Ordering number : EN7260A

CPH6121

Bipolar Transistor
−12V, −3A, Low V_{CE}(sat), PNP Single CPH6

ON Semiconductor®
http://onsemi.com

Applications

- Relay drivers, lamp drivers, motor drivers, strobes

Features

- Adoption of MBIT process
- High current capacitance
- Low collector-to-emitter saturation voltage
- High speed switching
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.9mm)
- High allowable power dissipation

Specifications

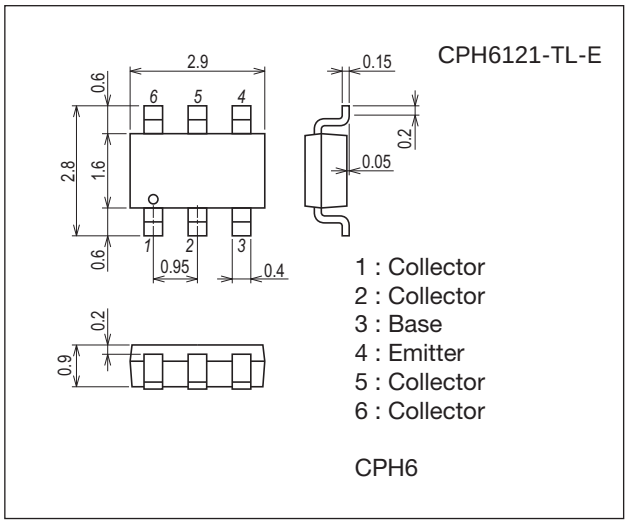
Absolute Maximum Ratings at Ta=25°C

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	Mounted on a ceramic board (600mm^2×0.8mm)	1.3	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

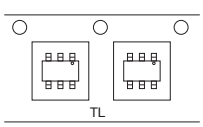
unit : mm (typ)
7018A-002



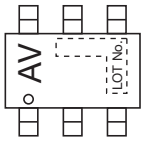
Product & Package Information

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

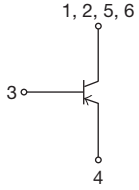
Packing Type: TL



Marking



Electrical Connection

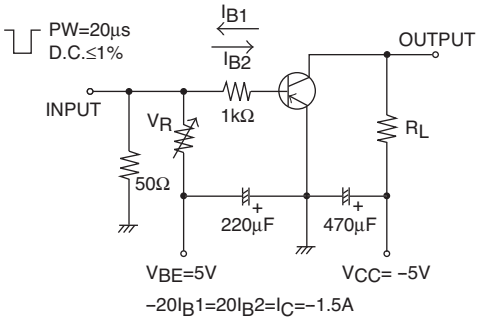


Semiconductor Components Industries, LLC, 2013

Electrical Characteristics at Ta=25°C

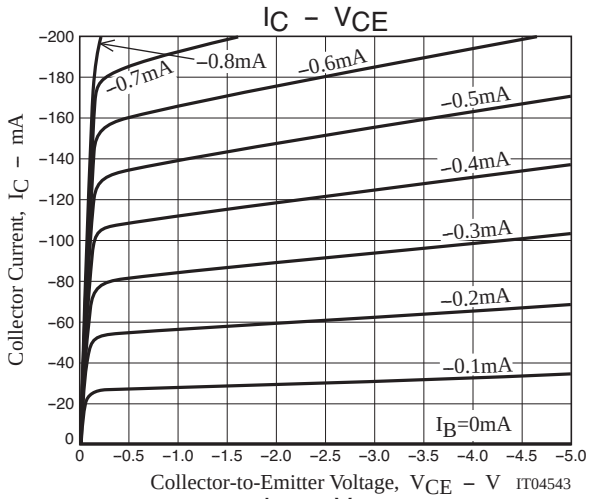
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= -12V, I_E=0A			-0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}= -4V, I_C=0A			-0.1	μA
DC Current Gain	h_{FE}	V_{CE}= -2V, I_C= -500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}= -2V, I_C= -500mA		380		MHz
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

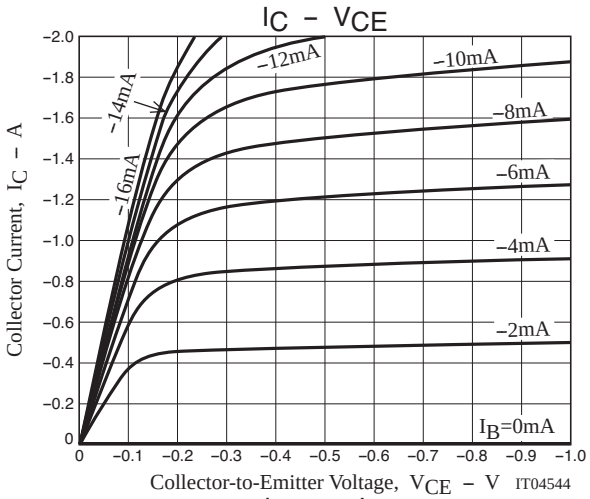
Switching Time Test Circuit

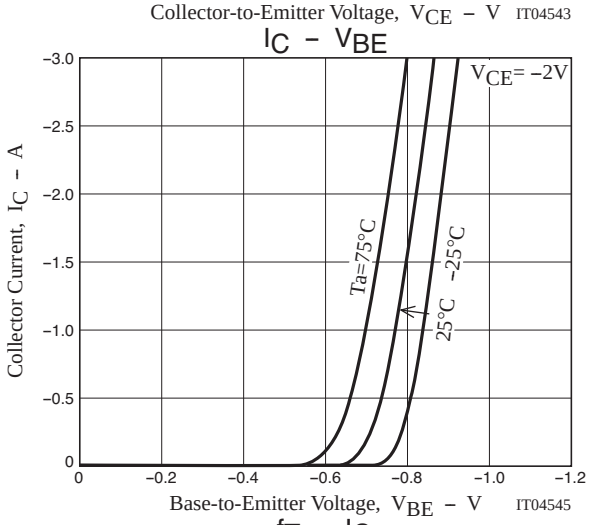


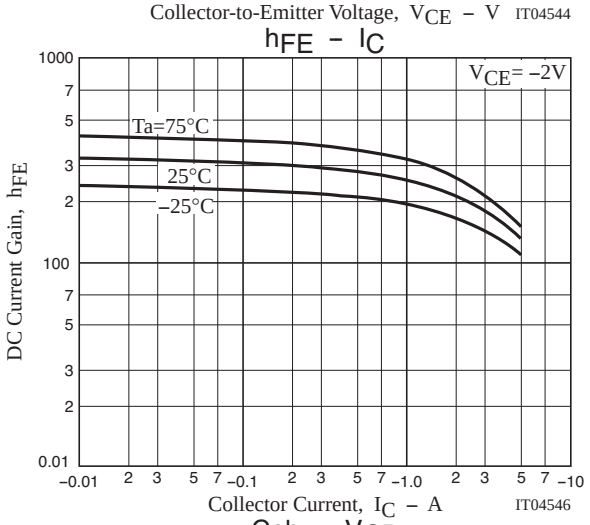
Ordering Information

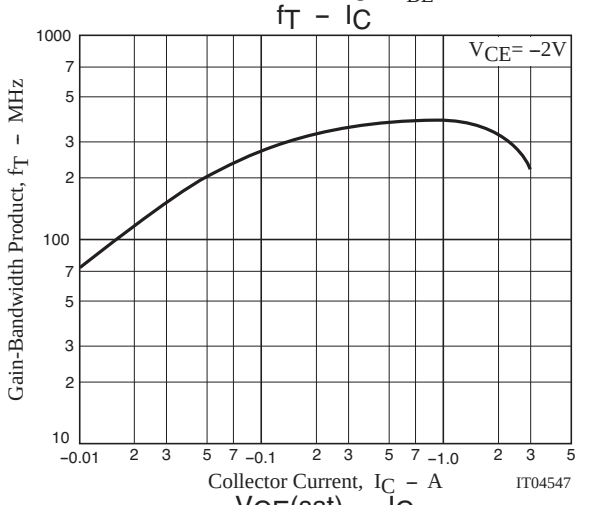
Device	Package	Shipping	memo
CPH6121-TL-E	CPH6	3,000pcs./reel	Pb Free

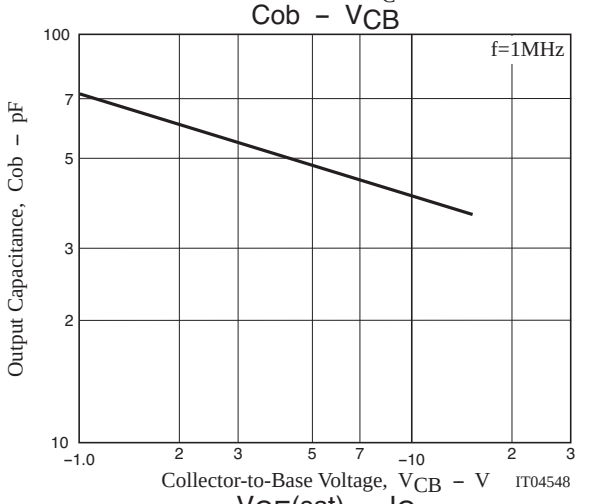

IC – VCE
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
IT04543
–0.7mA
–0.8mA
–0.6mA
–0.5mA
–0.4mA
–0.3mA
–0.2mA
–0.1mA
IB=0mA

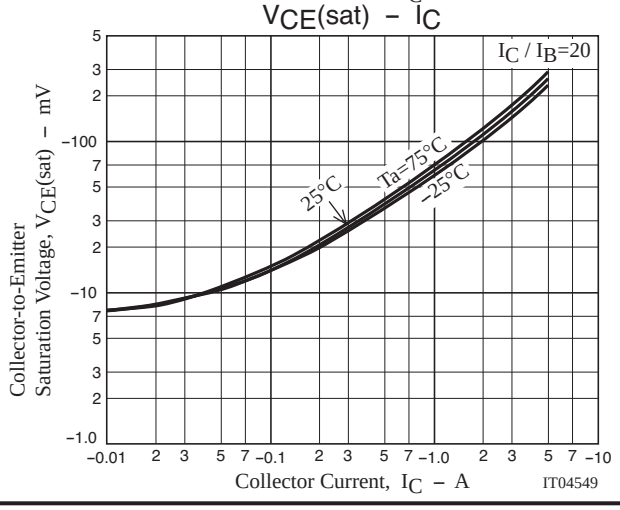

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT04544
–14mA
–16mA
–12mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0mA

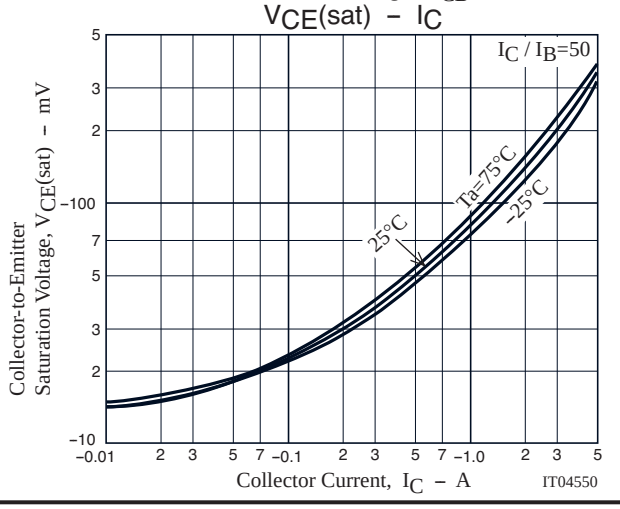

IC – VBE
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT04545
VCE= –2V
Ta=75°C
25°C
–25°C

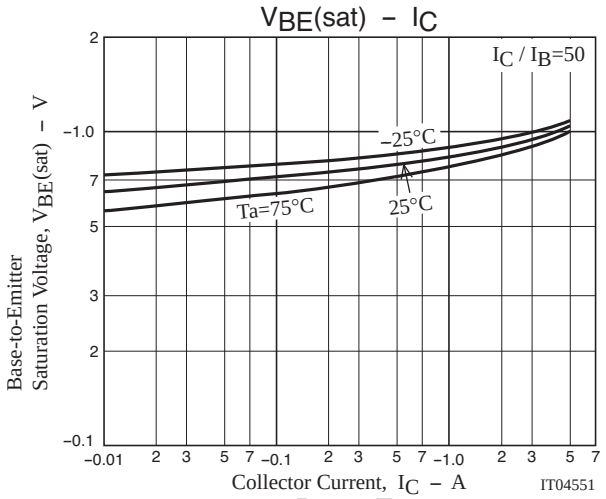

hFE – IC
DC Current Gain, hFE
Collector Current, IC – A
IT04546
VCE= –2V
Ta=75°C
25°C
–25°C

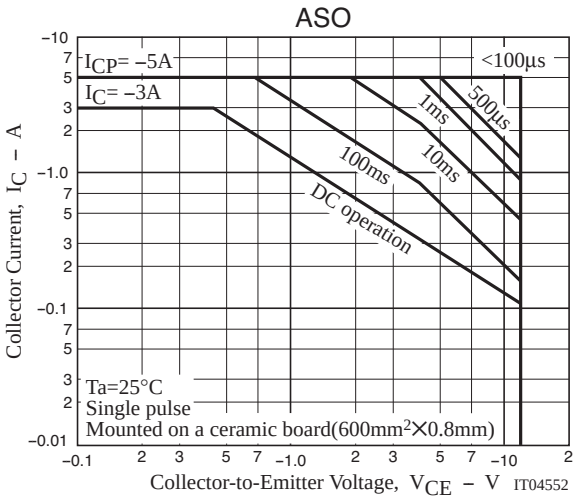

fT – IC
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT04547
VCE= –2V

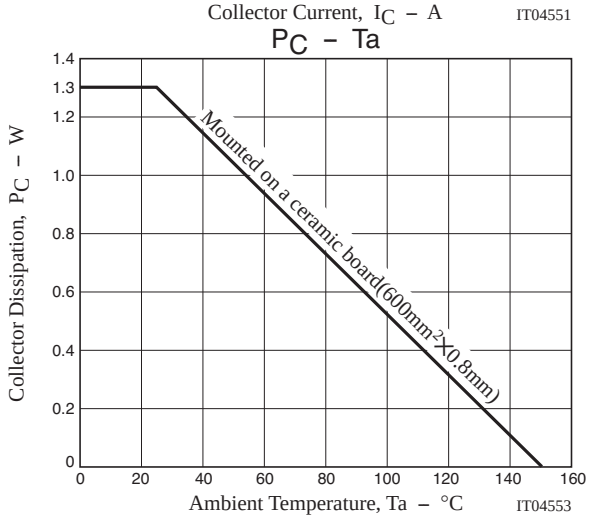

Cob – VCB
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT04548
f=1MHz


VCE(sat) – IC
Collector-to-Emitter
Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT04549
IC / IB=20
25°C
Ta=75°C
–25°C


VCE(sat) – IC
Collector-to-Emitter
Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT04550
IC / IB=50
25°C
Ta=75°C
–25°C


VBE(sat) – IC
IC / IB=50
–25°C
Ta=75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT04551


ASO
ICP= –5A
IC= –3A
<100µs
1ms
500µs
100ms
10ms
DC operation
Ta=25°C
Single pulse
Mounted on a ceramic board(600mm2×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT04552


PC – Ta
Mounted on a ceramic board(600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT04553

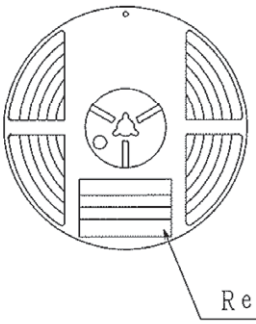
Embossed Taping Specification

CPH6121-TL-E

1. Packing Format

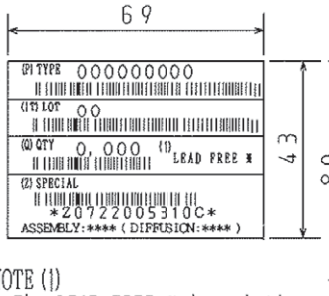
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH6	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



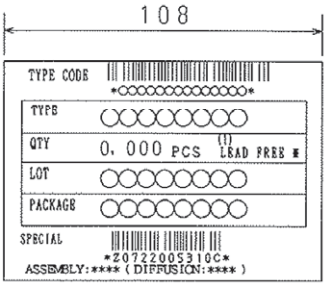
Reel label

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.

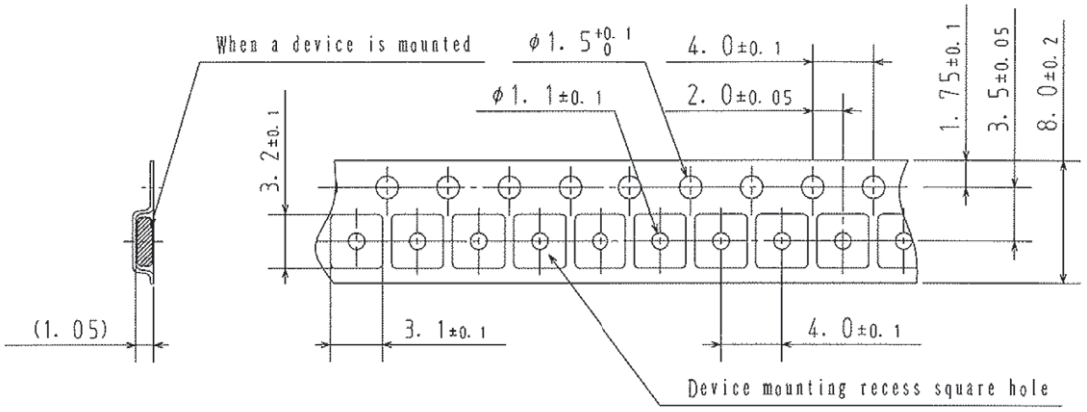


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

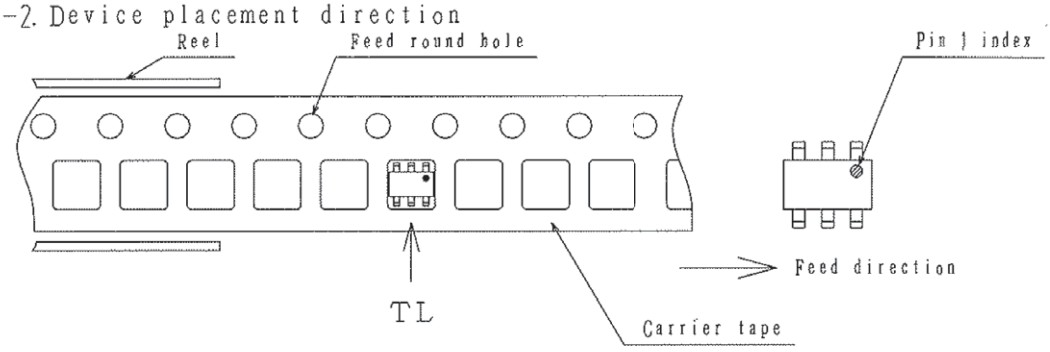
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



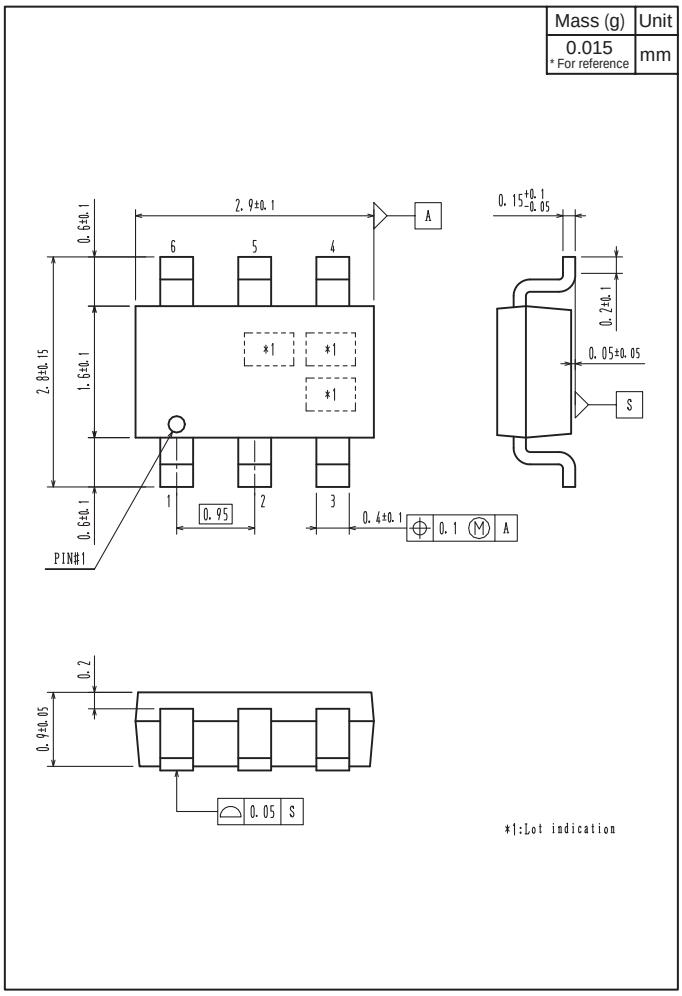
2-2. Device placement direction



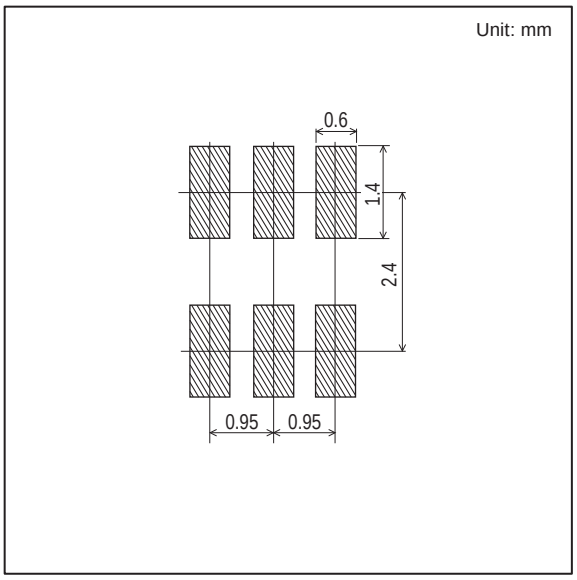
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH6121-TL-E



Land Pattern Example



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