CPH3121-TL-E Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	CPH3121-TL-E-DG
Manufacturer	onsemi
Manufacturer Product Number	CPH3121-TL-E
Description	TRANS PNP 12V 3A 3CPH
Detailed Description	Bipolar (BJT) Transistor PNP 12 V 3 A 380MHz 900 m W Surface Mount 3-CPH

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
CPH3121-TL-E	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
PNP	3 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
12 V	165mV @ 30mA, 1.5A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA (ICBO)	200 @ 500mA, 2V
Power - Max:	Frequency - Transition:
900 mW	380MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
SC-96	3-CPH
Base Product Number:	
CPH3121	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

Ordering number : EN7219B

CPH3121

Bipolar Transistor
−12V, −3A, Low V_{CE}(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

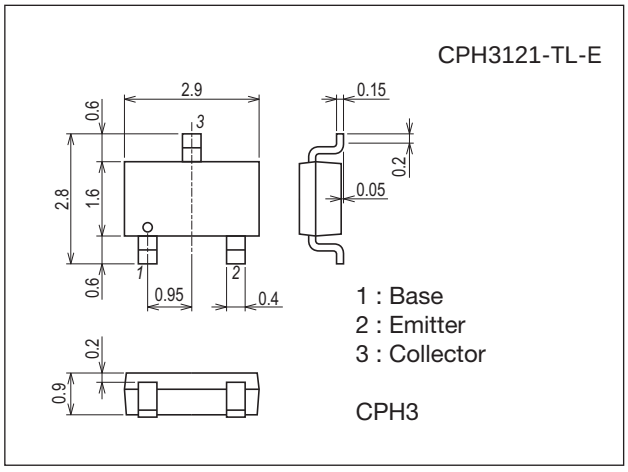
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V_{CBO}		−15	V
Collector to Emitter Voltage	V_{CEO}		−12	V
Emitter to Base Voltage	V_{EBO}		−5	V
Collector Current	I_C		−3	A
Collector Current (Pulse)	I_{CP}		−5	A
Base Current	I_B		−600	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm^2×0.8mm)	0.9	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−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

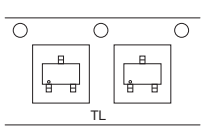
unit : mm (typ)
7015A-003



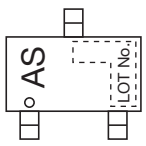
Product & Package Information

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

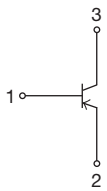
Packing Type: TL



Marking



Electrical Connection



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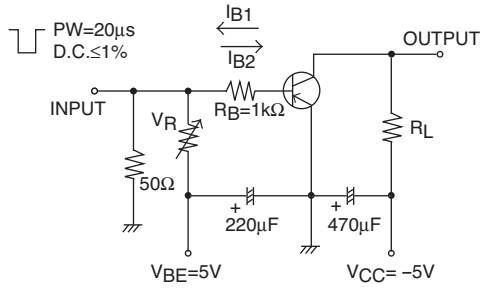
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= −12V, 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= −500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}= −2V, I_C= −500mA		380		MHz
Output Capacitance	Cob	V_{CB}= −10V, f=1MHz		40		pF
Collector to Emitter Saturation Voltage	V_{CE}(sat)	I_C= −1.5A, I_B= −30mA		−110	−165	mV
Base to Emitter Saturation Voltage	V_{BE}(sat)	I_C= −1.5A, I_B= −30mA		−0.85	−1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= −10μA, I_E=0A	−15			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C= −1mA, R_{BE}=∞	−12			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	I_E= −10μA, I_C=0A	−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}= −1.5A

Ordering Information

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

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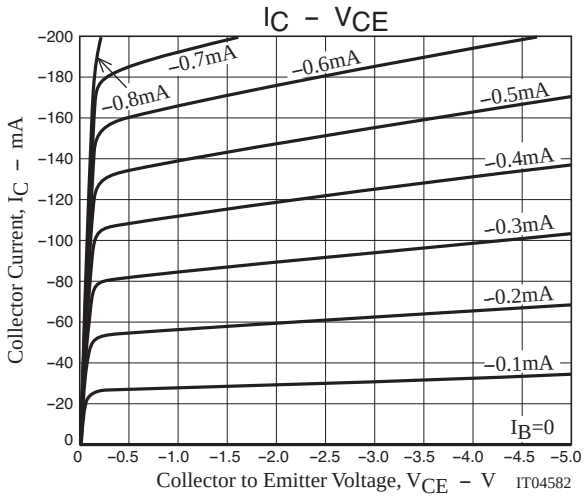
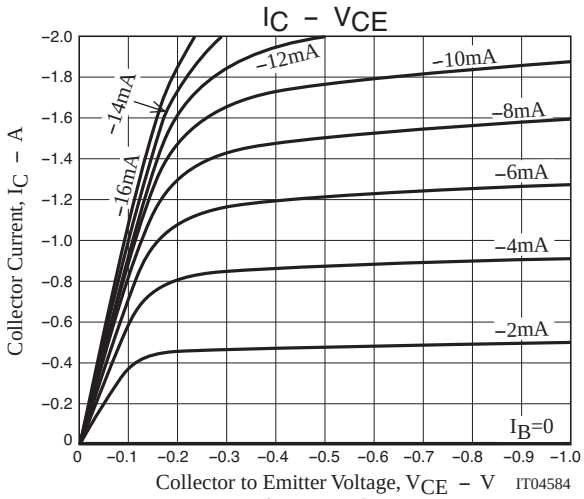
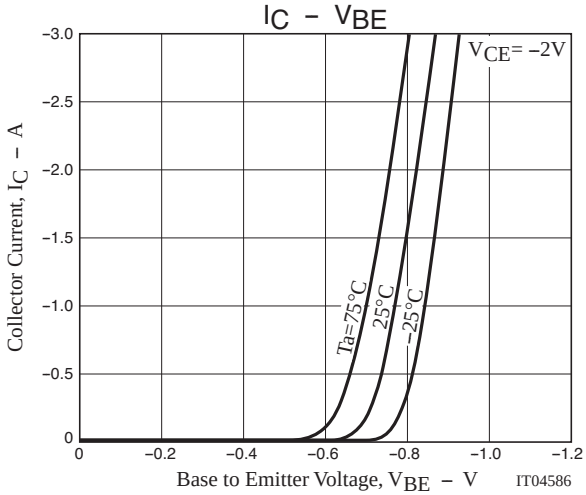
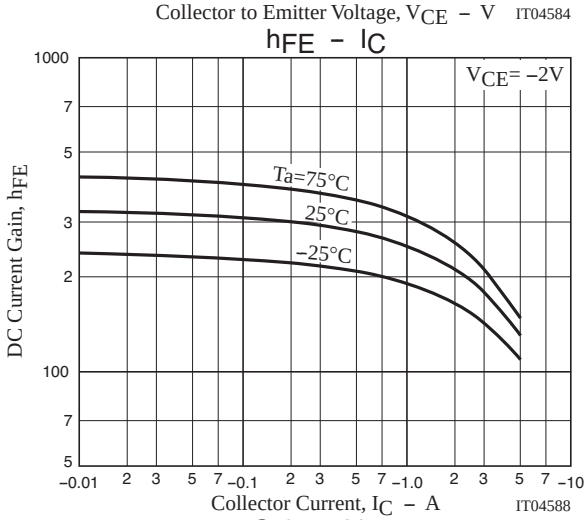
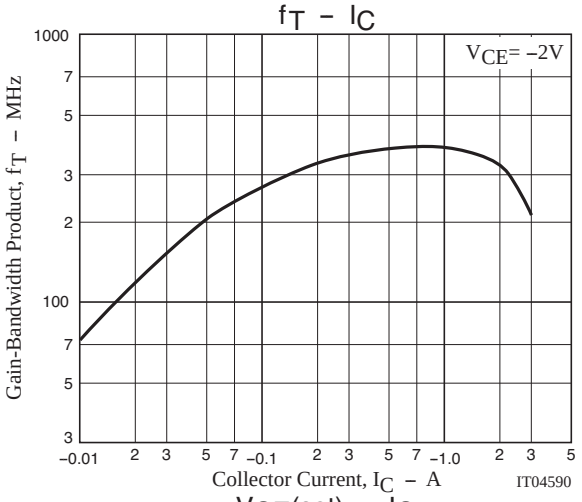
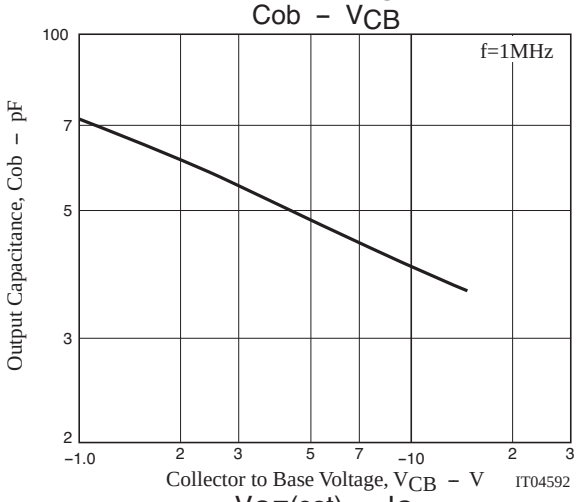

IC – VCE
Collector Current, IC – mA
Collector to Emitter Voltage, VCE – V
IT04582
–0.7mA
–0.6mA
–0.8mA
–0.5mA
–0.4mA
–0.3mA
–0.2mA
–0.1mA
IB=0

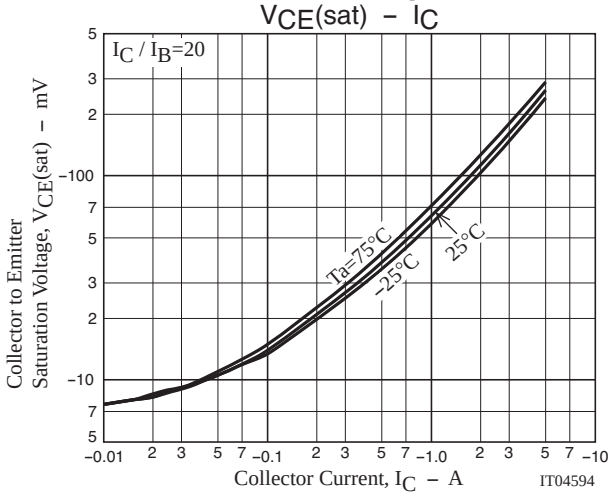

IC – VCE
Collector Current, IC – A
Collector to Emitter Voltage, VCE – V
IT04584
–12mA
–10mA
–14mA
–8mA
–16mA
–6mA
–4mA
–2mA
IB=0

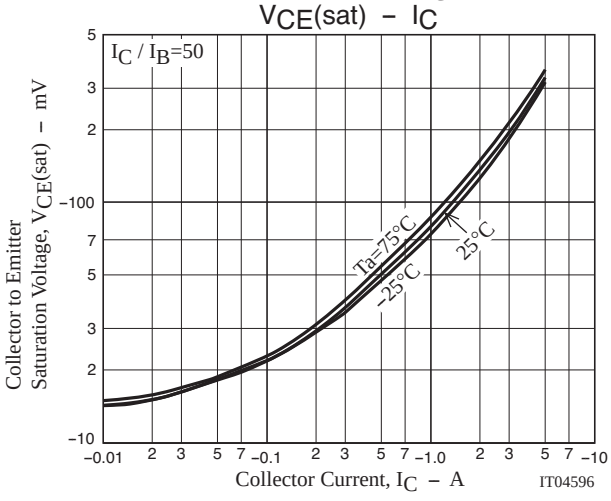

IC – VBE
Collector Current, IC – A
Base to Emitter Voltage, VBE – V
IT04586
VCE= –2V
Ta=75°C
25°C
–25°C


hFE – IC
DC Current Gain, hFE
Collector Current, IC – A
IT04588
VCE= –2V
Ta=75°C
25°C
–25°C


fT – IC
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT04590
VCE= –2V


Cob – VCB
Output Capacitance, Cob – pF
Collector to Base Voltage, VCB – V
IT04592
f=1MHz


VCE(sat) – IC
Collector to Emitter
Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT04594
IC / IB=20
Ta=75°C
25°C
–25°C


VCE(sat) – IC
Collector to Emitter
Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT04596
IC / IB=50
Ta=75°C
25°C
–25°C

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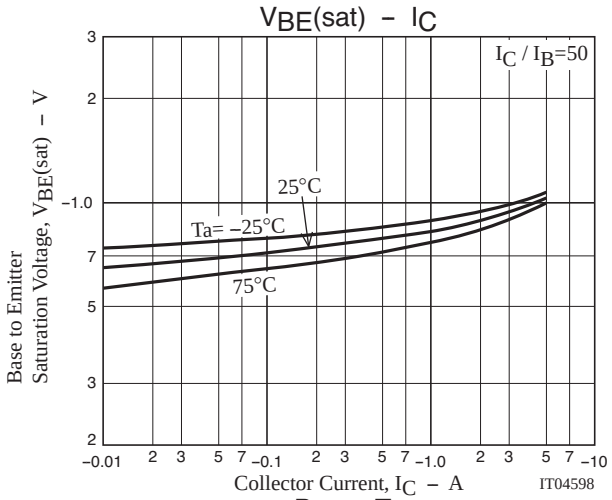
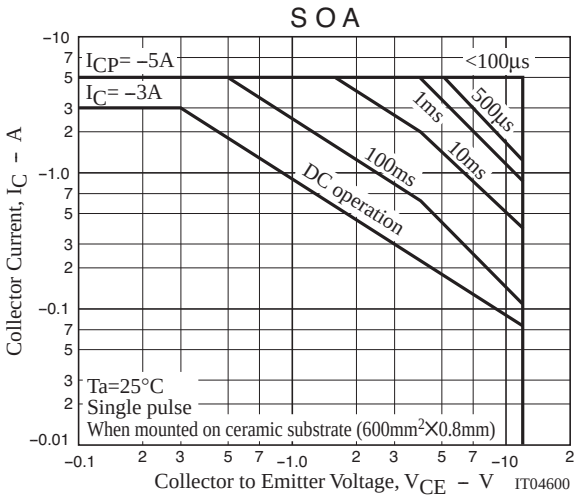
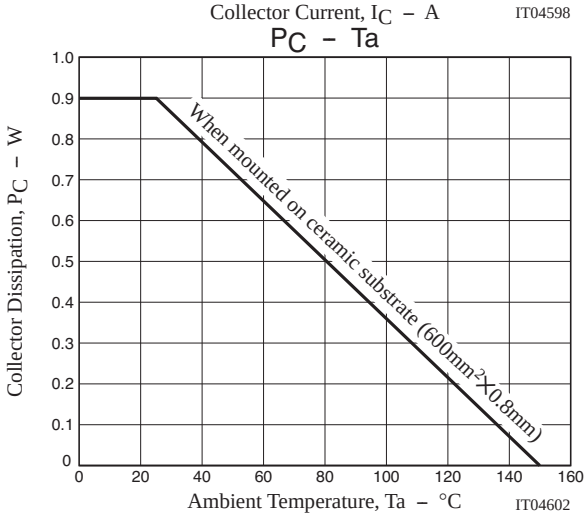

VBE(sat) – IC
IC / IB=50
25°C
Ta= –25°C
75°C
Base to Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT04598

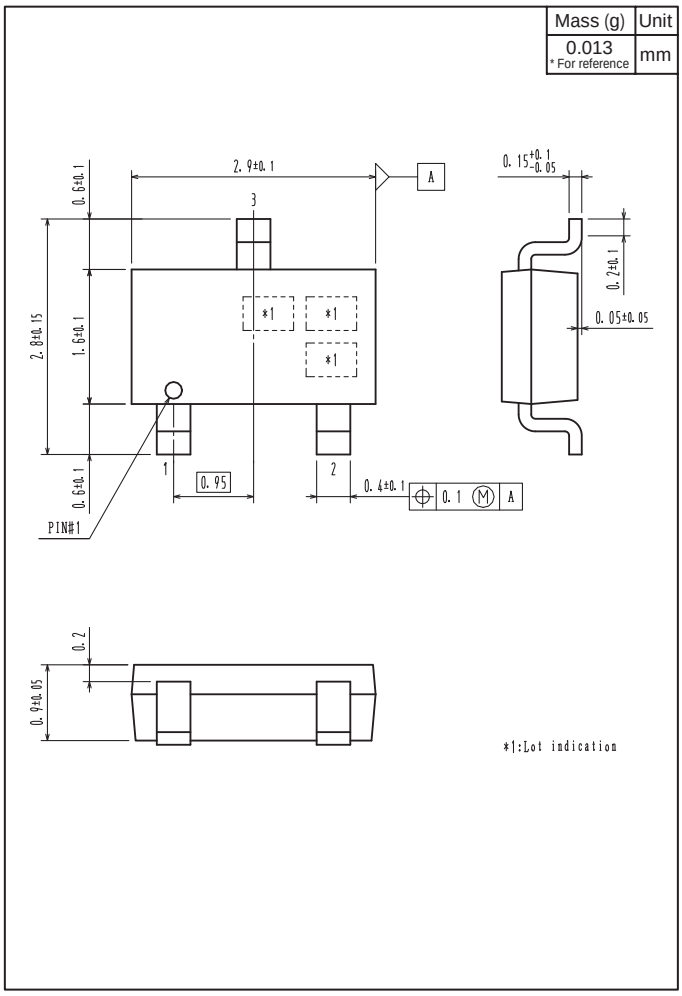

S O A
ICP= –5A
IC= –3A
<100µs
1ms
500µs
10ms
100ms
DC operation
Ta=25°C
Single pulse
When mounted on ceramic substrate (600mm2×0.8mm)
Collector Current, IC – A
Collector to Emitter Voltage, VCE – V
IT04600


PC – Ta
When mounted on ceramic substrate (600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT04602

CPH3121

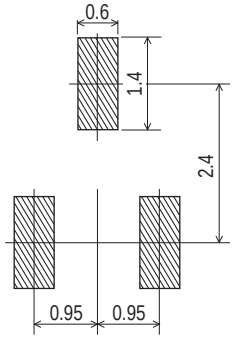
Outline Drawing

CPH3121-TL-E



Land Pattern Example

Unit: mm



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