



SANYO Semiconductors

## DATA SHEET

# CPH5518

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

## Applications

- Relay drivers, lamp drivers, motor drivers.

## Features

- Composite type with a PNP transistor and an NPN transistor contained in one package, facilitating high-density mounting.
- The CPH5518 consists of two chips encapsulated in a package which are equivalent to the CPH3116 and the CPH3216, respectively.
- Ultrasmall package facilitate miniaturization in end products (0.9mm mounting height).

( ) : PNP

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-50)80	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		(-)50	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		(-)5	V
Collector Current	I <sub>C</sub>		(-)1.0	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)3.0	A
Base Current	I <sub>B</sub>		(-)200	mA
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) 1unit	0.9	W
Total Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)	1.2	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Marking: EN

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SANYO Semiconductor Co., Ltd.

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# CPH5518

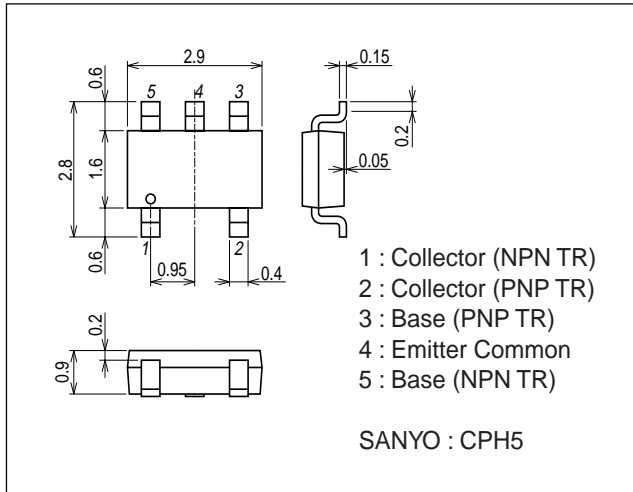
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)40V, I_E = 0A$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0A$			(-)0.1	$\mu A$
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	$C_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		(9)6		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)500mA, I_B = (-)10mA$		(-230)	(-380)	mV
				130	190	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)300A, I_B = (-)6mA$		(-125)	(-200)	mV
				90	135	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	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0A$	(-50)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			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.		(36)38		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		(173)332		ns
Fall Time	$t_f$	See specified Test Circuit.		(28)40		ns

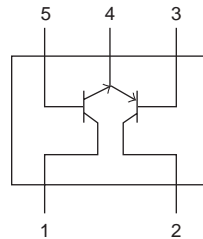
### Package Dimensions

unit : mm (typ)

7017A-009

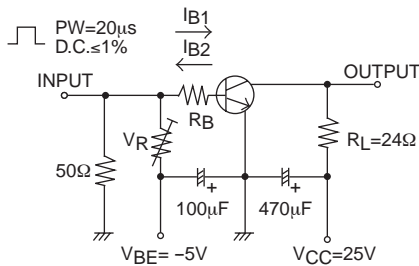


### Electical Connection



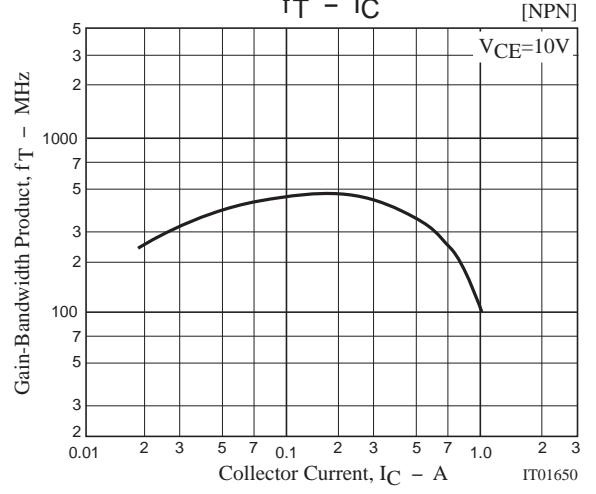
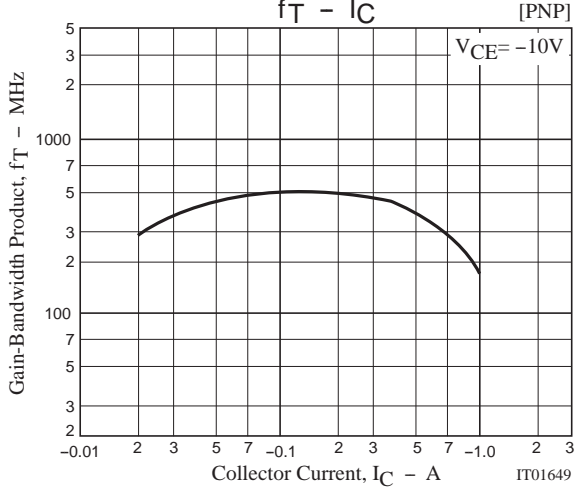
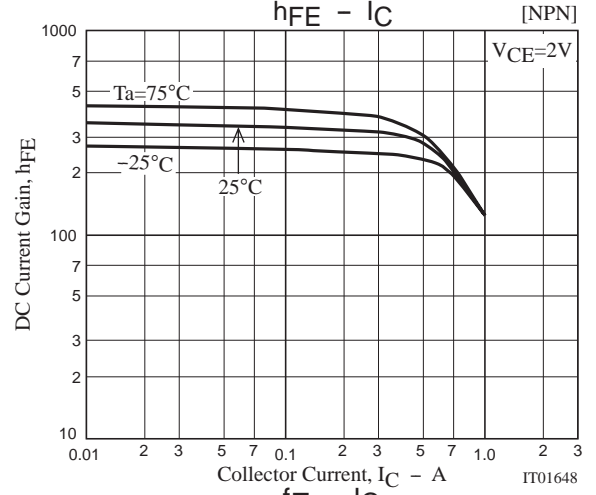
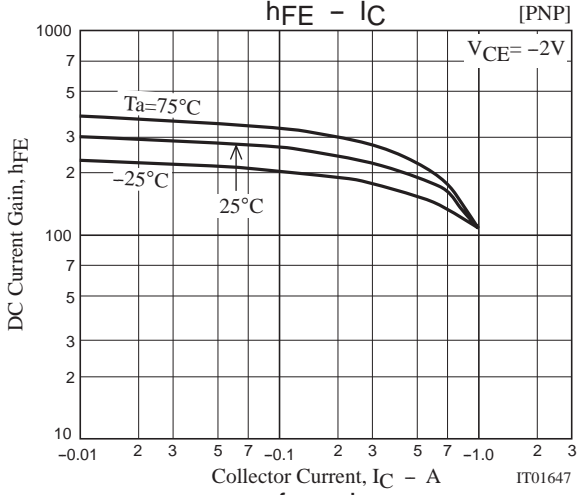
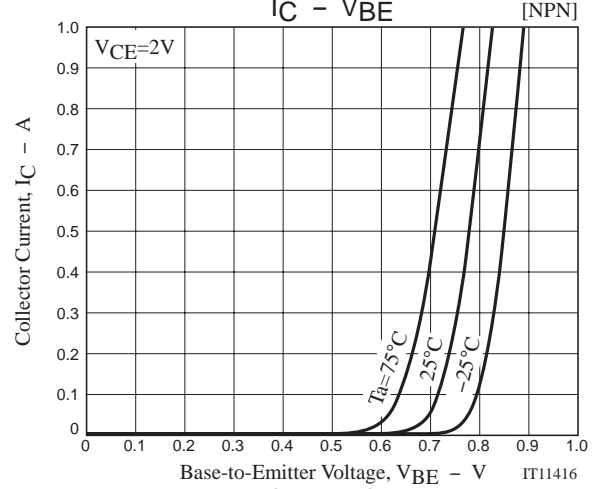
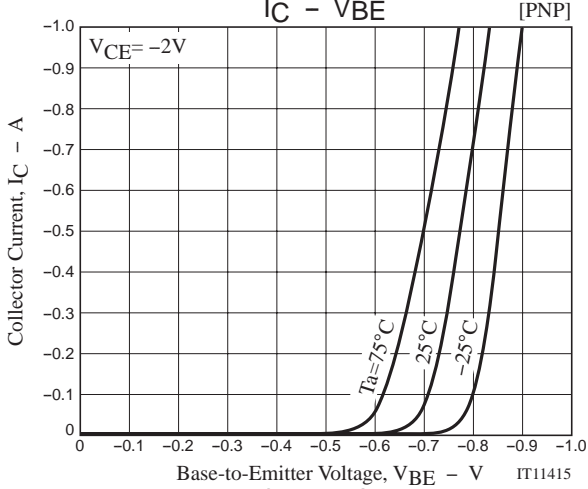
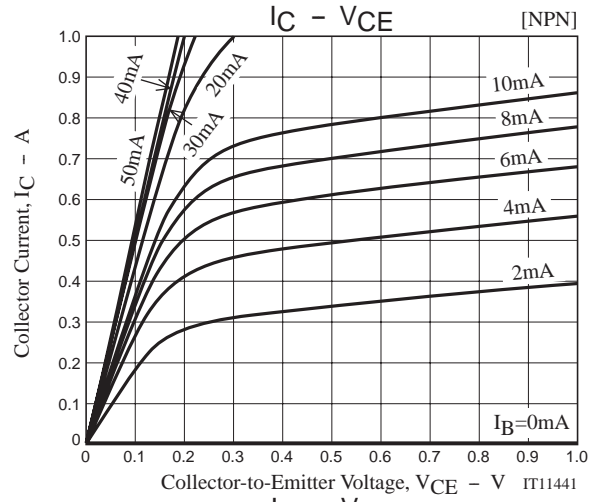
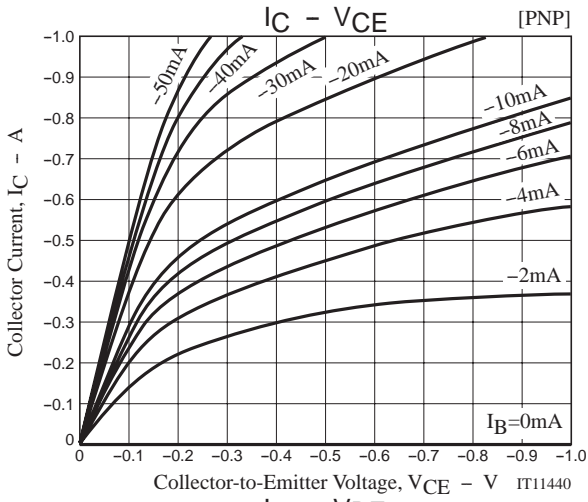
- 1 : Collector (NPN TR)
- 2 : Collector (PNP TR)
- 3 : Base (PNP TR)
- 4 : Emitter Common
- 5 : Base (NPN TR)

### Switching Time Test Circuit

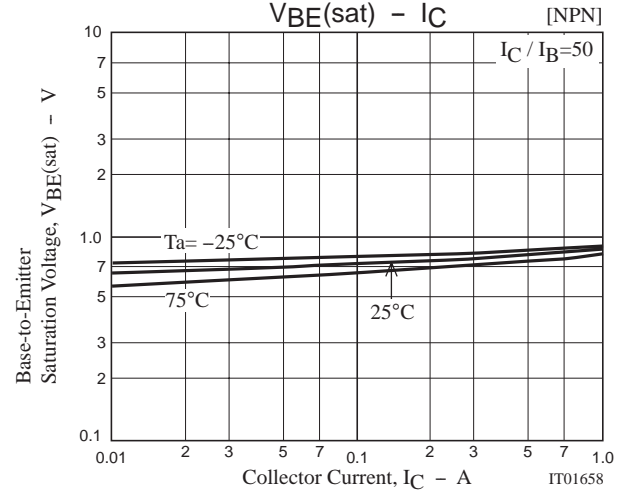
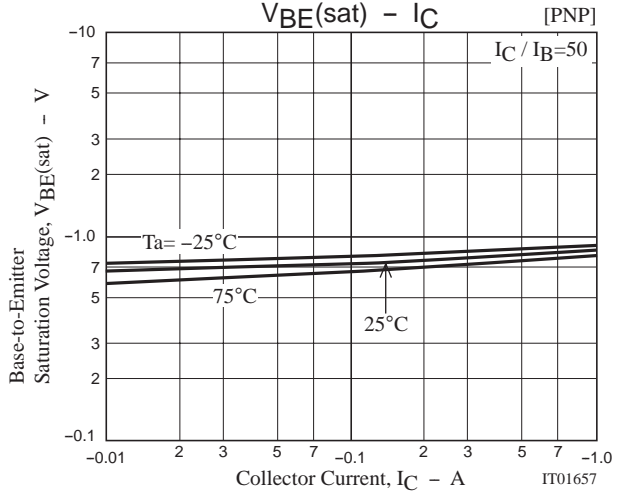
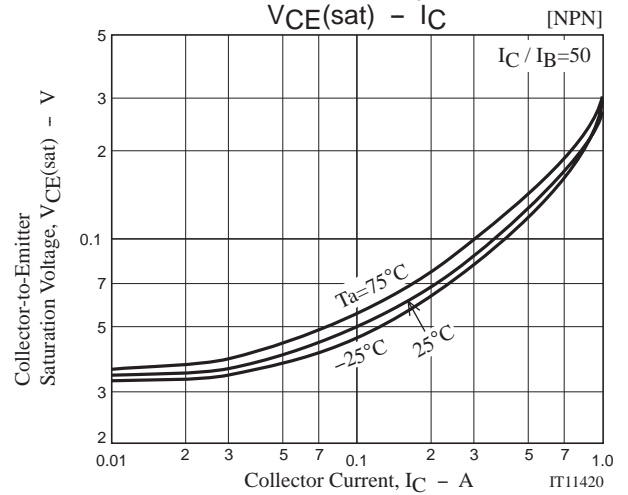
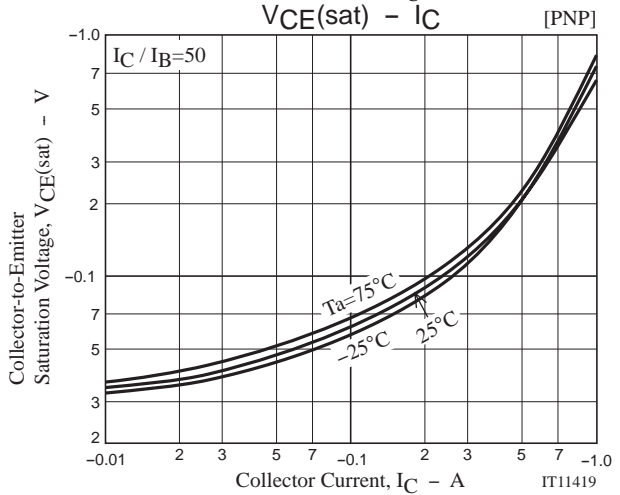
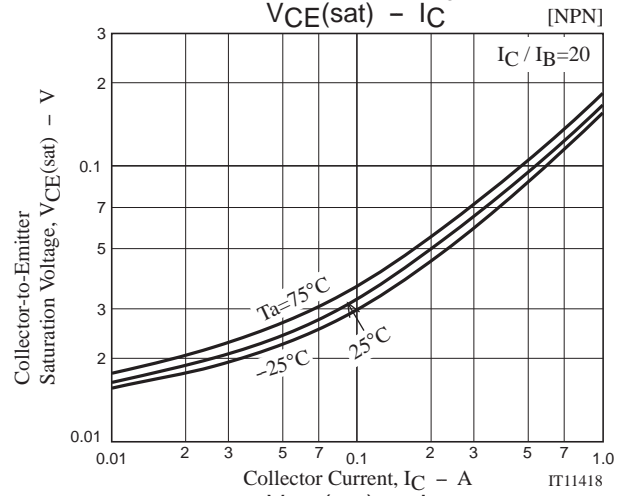
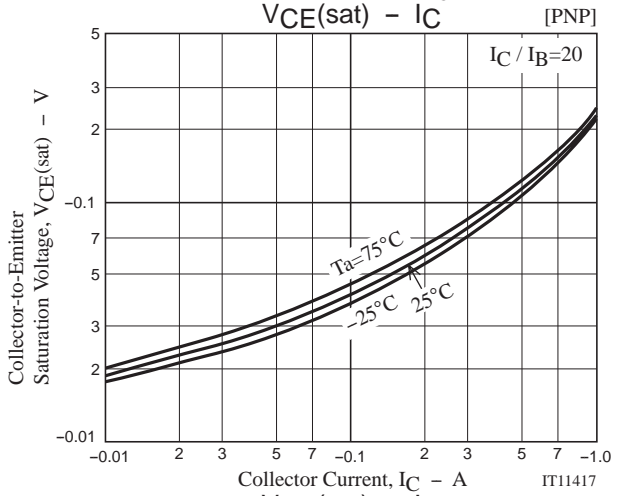
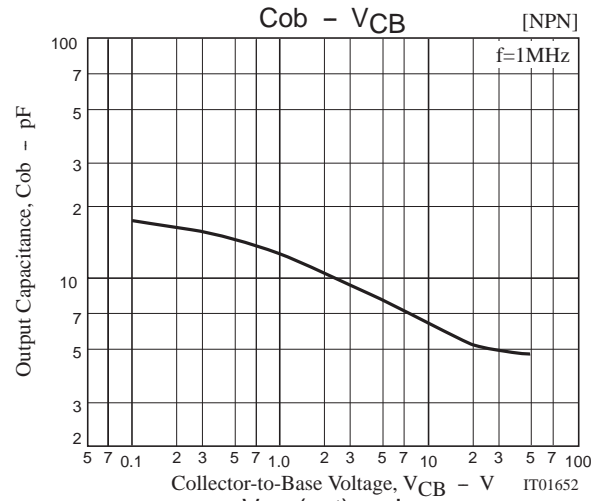
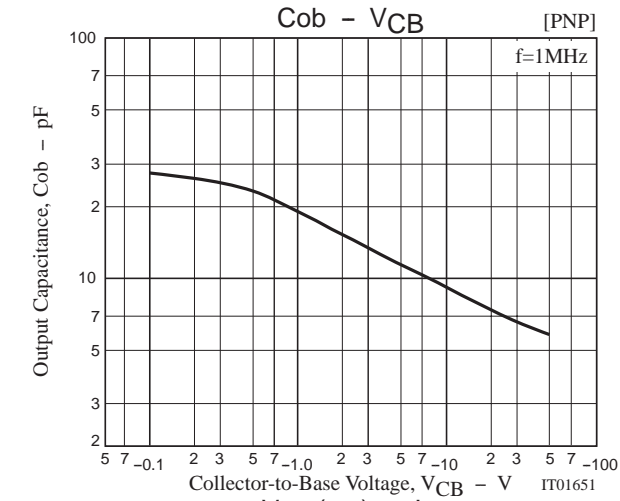


$I_C = 20I_{B1} = -20I_{B2} = 500mA$   
 (For PNP, the polarity is reversed.)

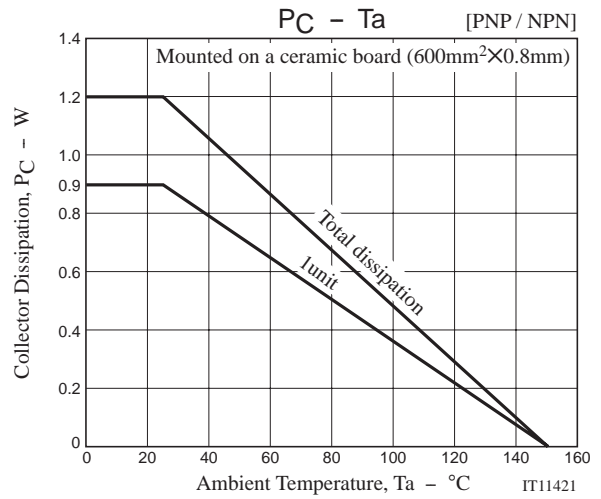
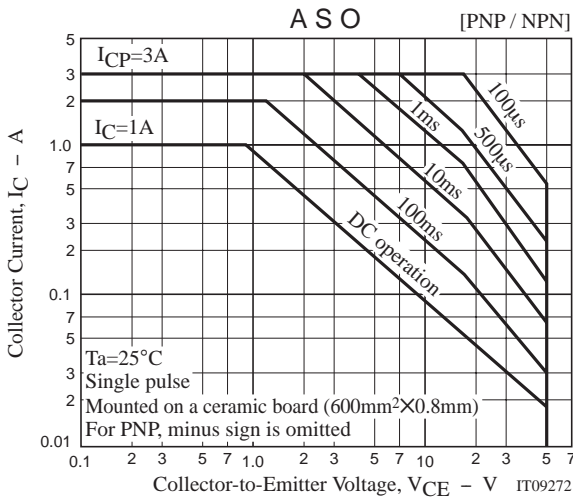
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