



SANYO Semiconductors

## DATA SHEET

# CPH5517

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

## Applications

- relay drivers, lamp drivers, motor drivers.

## Features

- Composite type with a PNP/NPN transistor contained in package, facilitating high-density mounting.
- The CPH5517 consists of two chips which are equivalent to the CPH3116 and the CPH3216, respectively.
- Ultrasmall package permitting applied sets to be small and slim (mounting height : 0.9mm).

## Specifications ( ) : PNP

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-50)60	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)5	V
Collector Current	I <sub>C</sub>		(-)1.0	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)3	A
Base Current	I <sub>B</sub>		(-)200	mA
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm) 1unit	0.9	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0			(-)0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)100mA	200		560	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)300mA		420		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(9)6		pF

Marking : EM

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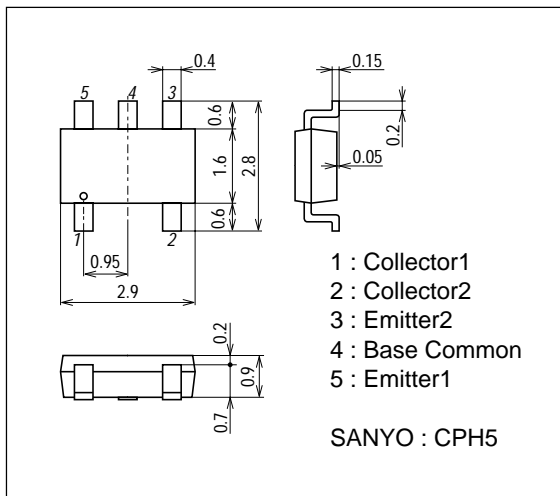
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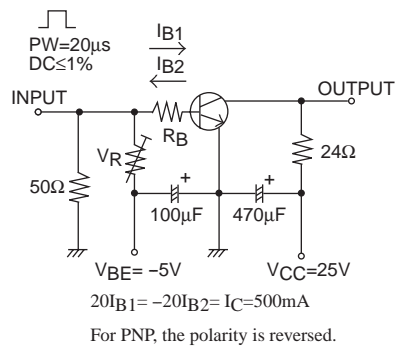
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)10mA$		(-280)	(-430)	mV
		$I_C=(-)300mA, I_B=(-)6mA$		130	190	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500mA, I_B=(-)10mA$		(-)0.81	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-50)	60		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)	50		V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)	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

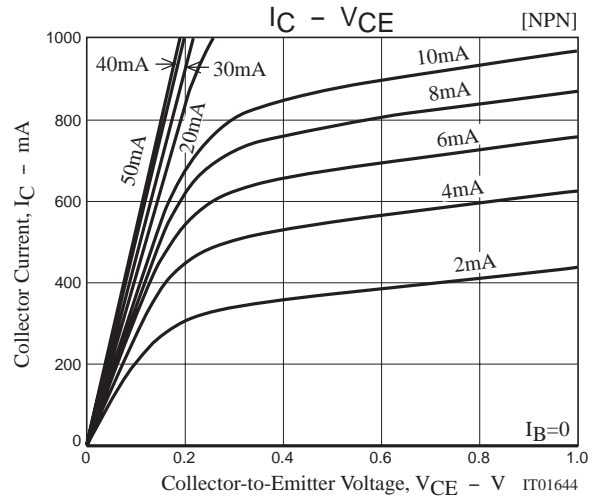
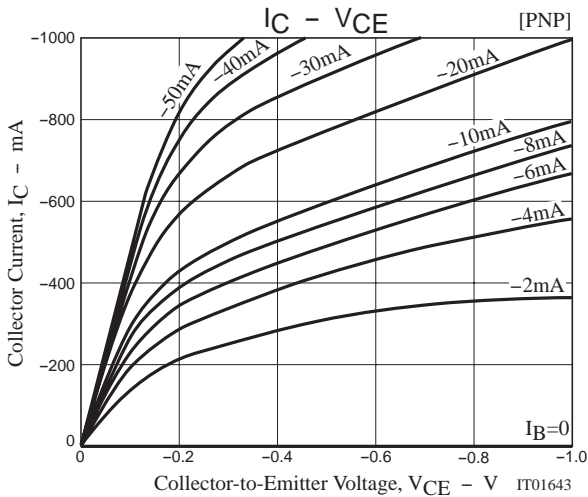
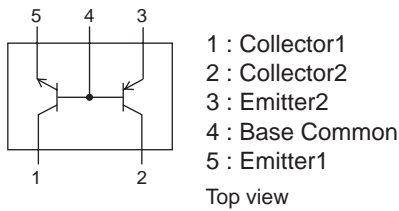
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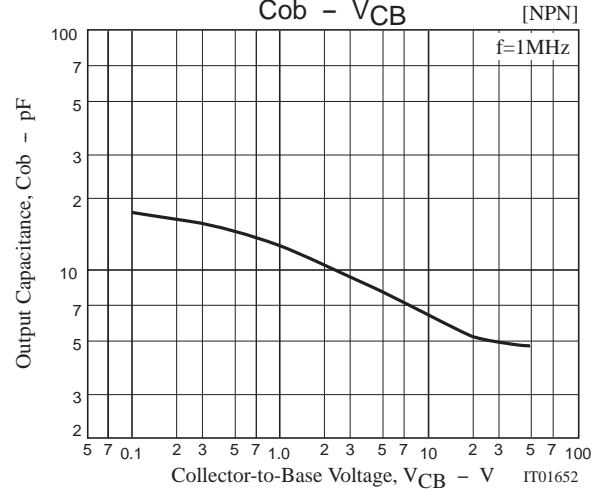
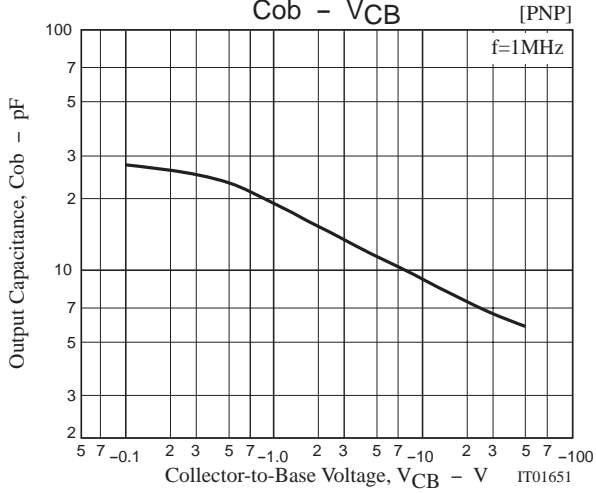
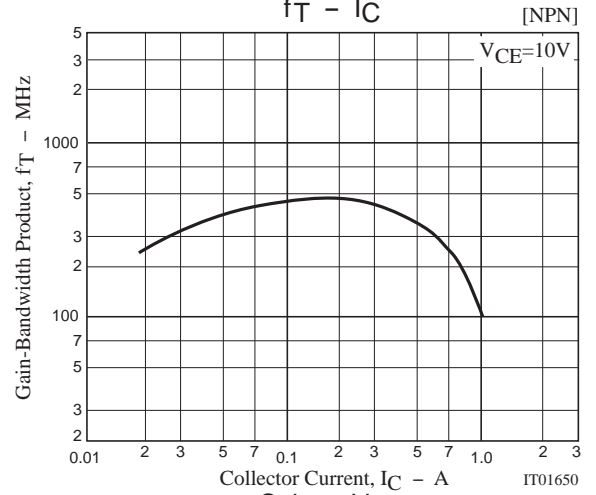
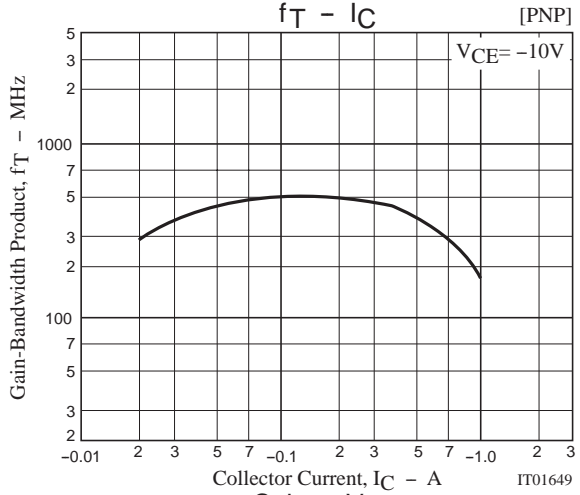
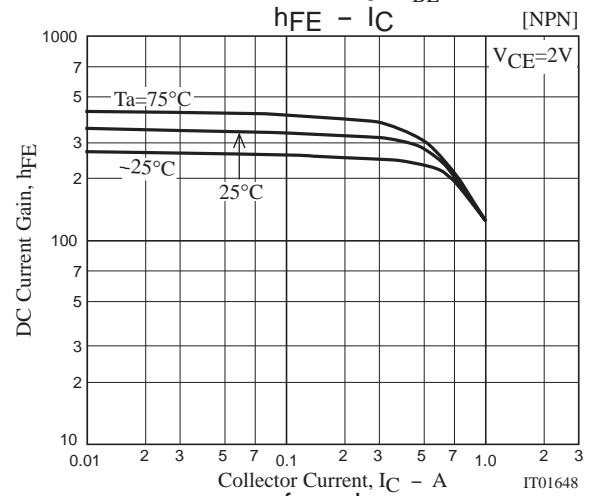
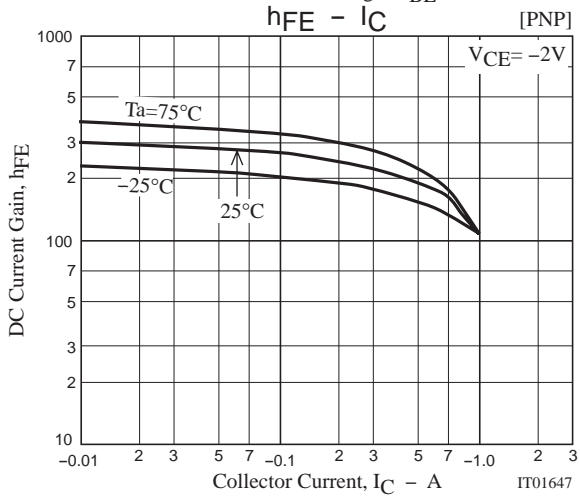
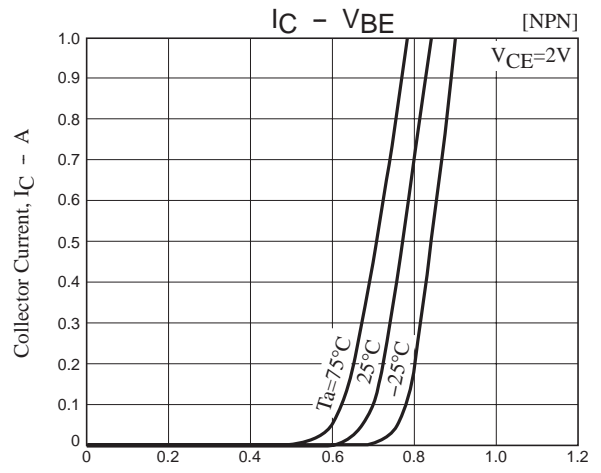
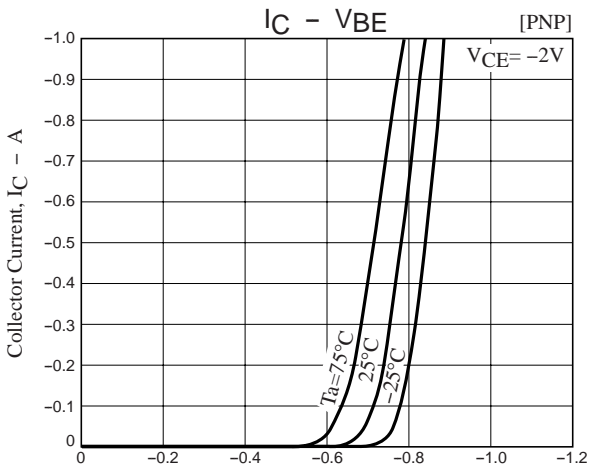
## Switching Time Test Circuit



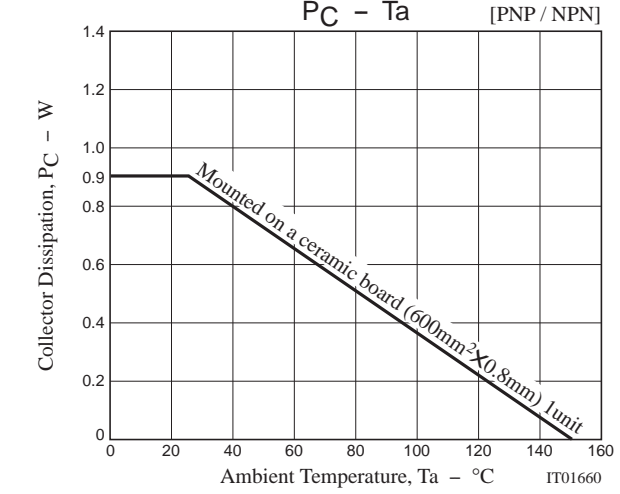
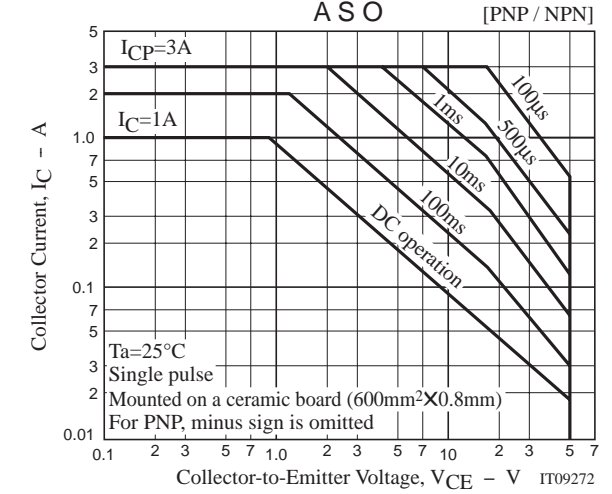
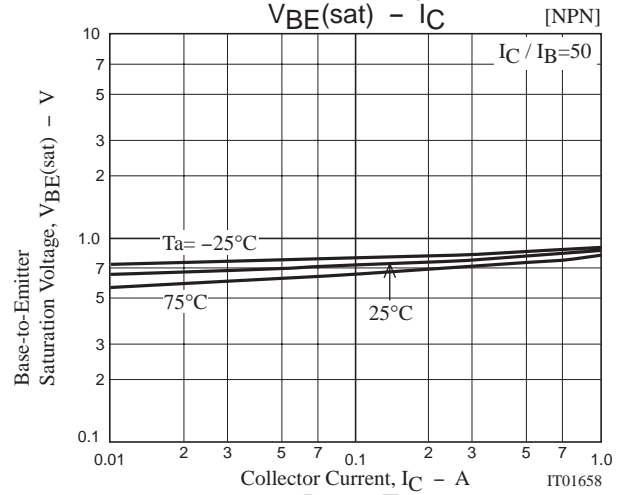
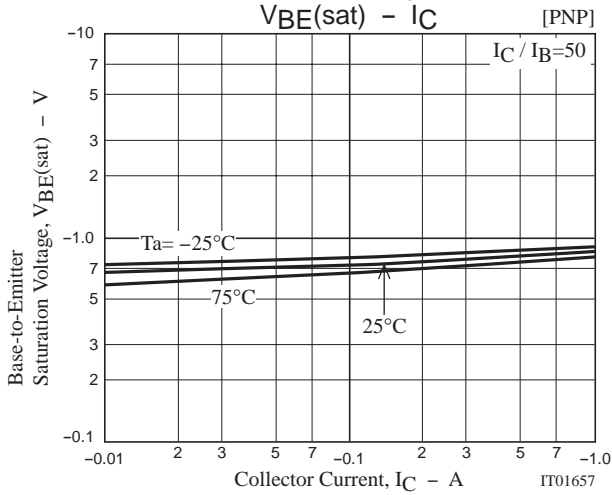
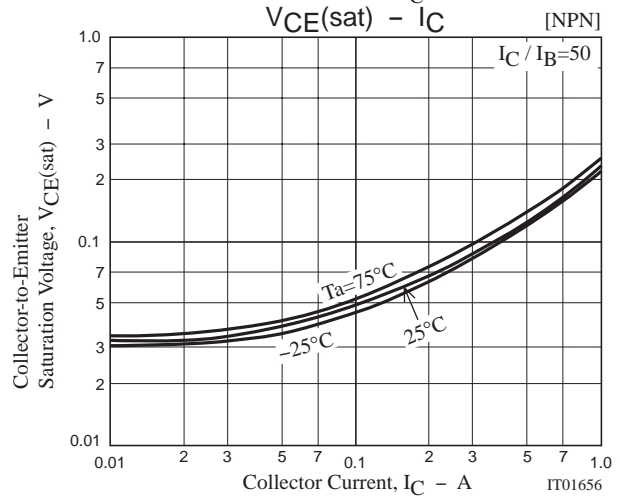
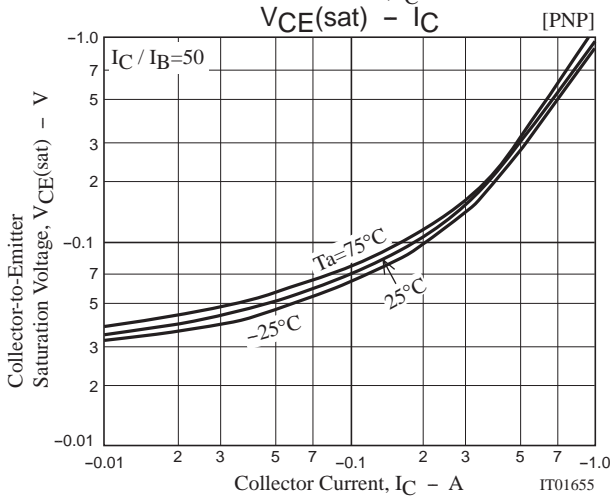
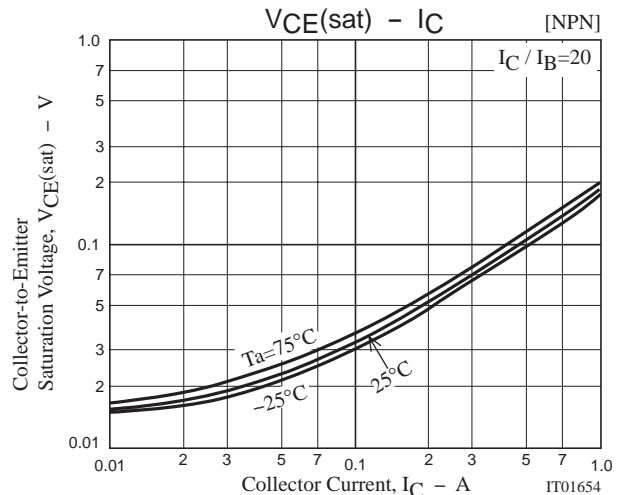
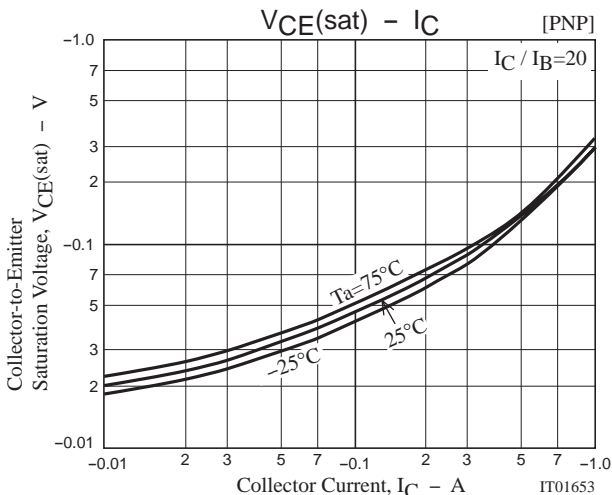
## Electrical Connection



# CPH5517



# CPH5517



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