

PNP/NPN Epitaxial Planar Silicon Transistors



**CPH5506**

## DC / DC Converter Applications

### Applications

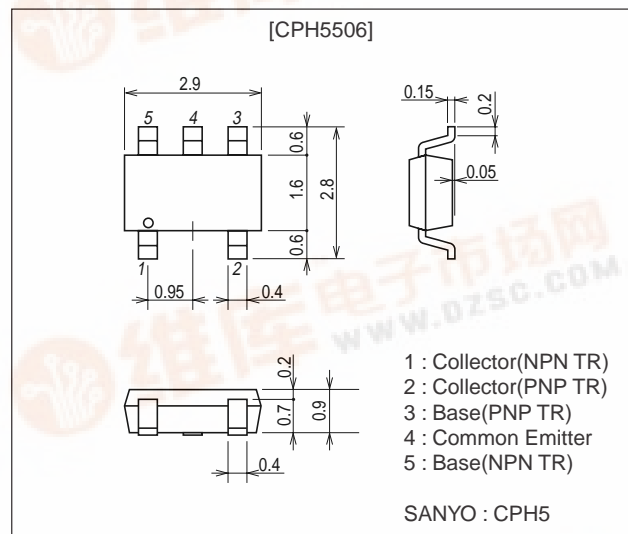
- Relay drivers, Lamp drivers, Motor drivers.

### Features

- Composite type with a PNP transistor and an NPN transistor contained in one package, facilitating high-density mounting.
- The CPH5506 consists of two chips encapsulated in a package which are equivalent to the CPH3115 and the CPH3215, respectively.
- Ultrasmall package facilitate miniaturization in end products. (0.9mm mounting height)

### Package Dimensions

unit : mm  
2186



### Specifications

( ):PNP

**Absolute Maximum Ratings** at  $T_a=25^\circ\text{C}$

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	$V_{EB0}$		(-)5	V
Collector Current	$I_C$		(-)1.5	A
Collector Current (Pulse)	$I_{CP}$		(-)5	A
Base Current	$I_B$		(-)300	mA
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	0.9	W
Total Dissipation	$P_T$	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	1.2	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

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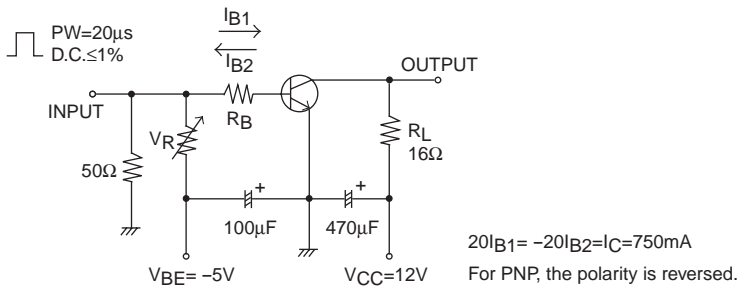
# CPH5506

## Electrical Characteristics at $T_a=25^\circ\text{C}$

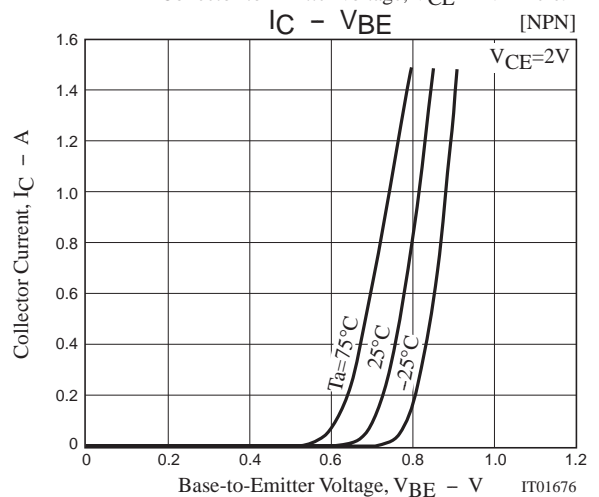
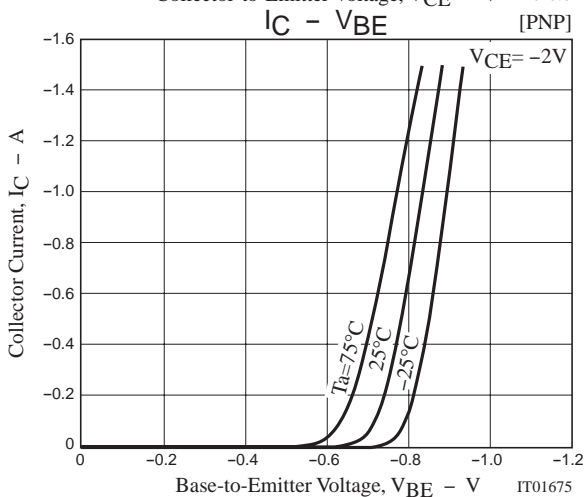
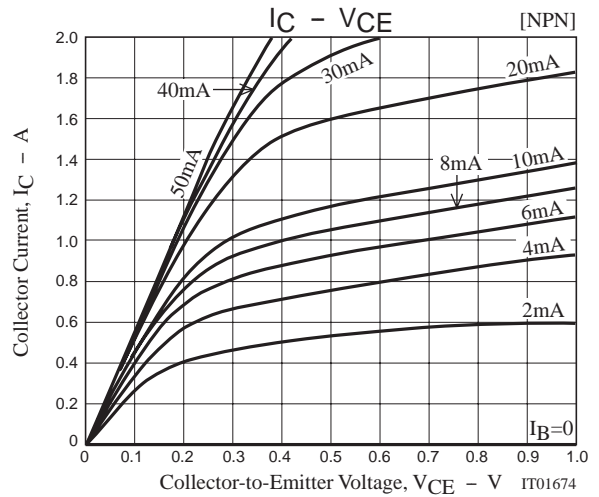
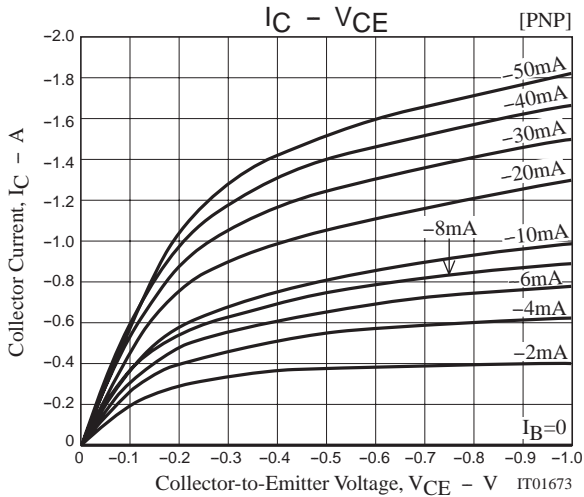
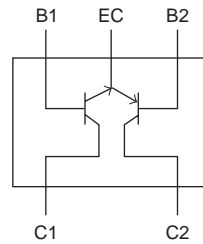
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)30\text{V}, I_E=0$			(-)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4\text{V}, I_C=0$			(-)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2\text{V}, I_C=(-)100\text{mA}$	200		560	
Gain Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)300\text{mA}$		(450)500		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(9)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=(-)750\text{mA}, I_B=(-)15\text{mA}$		(-250)150	(-375)225	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=(-)750\text{mA}, I_B=(-)15\text{mA}$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-30)40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0$	(-)5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		35		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(115)205		ns
Fall Time	$t_f$	See specified Test Circuit		30		ns

Marking : EF

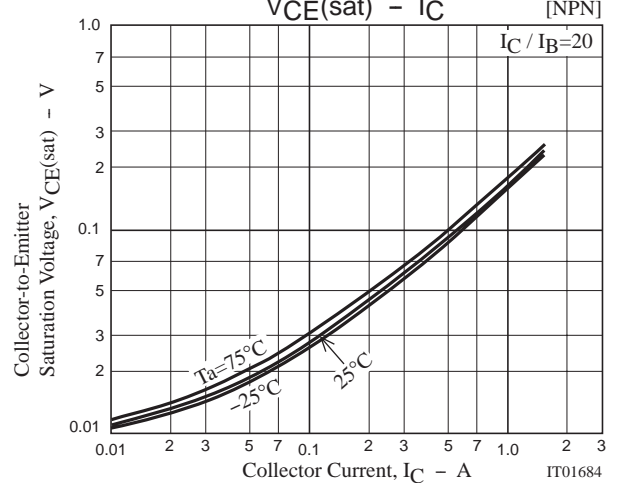
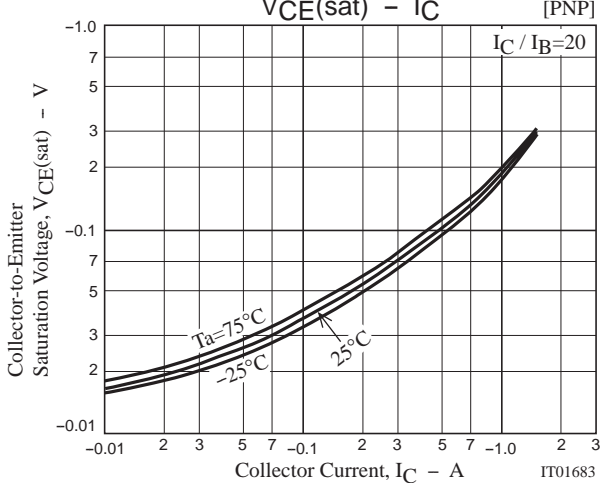
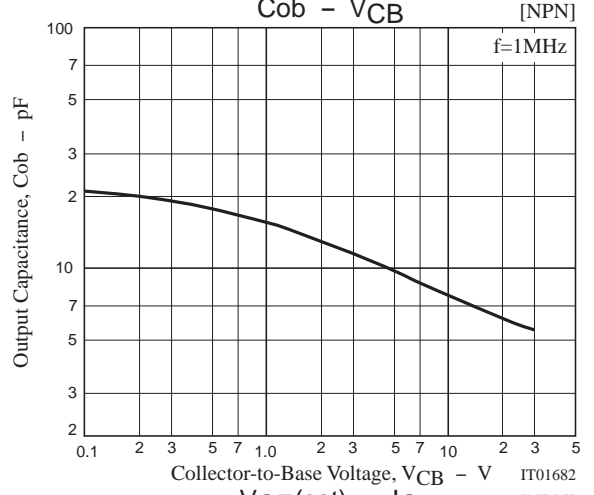
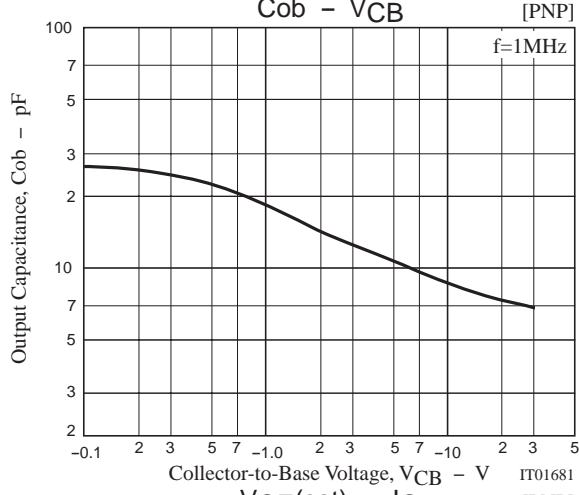
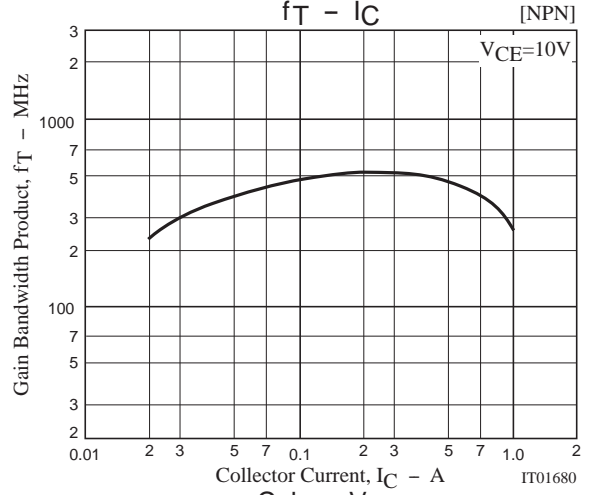
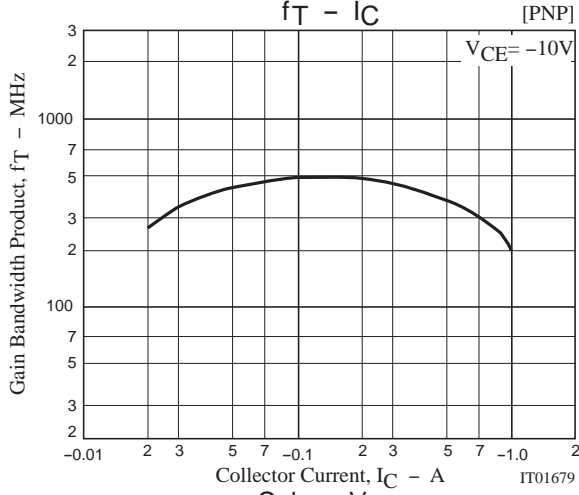
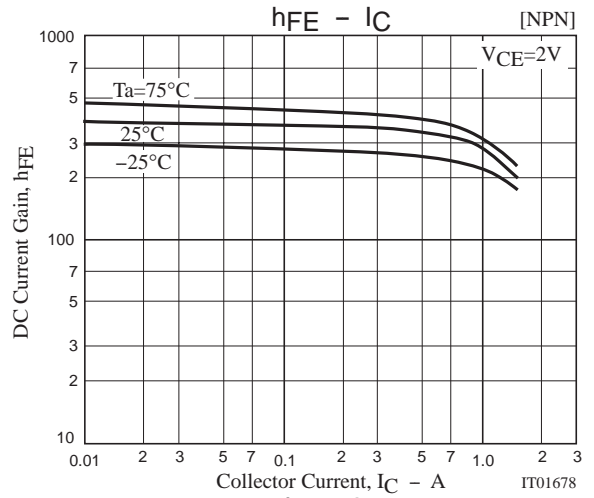
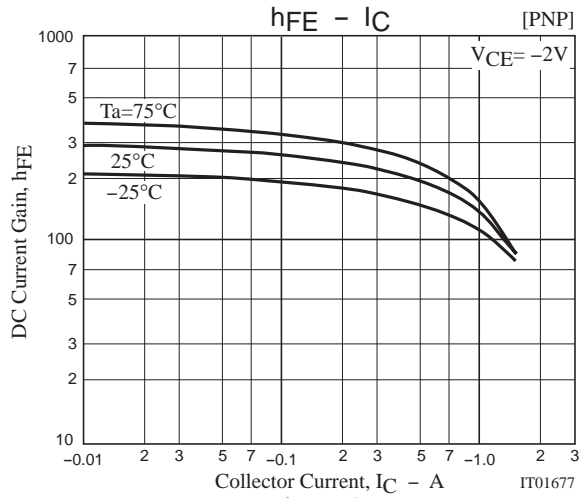
## Switching Time Test Circuit



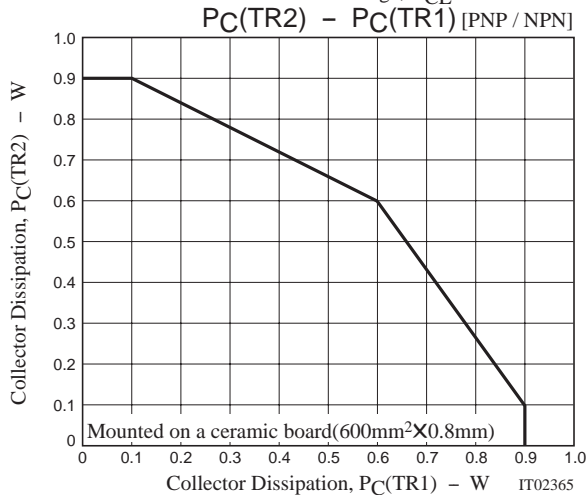
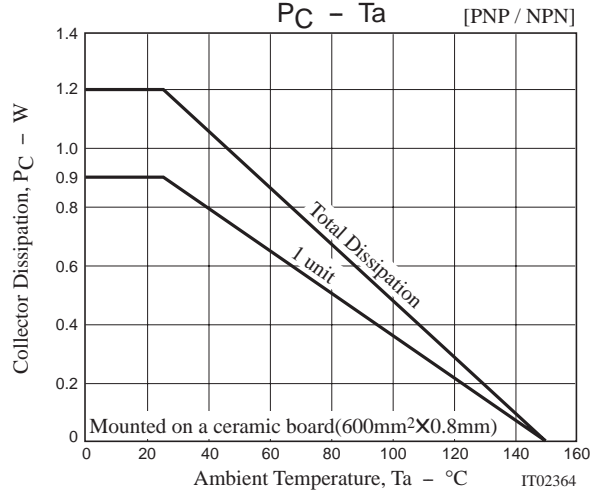
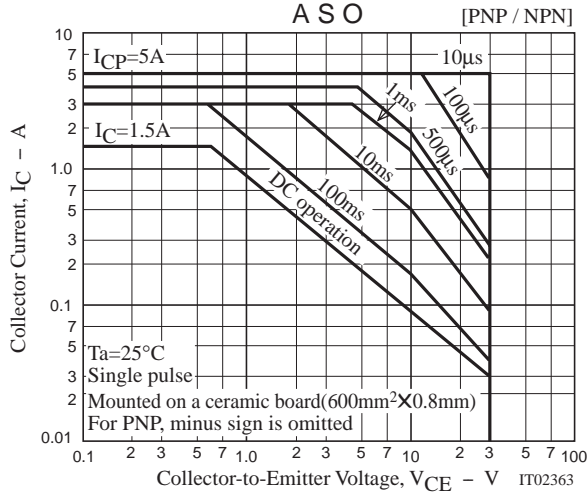
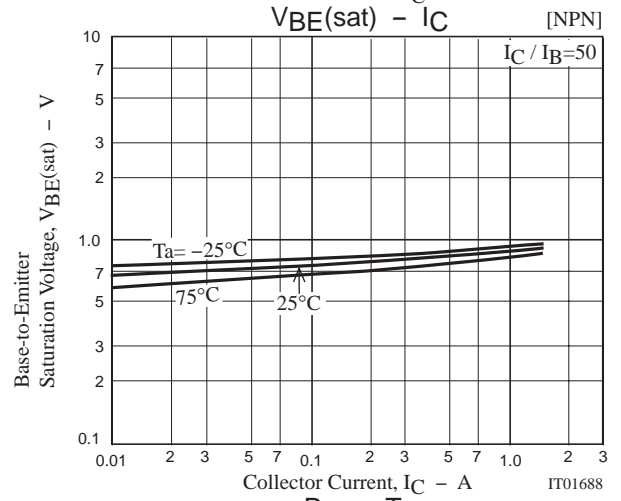
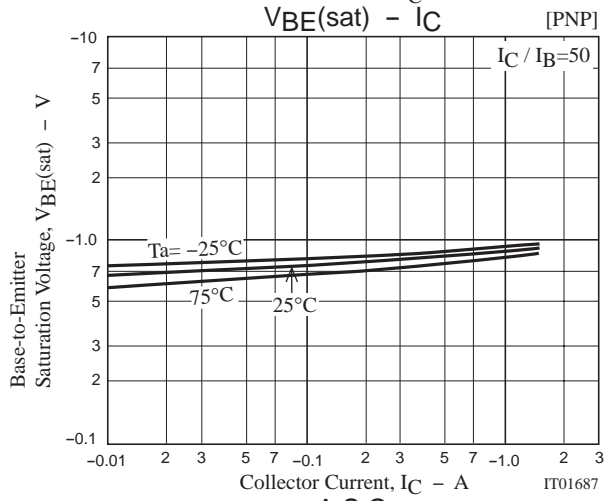
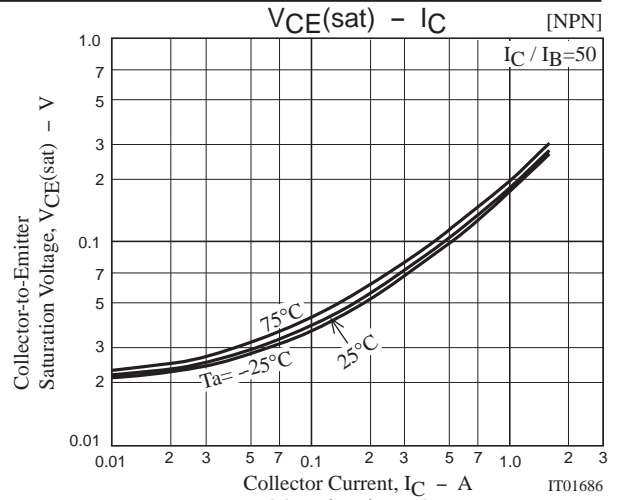
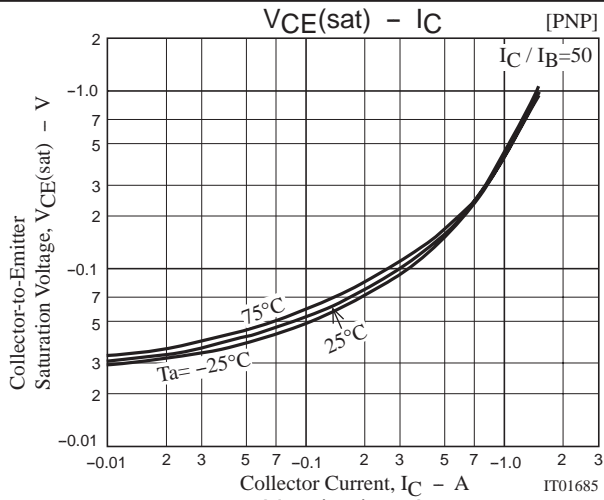
## Electrical Connection



# CPH5506



# CPH5506



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