



## High-Current Switching Applications

### Applications

- DC-DC converter, relay drivers, lamp drivers, motor drivers, strobes.

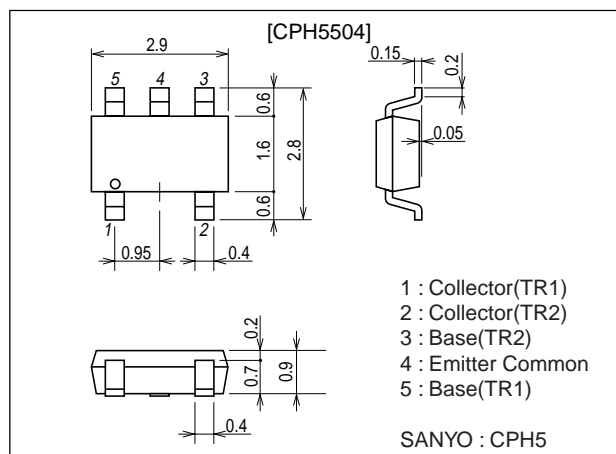
### Features

- Composite type with 2 NPN transistors in one package facilitating high-density mounting.
- The CPH5504 is composed of 2 chips each equivalent to the CPH3205.
- Ultrasmall-sized 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 <sub>CB0</sub>		80	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		80	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		6	V
Collector Current	I <sub>C</sub>		3	A
Collector Current (Pulse)	I <sub>CP</sub>		6	A
Base Current	I <sub>B</sub>		600	mA
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	0.9	W
Total Power Dissipation	P <sub>T</sub>	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	1.2	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +15	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0			1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			1	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA	200		560	
	h <sub>FE2</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =3A	70			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA		380		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		13		pF

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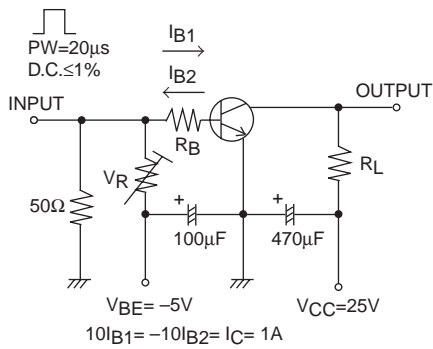
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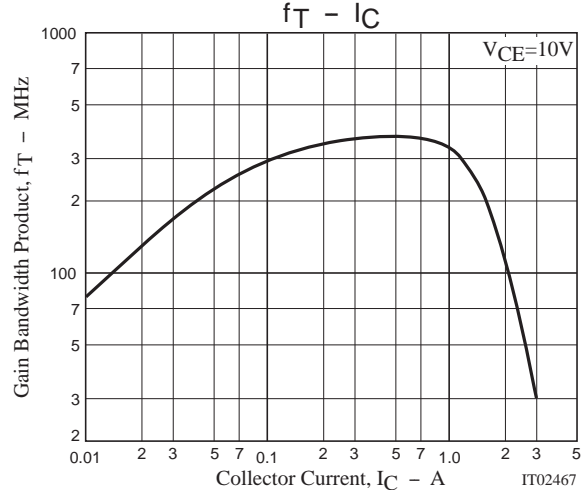
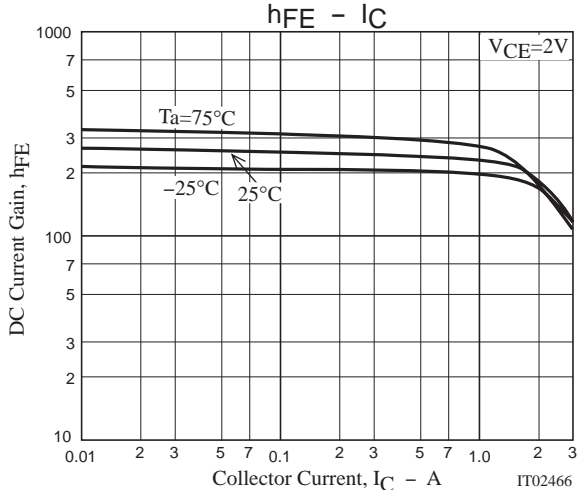
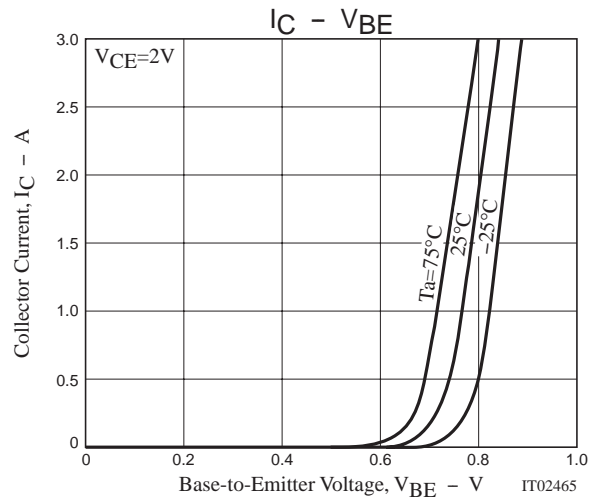
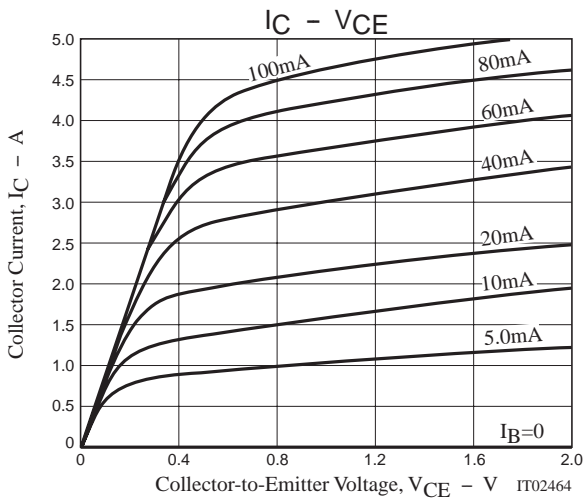
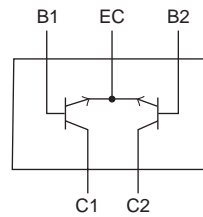
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A, I_B=50mA$		80	120	mV
	$V_{CE(sat)}$	$I_C=2A, I_B=100mA$		140	210	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=100mA$		0.88	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80			V
Collector-to-Base Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=0$	80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		35		ns
Storage Time	$t_{stg}$	See specified Test Circuit		300		ns
Fall Time	$t_f$	See specified Test Circuit		22		ns

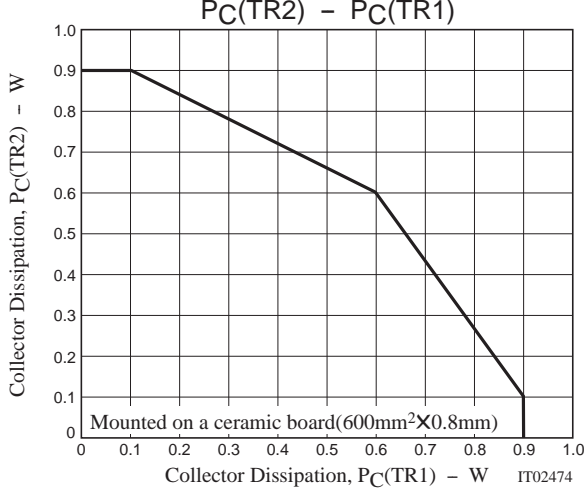
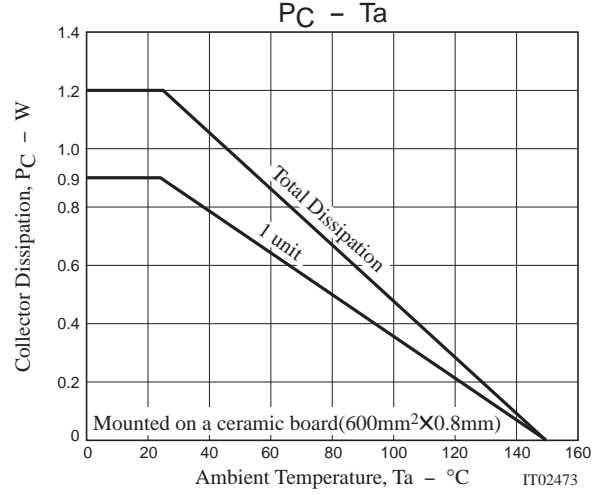
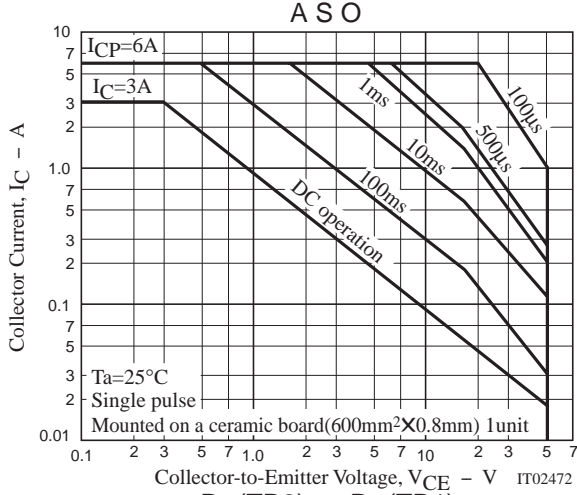
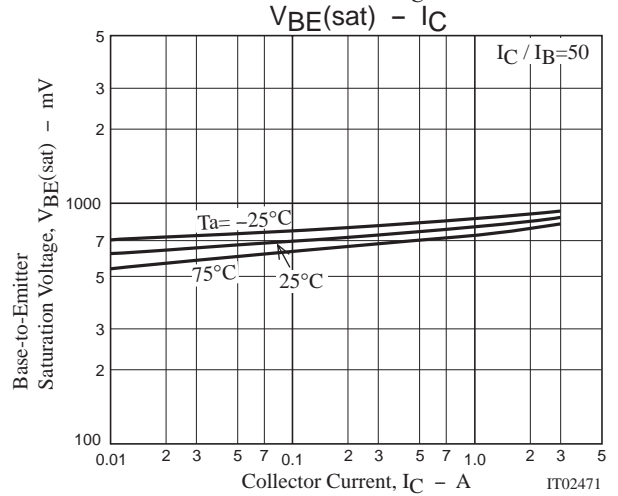
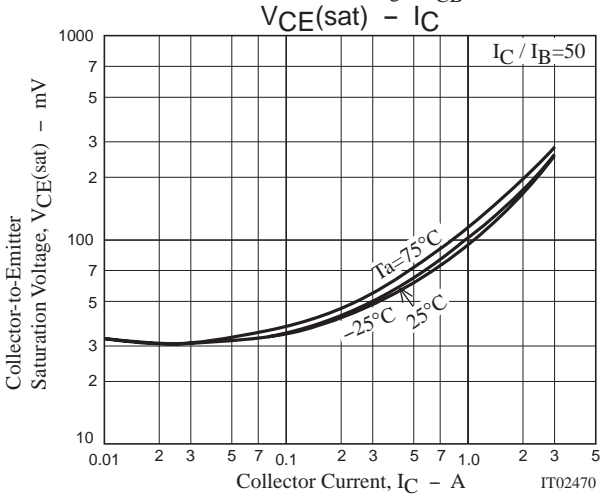
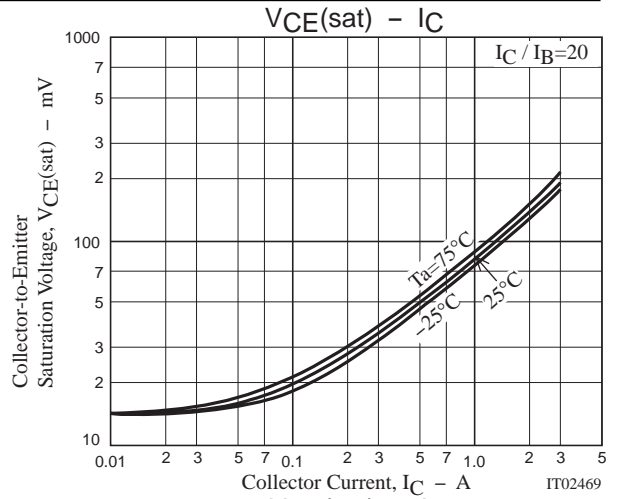
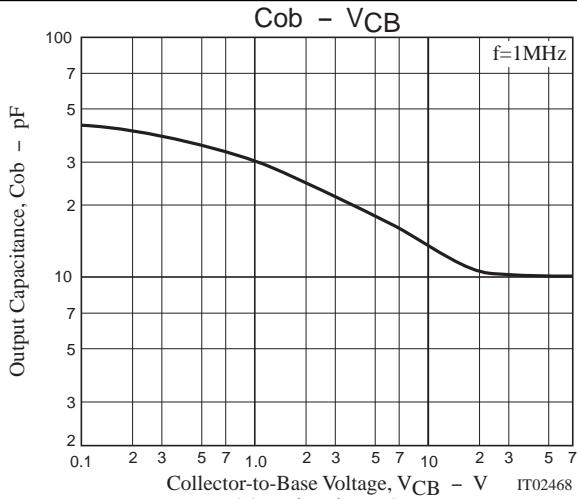
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### Switching Time Test Circuit



### Electrical Connection





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