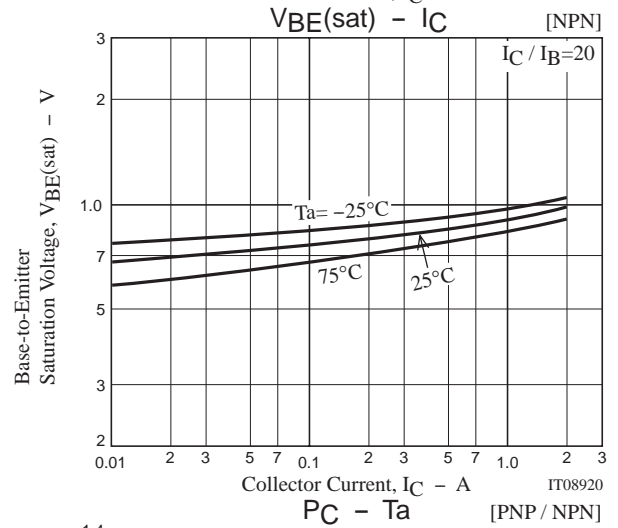
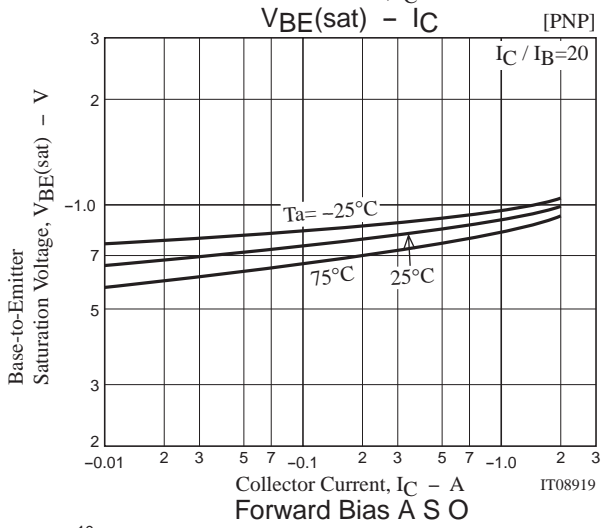
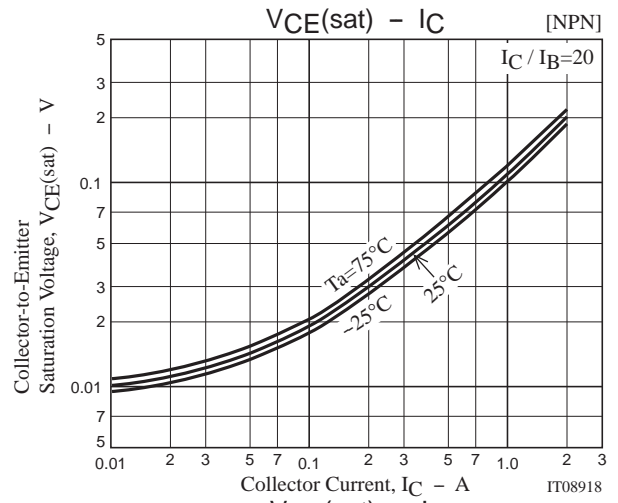
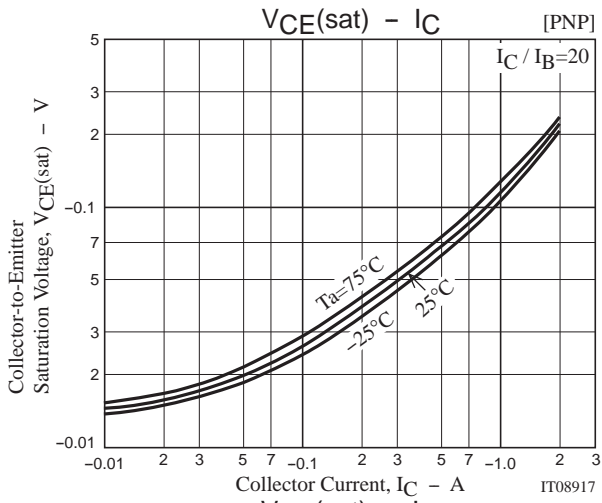
$I_C = 20I_{B1} = -20I_{B2} = 500mA$
For PNP, the polarity is reversed.



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