



CPH6501

Bipolar Transistor 30V, 1.5A, Low $V_{CE(sat)}$ NPN Dual CPH6

ON Semiconductor®

<http://onsemi.com>

Applications

- Relay drivers, lamp drivers, motor drivers

Features

- Composite type with two NPN transistors contained in one package, facilitating high-density mounting
- The CPH6501 consists of with two chips which are equivalent to the CPH3215.
- Ultrasmall-sized package permitting facilitates miniaturization in end products (0.9mm)

Specifications

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

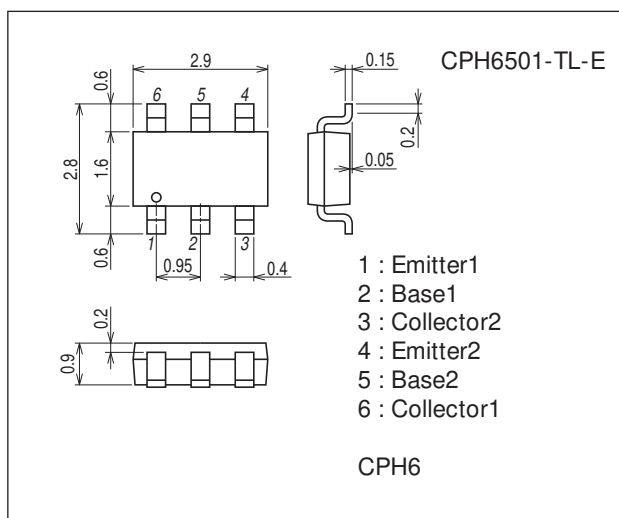
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		40	V
Collector-to-Emitter Voltage	V_{CEO}		30	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		1.5	A
Collector Current (Pulse)	I_{CP}		3	A
Base Current	I_B		300	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.9	W
Total Power Dissipation	P_T	When mounted on ceramic substrate (600mm ² ×0.8mm)	1.2	W
Junction Temperature	T_J		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

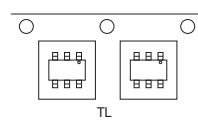
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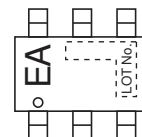
Product & Package Information

- Package : CPH6
- JEITA, JEDEC : SC-74, SOT-26, SOT-457
- Minimum Packing Quantity : 3,000 pcs./reel

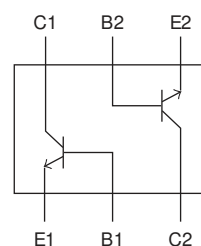
Packing Type: TL



Marking



Electrical Connection

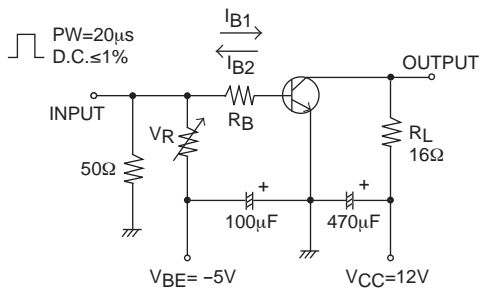


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Electrical Characteristics at Ta=25°C

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

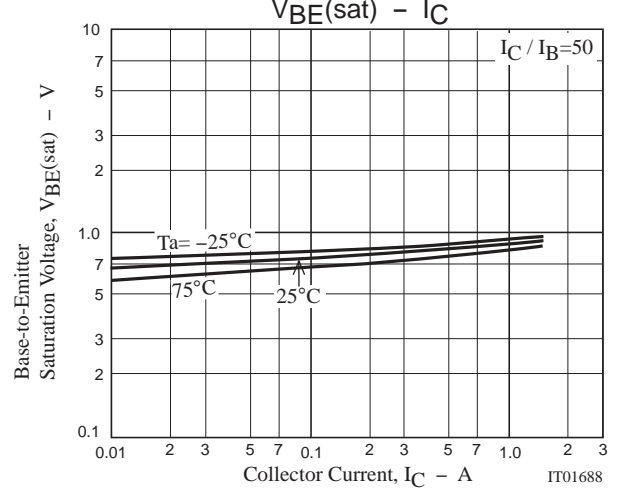
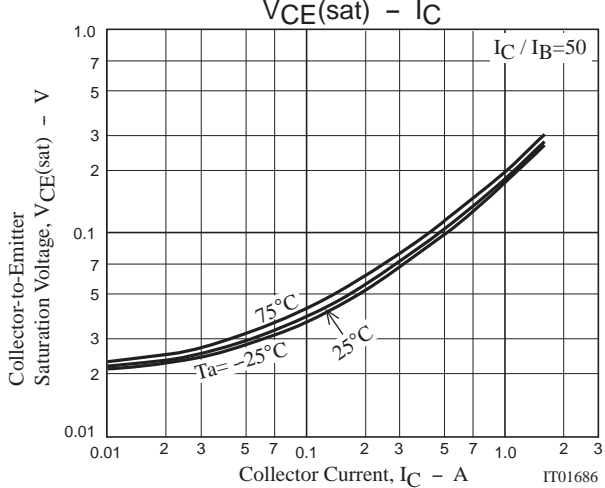
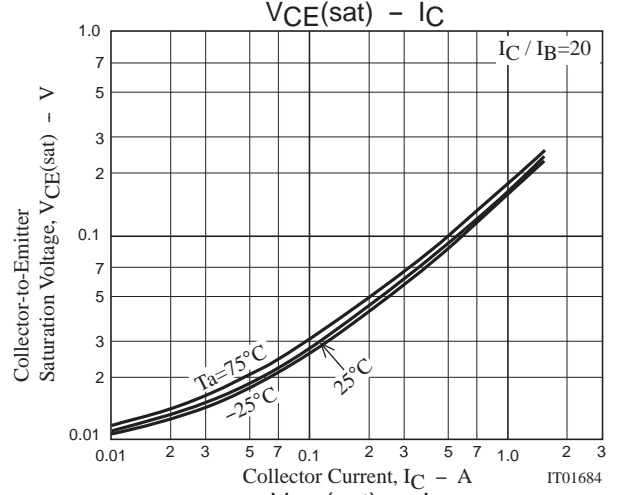
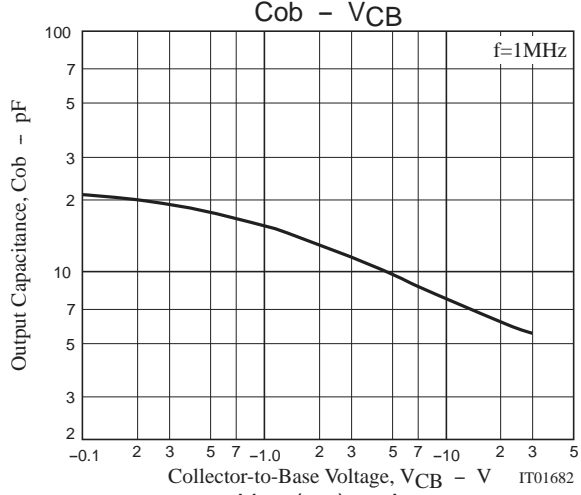
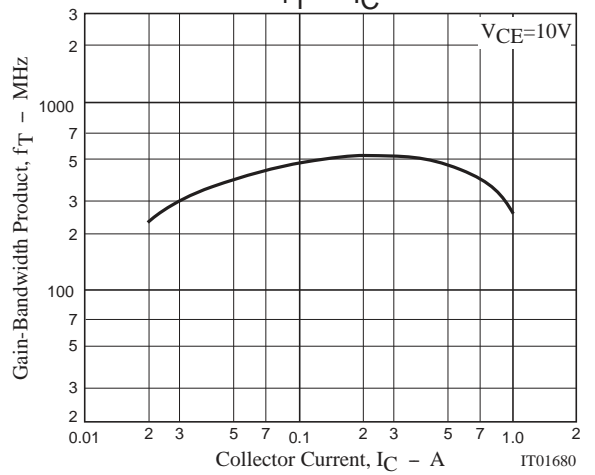
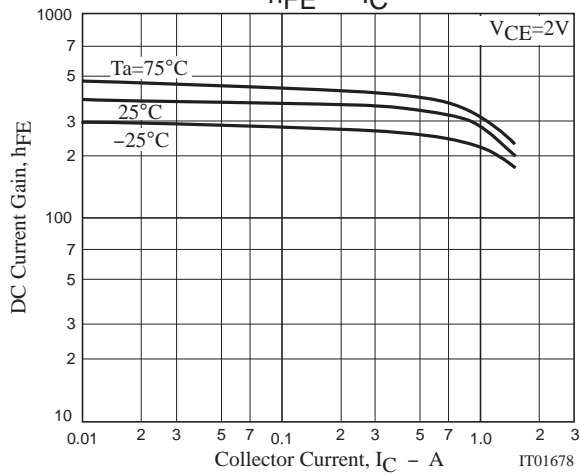
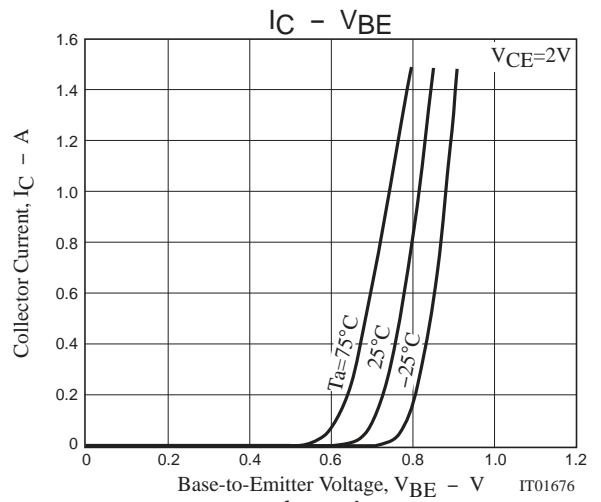
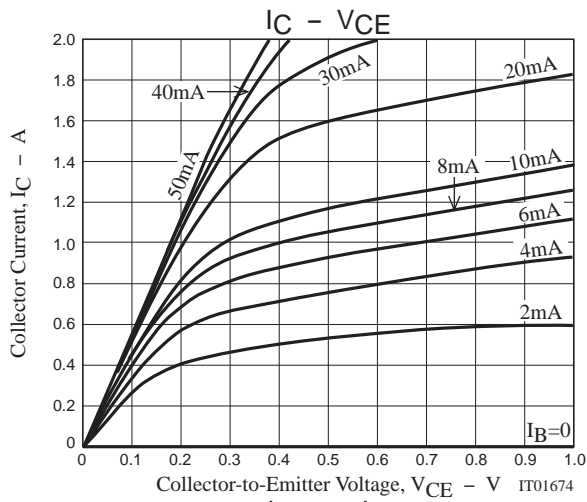
Switching Time Test Circuit

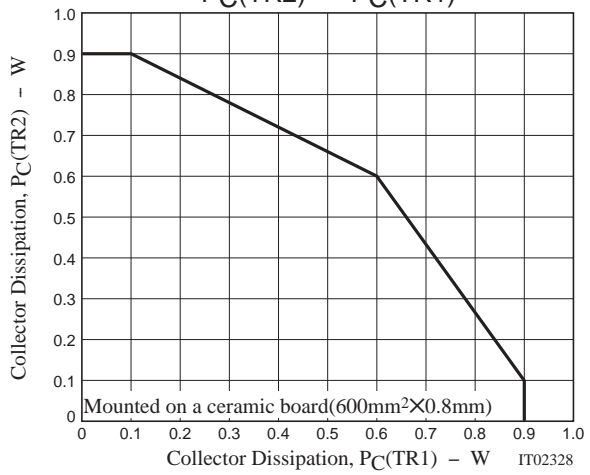
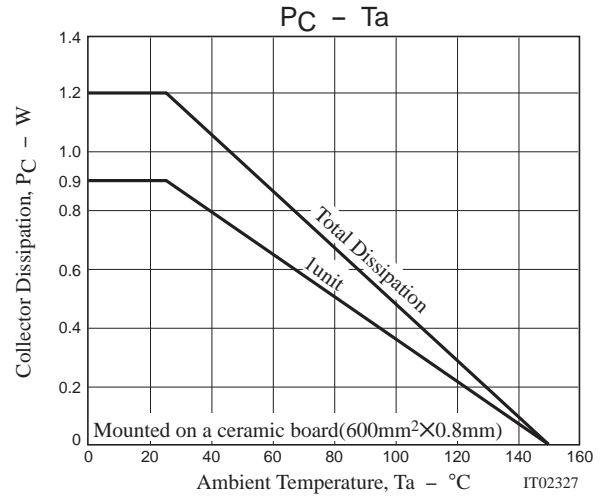
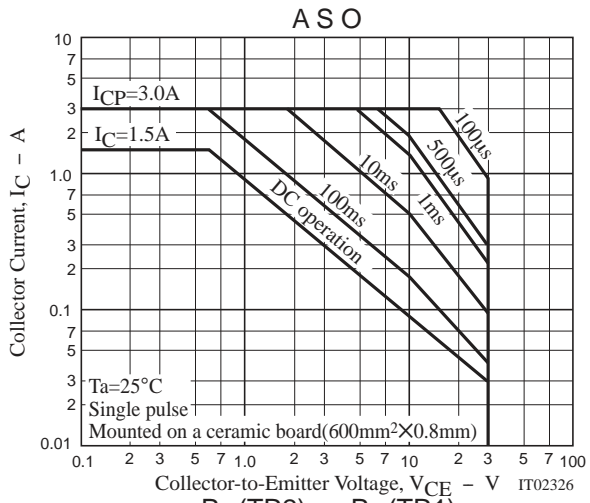


$$20I_{B1} = -20I_{B2} = I_C = 750mA$$

Ordering Information

Device	Package	Shipping	memo
CPH6501-TL-E	CPH6	3,000pcs./reel	Pb Free





CPH6501

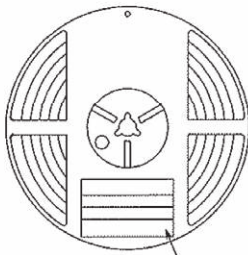
Embossed Taping Specification

CPH6501-TL-E

1. Packing Format

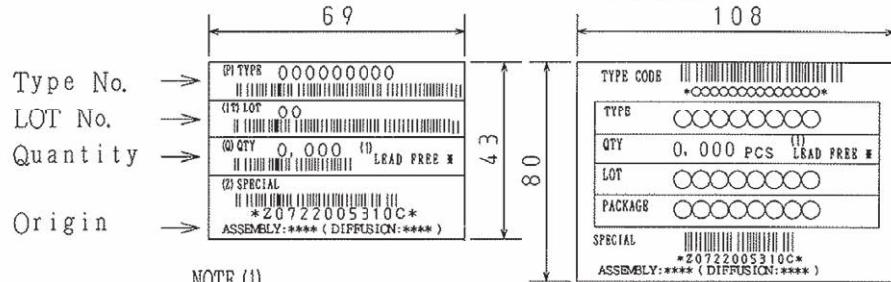
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH6	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



Reel label

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.



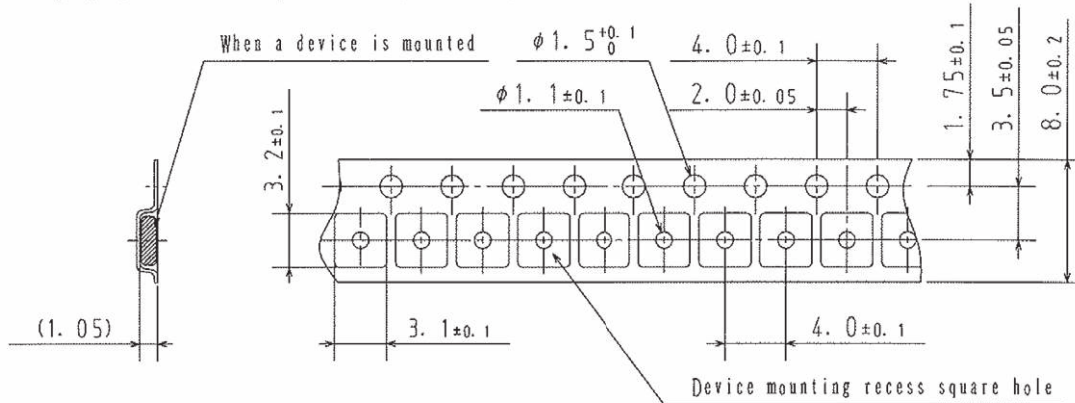
NOTE (1)

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

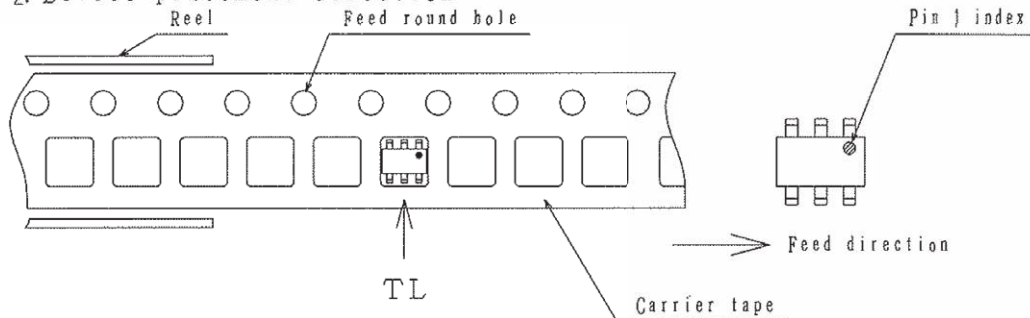
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

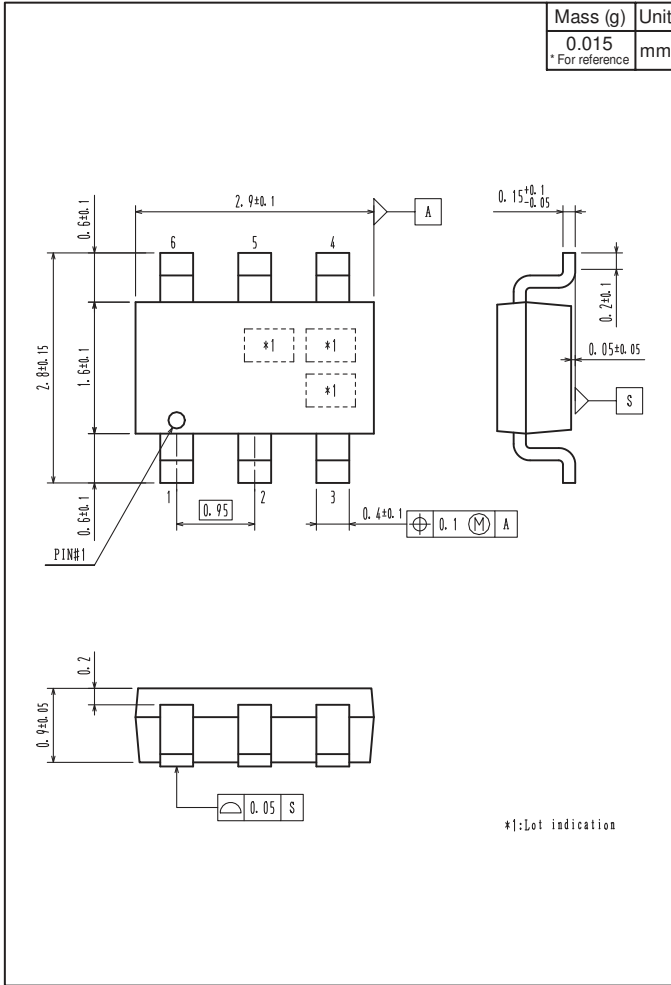


Those with pin 1 index on the feed hole side.....TL

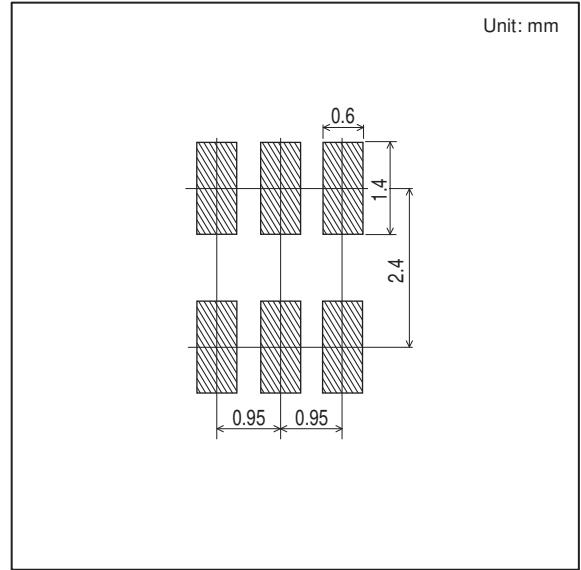
CPH6501

Outline Drawing

CPH6501-TL-E



Land Pattern Example



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