



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## CPH5504 — NPN Epitaxial Planar Silicon Transistor High-Current Switching Applications

### Applications

- DC-DC converter, relay drivers, lamp drivers, motor drivers, flash

### 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 package facilitates miniaturization in end products. (mounting height : 0.9mm)

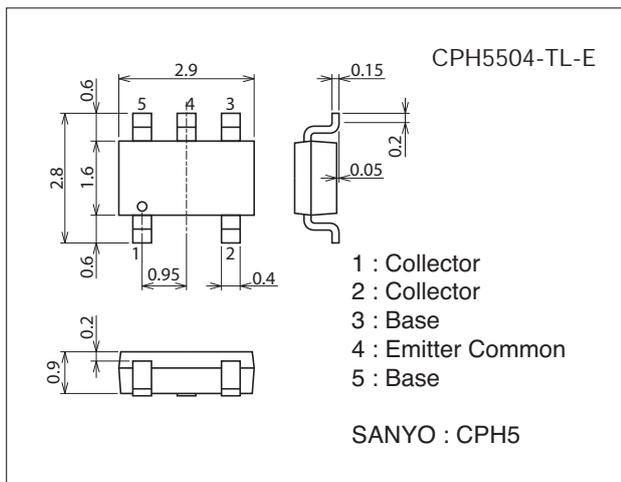
### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		100	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		100	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> ×0.8mm)	0.9	W
Total Power Dissipation	P <sub>T</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

### Package Dimensions

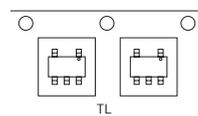
unit : mm (typ)  
7017A-009



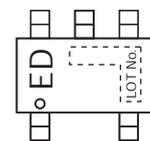
### Product & Package Information

- Package : CPH5
- JEITA, JEDEC : SC-74A, SOT-25
- Minimum Packing Quantity : 3,000 pcs./reel

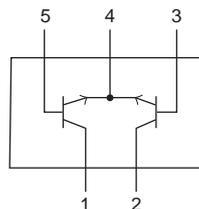
### Packing Type : TL



### Marking



### Electrical Connection

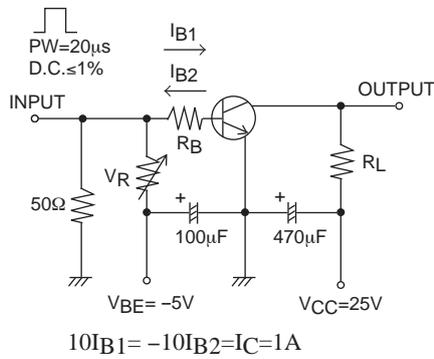


# CPH5504

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

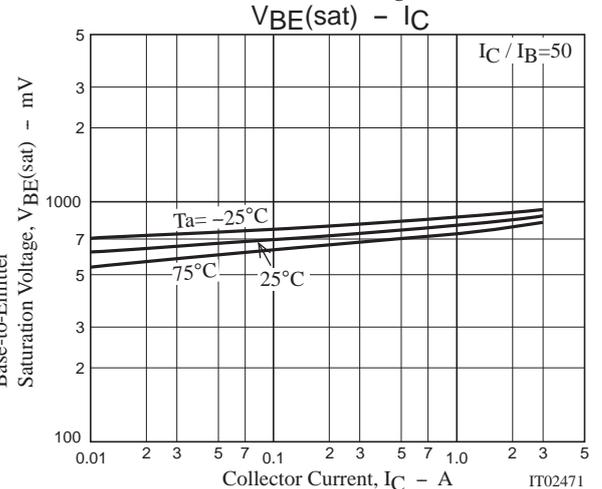
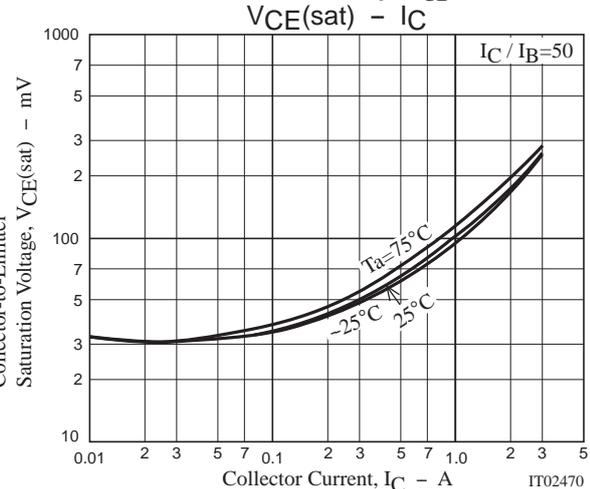
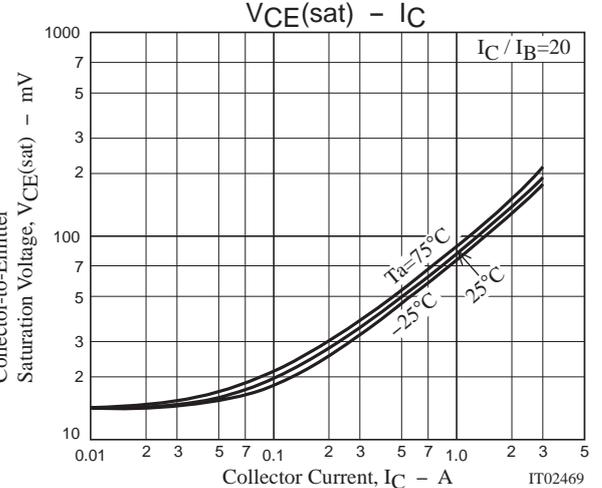
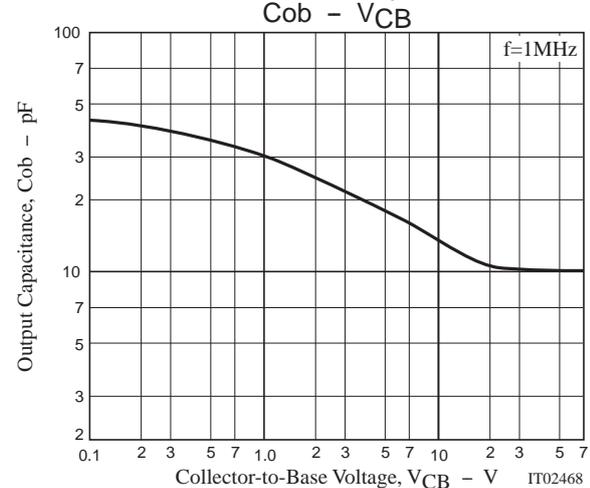
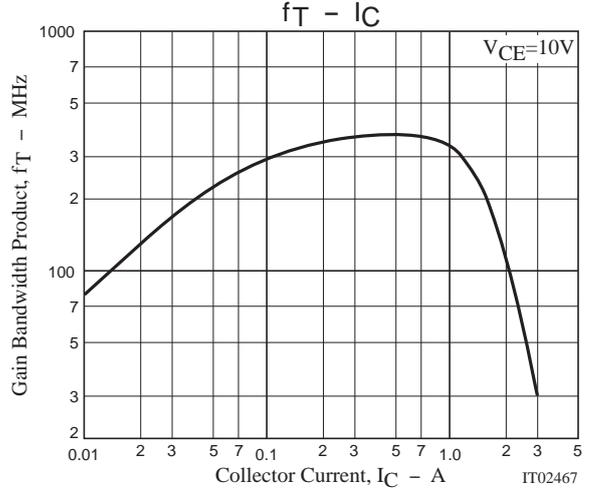
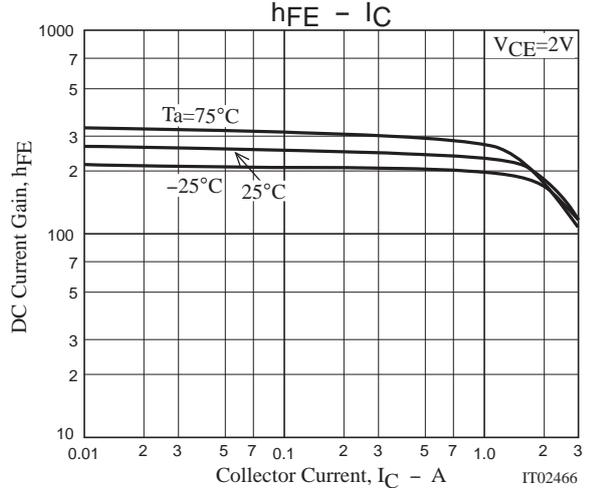
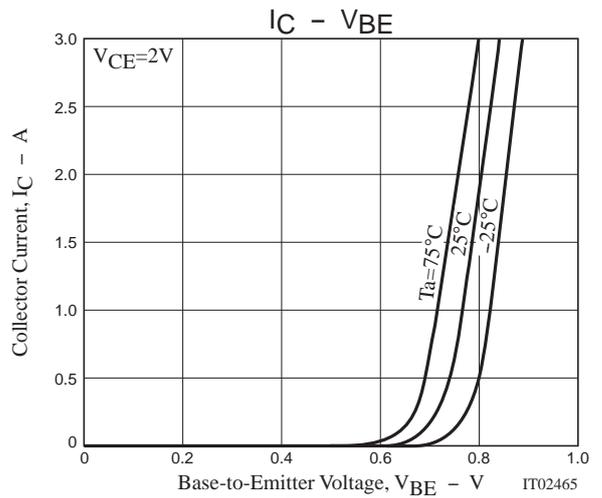
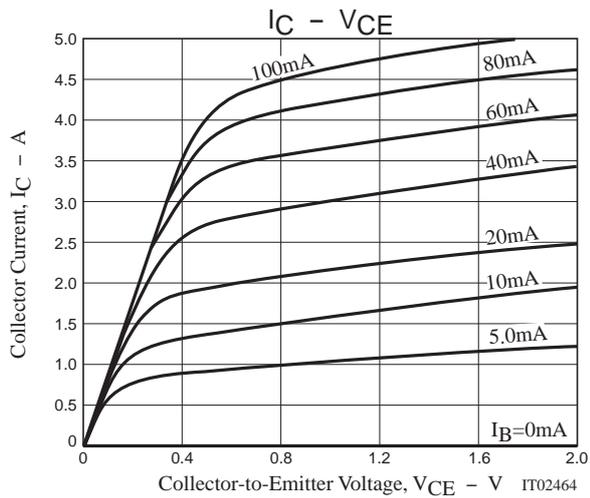
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40\text{V}, I_E=0\text{A}$			1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0\text{A}$			1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	200		560	
	$h_{FE2}$	$V_{CE}=2\text{V}, I_C=3\text{A}$	70			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=500\text{mA}$		380		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$		80	120	mV
		$I_C=2\text{A}, I_B=100\text{mA}$		140	210	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=100\text{mA}$		0.88	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	100			V
Collector-to-Base Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu\text{A}, R_{BE}=0\Omega$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0\text{A}$	6			V
Turn-On Time	$t_{on}$	See specified Test Circuit.		35		ns
Storage Time	$t_{stg}$			300		ns
Fall Time	$t_f$			22		ns

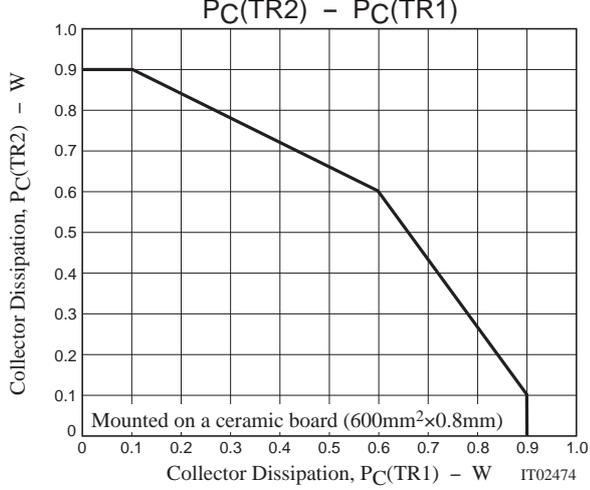
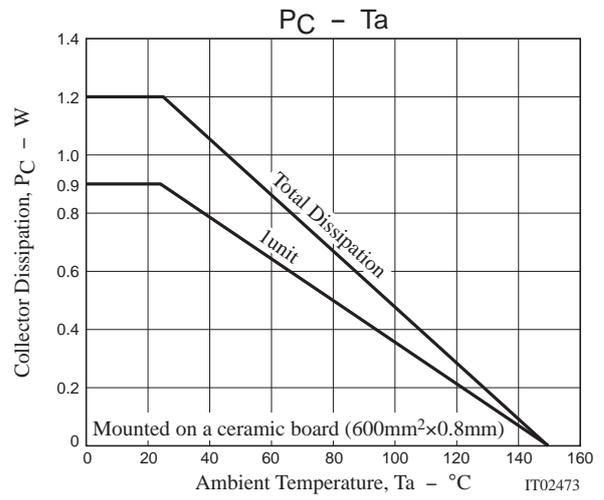
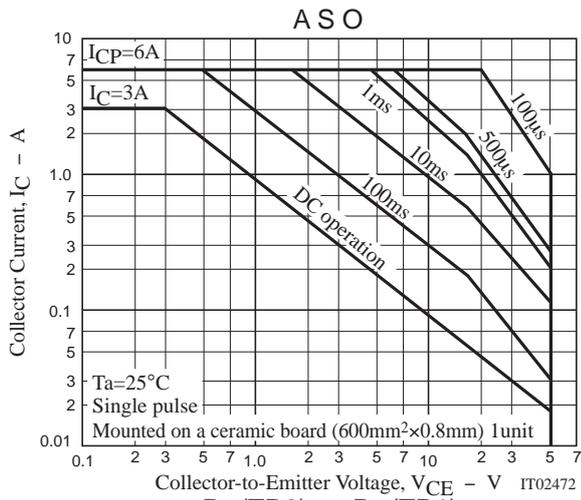
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
CPH5504-TL-E	CPH5	3,000pcs./reel	Pb Free





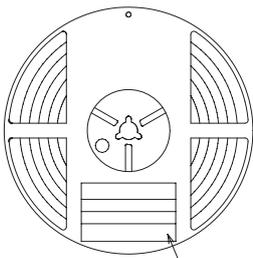
Embossed Taping Specification

CPH5504-TL-E

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH5	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

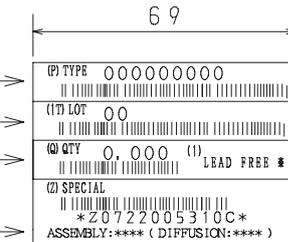
Packing method



Reel label

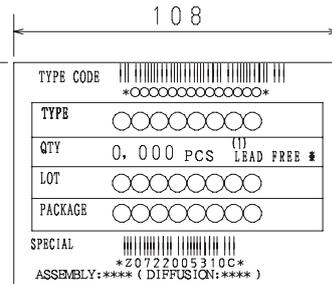
Type No.  
LOT No.  
Quantity  
Origin

Reel label, Inner box label (unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



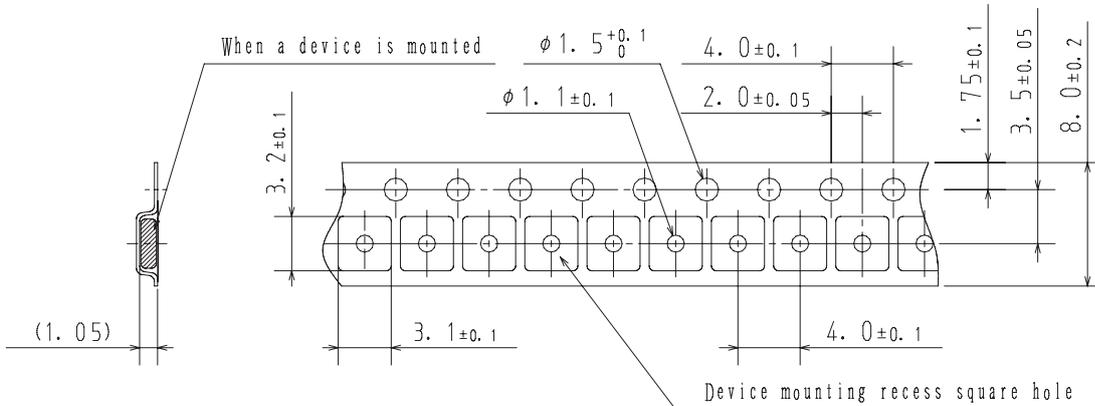
NOTE (1)

The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

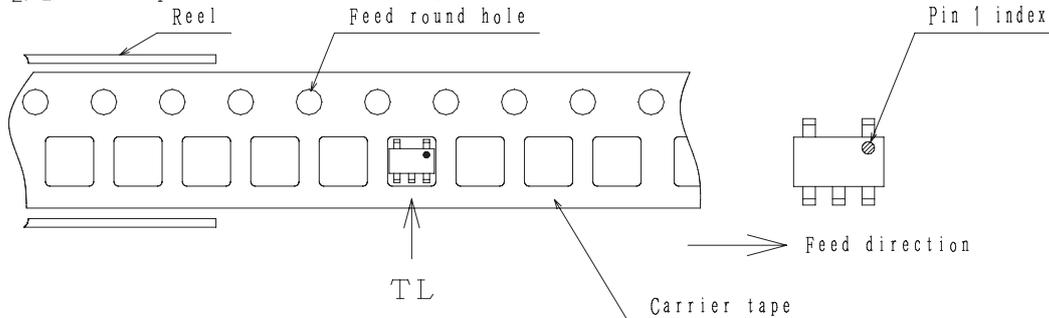
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction



Those with pin 1 index on the feed hole side.....TL



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