Ordering number : ENN7170

NPN Epitaxial Planar Silicon Transistor

# CPH5508

## High-Current Switching Applications

## Applications

- Inverters, Relay drivers, Lamp drivers, Motor drivers, Strobes.

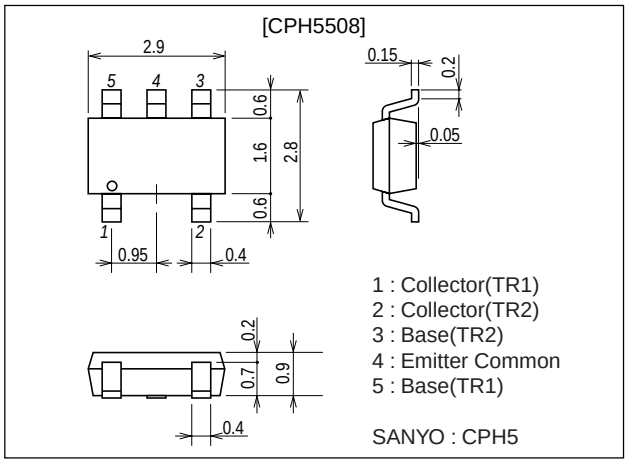
## Features

- Composite type with 2 NPN transistors in one package facilitating high-density mounting.
- The CPH5508 is composed of 2 CPH3216 equivaient chips .
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm).

## Package Dimensions

unit : mm

2162




## Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | 100 | V |
| Collector-to-Emitter Voltage | $V_{CES}$ | | 100 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | 50 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | 5 | V |
| Collector Current | $I_C$ | | 1 | A |
| Collector Current (Pulse) | $I_{CP}$ | | 3 | A |
| Base Current | $I_B$ | | 200 | mA |
| Collector Dissipation | $P_C$ | Mounted on a ceramic board (600mm²×0.8mm) 1unit | 0.9 | W |
| Total Dissipation | $P_T$ | Mounted on a ceramic board (600mm²×0.8mm) | 1.2 | W |
| Junction Temperature | Tj | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |

### Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=40V, $I_E$=0 | | | 0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=4V, $I_C$=0 | | | 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 | | 420 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=10V, f=1MHz | | 6 | | pF |

Note : The specifications shown above are for each individual transistor.

Continued on next page.

Marking : EH



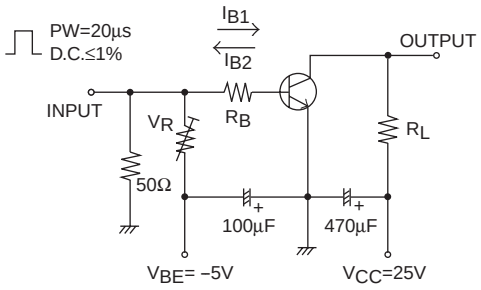
**SANYO Electric Co.,Ltd. Semiconductor Company**

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

Continued from preceding page.

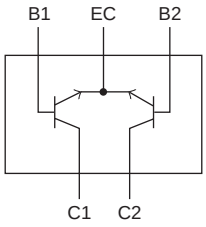
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE}(sat)$ | $I_C$=500mA, $I_B$=10mA | | 130 | 190 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE}(sat)$ | $I_C$=500mA, $I_B$=10mA | | 0.81 | 1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=10μA, $I_E$=0 | 100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CES}$ | $I_C$=100μA, $R_{BE}$=0 | 100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=1mA, $R_{BE}$=∞ | 50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=10μA, $I_C$=0 | 6 | | | V |
| Turn-ON Time | $t_{on}$ | See specified Test Circuit. | | 35 | | ns |
| Storage Time | $t_{stg}$ | See specified Test Circuit. | | 330 | | ns |
| Fall Time | $t_f$ | See specified Test Circuit. | | 40 | | ns |

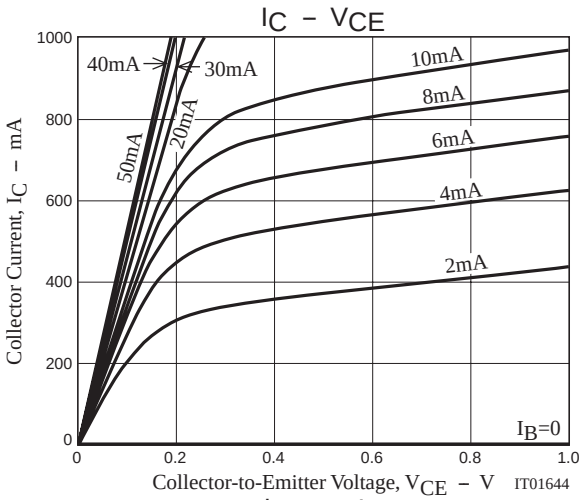
## Switching Time Test Circuit

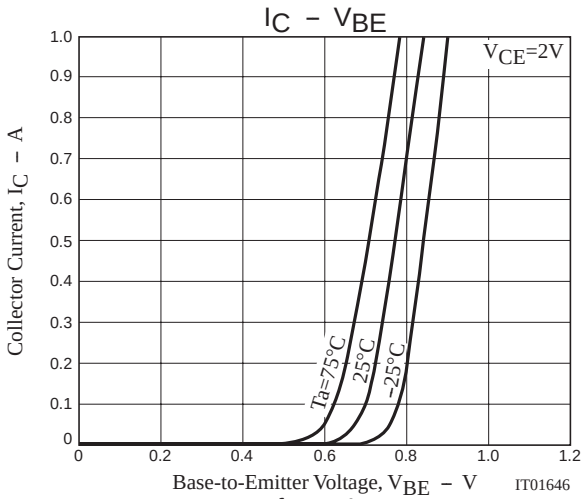


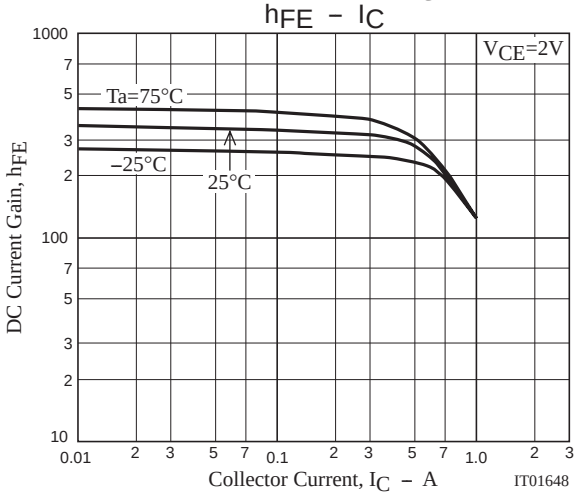

$I_C$=20$I_{B1}$= −20$I_{B2}$=500mA

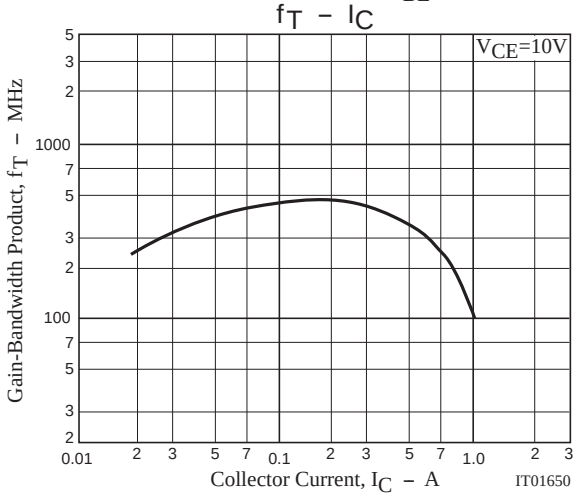
## Electrical Connection



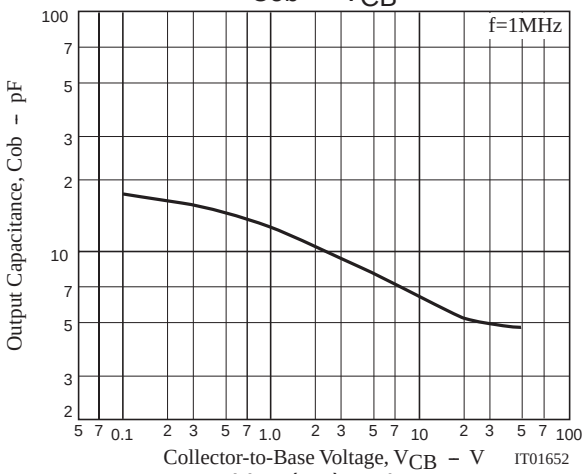



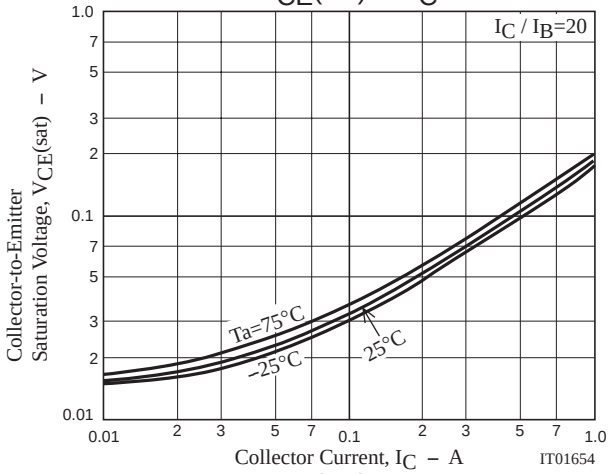



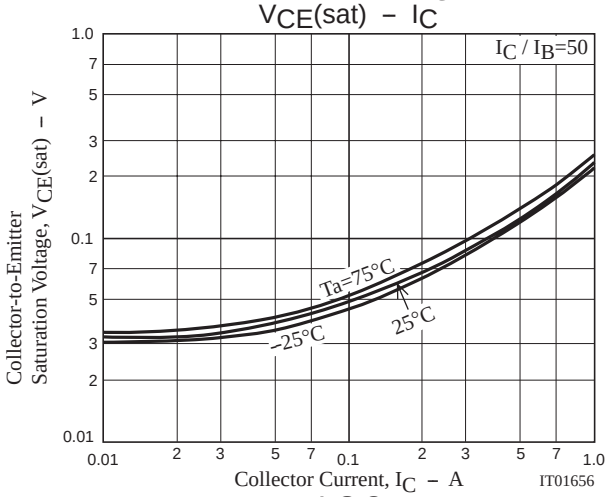
Cob – $V_{CB}$



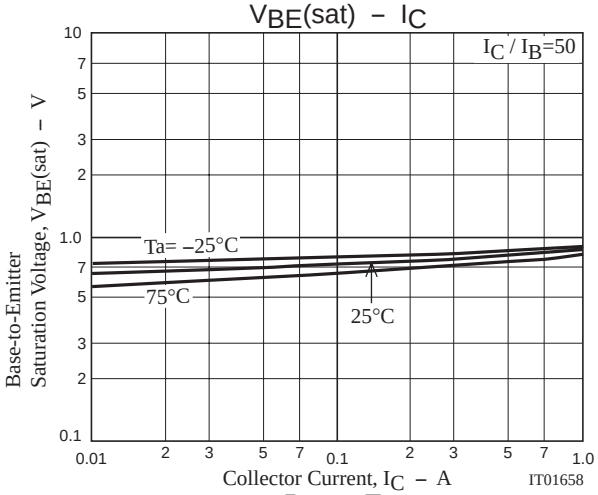

$V_{CE}$(sat) – $I_C$



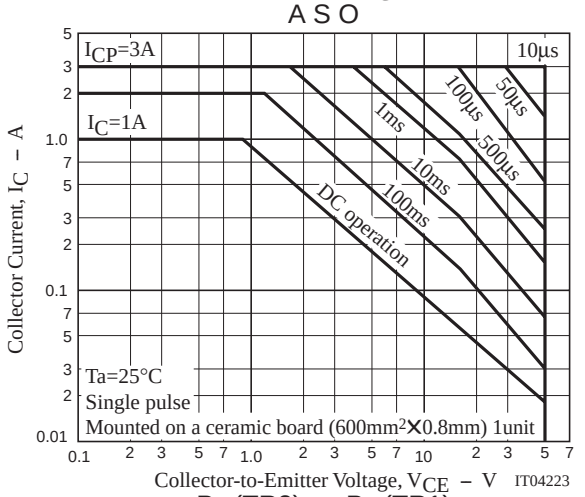

$V_{CE}$(sat) – $I_C$



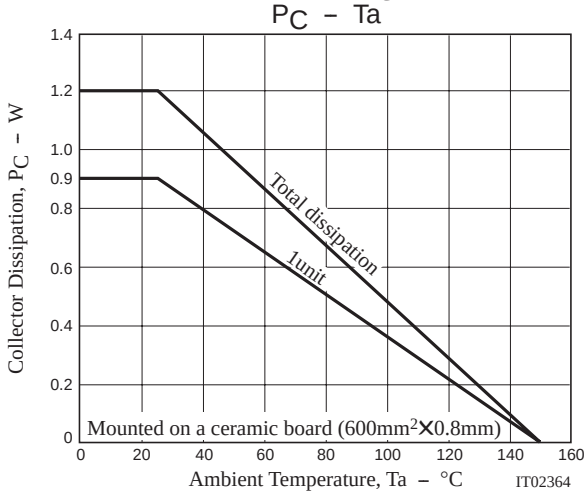

$V_{BE}$(sat) – $I_C$




A S O




$P_C$ – Ta




$P_C$(TR2) – $P_C$(TR1)