

# CPH3121-TL-E Datasheet



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DiGi Electronics Part Number	CPH3121-TL-E-DG
Manufacturer	<a href="#">onsemi</a>
Manufacturer Product Number	CPH3121-TL-E
Description	TRANS PNP 12V 3A 3CPH
Detailed Description	Bipolar (BJT) Transistor PNP 12 V 3 A 380MHz 900 mW Surface Mount 3-CPH



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## Purchase and inquiry

Manufacturer Product Number:

CPH3121-TL-E

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

12 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

900 mW

Operating Temperature:

150°C (TJ)

Package / Case:

SC-96

Base Product Number:

CPH3121

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

3 A

Vce Saturation (Max) @ Ib, Ic:

165mV @ 30mA, 1.5A

DC Current Gain (hFE) (Min) @ Ic, Vce:

200 @ 500mA, 2V

Frequency - Transition:

380MHz

Mounting Type:

Surface Mount

Supplier Device Package:

3-CPH

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Ordering number : EN7219B



# CPH3121

## Bipolar Transistor -12V, -3A, Low VCE(sat) PNP Single CPH3

ON Semiconductor®

<http://onsemi.com>

### Applications

- Relay drivers, lamp drivers, motor drivers, flash

### Features

- Adoption of MBIT processes
- Large current capacity
- Low collector to emitter saturation voltage
- High-speed switching
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm)
- High allowable power dissipation

### Specifications

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

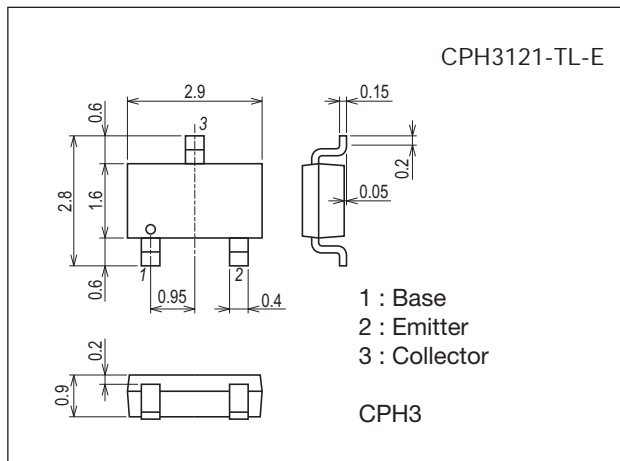
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V <sub>CB0</sub>		-15	V
Collector to Emitter Voltage	V <sub>CEO</sub>		-12	V
Emitter to Base Voltage	V <sub>EB0</sub>		-5	V
Collector Current	I <sub>C</sub>		-3	A
Collector Current (Pulse)	I <sub>CP</sub>		-5	A
Base Current	I <sub>B</sub>		-600	mA
Collector Dissipation	P <sub>C</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	0.9	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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)

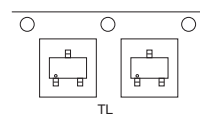
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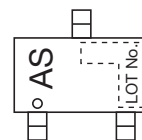
### Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

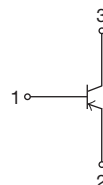
### Packing Type: TL



### Marking



### Electrical Connection

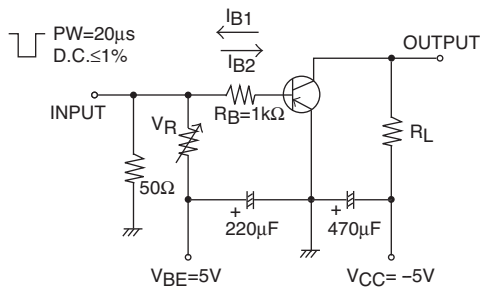


## CPH3121

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -12\text{V}, I_E = 0\text{A}$			-0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0\text{A}$			-0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$		380		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		40		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1.5\text{A}, I_B = -30\text{mA}$		-110	-165	mV
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -1.5\text{A}, I_B = -30\text{mA}$		-0.85	-1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0\text{A}$	-15			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-12			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0\text{A}$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$			90		ns
Fall Time	$t_f$			14		ns

## Switching Time Test Circuit

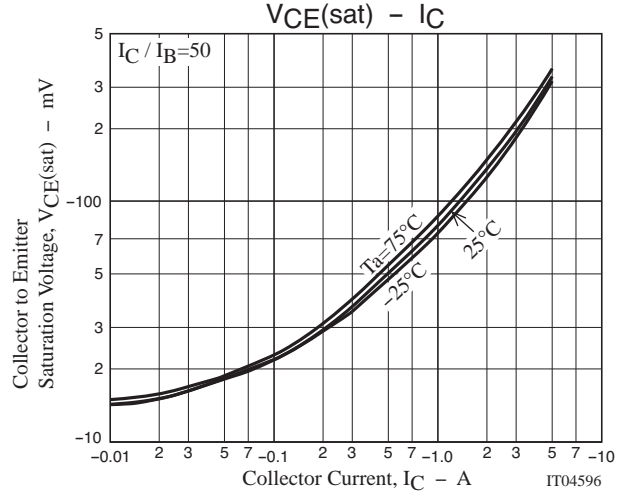
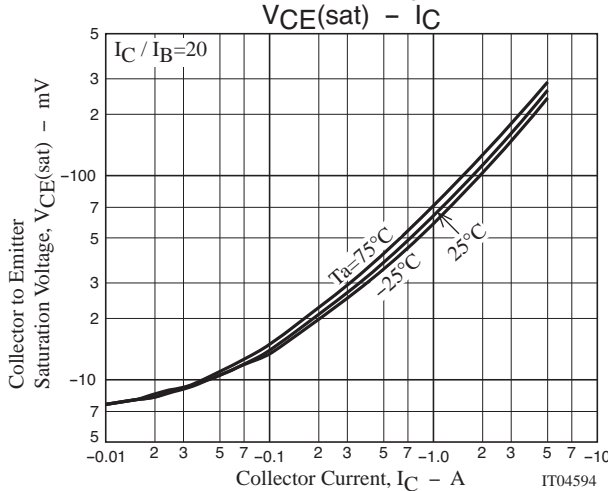
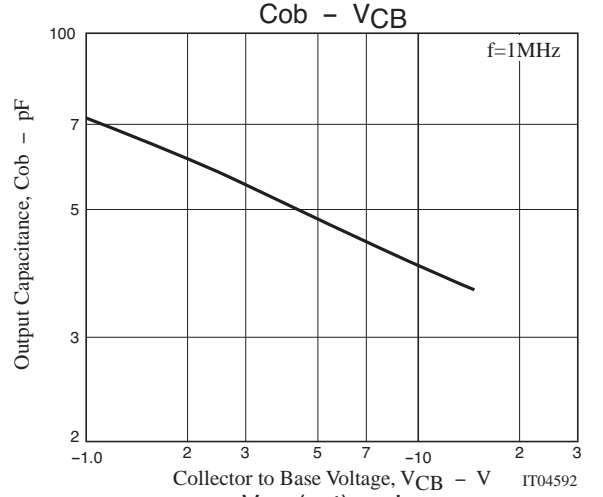
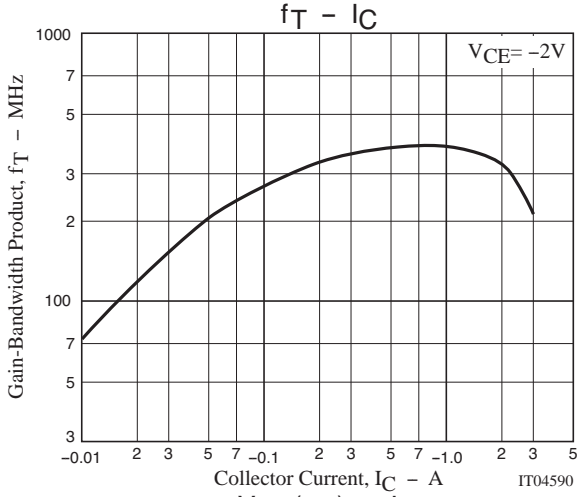
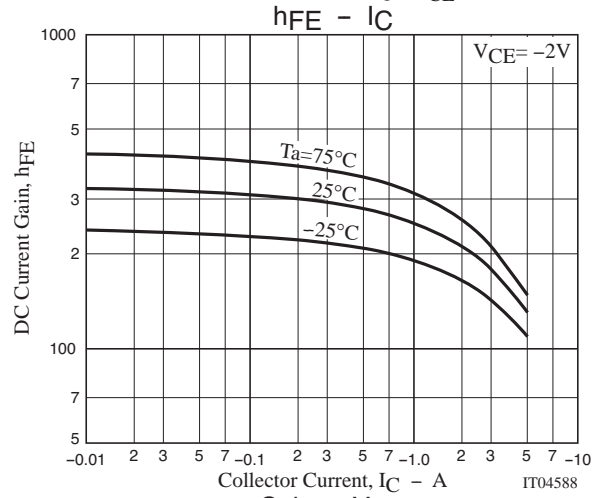
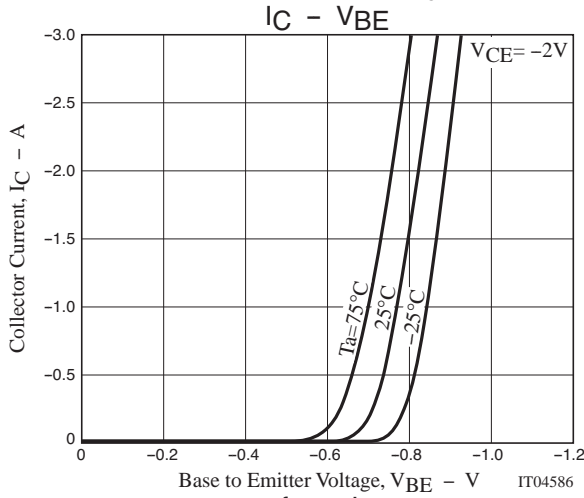
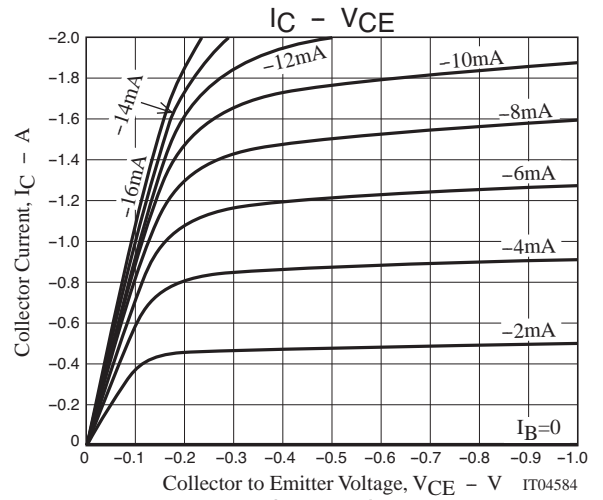
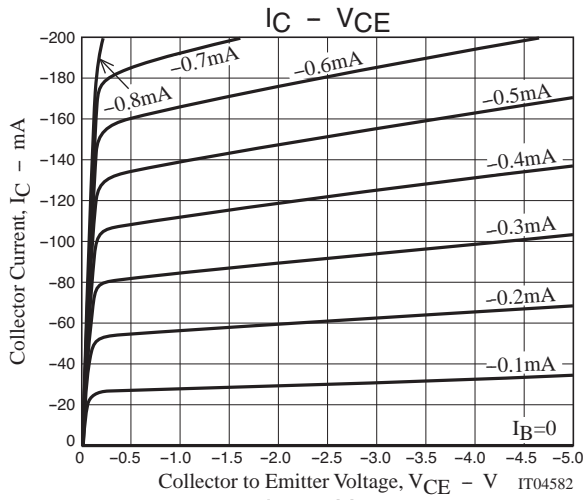


$$I_C = 20I_{B1} = -20I_{B2} = -1.5\text{A}$$

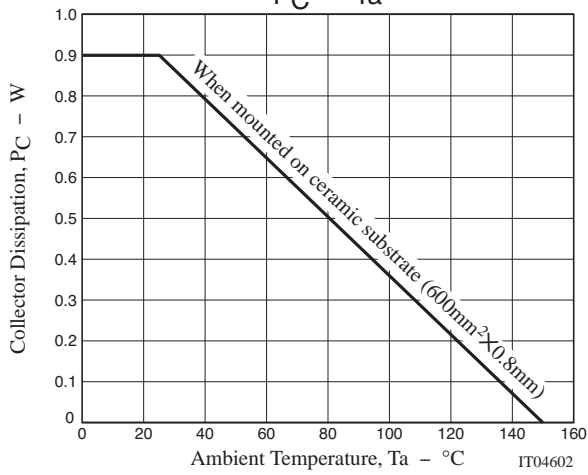
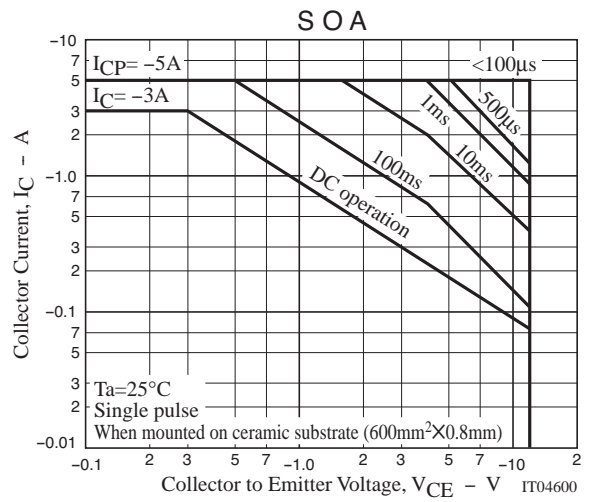
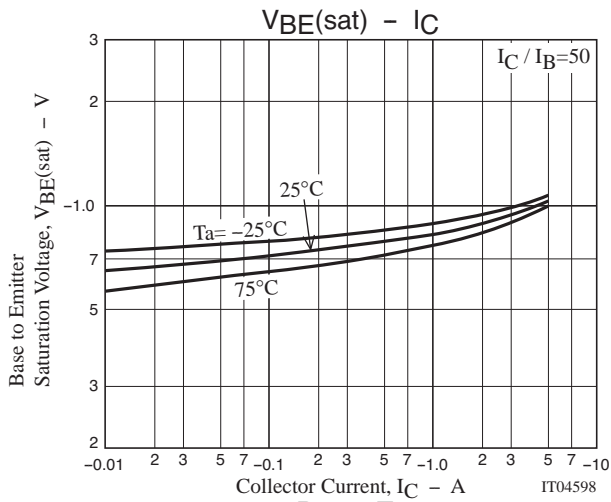
## Ordering Information

Device	Package	Shipping	memo
CPH3121-TL-E	CPH3	3,000pcs./reel	Pb Free

CPH3121

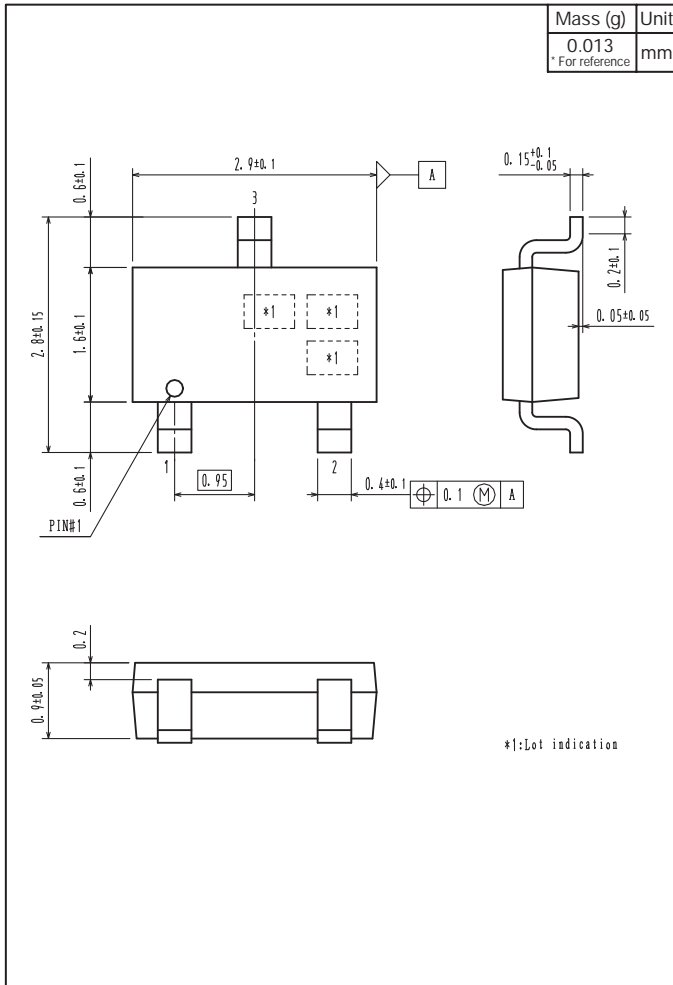


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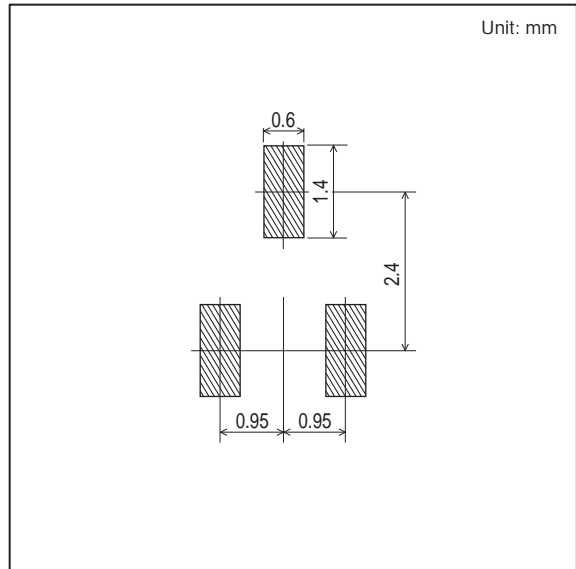


CPH3121

Outline Drawing  
CPH3121-TL-E



Land Pattern Example



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