Ordering number : EN6592A

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

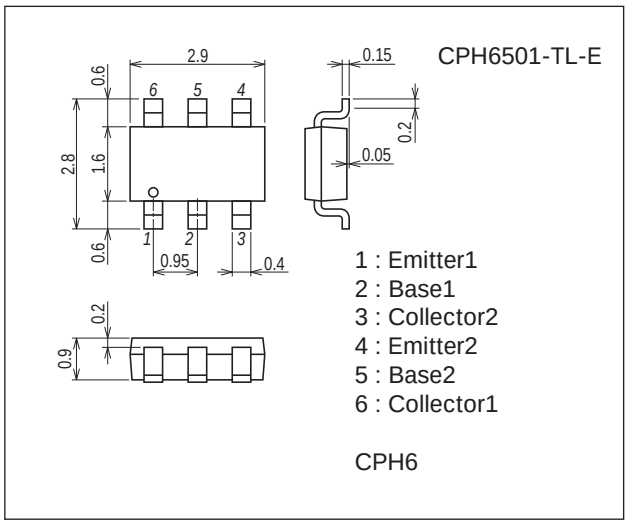
Absolute Maximum Ratings at Ta=25°C

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	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

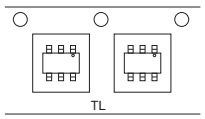
unit : mm (typ)
7018A-006



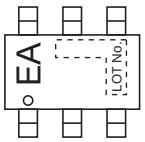
Product & Package Information

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

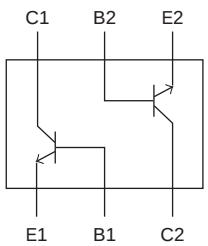
Packing Type: TL



Marking



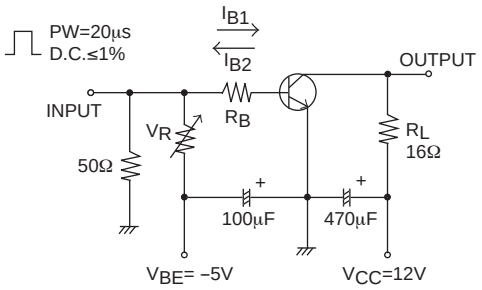
Electrical Connection



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	Cob	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=10μA, I_E=0A	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	30			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.		35		ns
Storage Time	t_{stg}			205		ns
Fall Time	t_f			30		ns

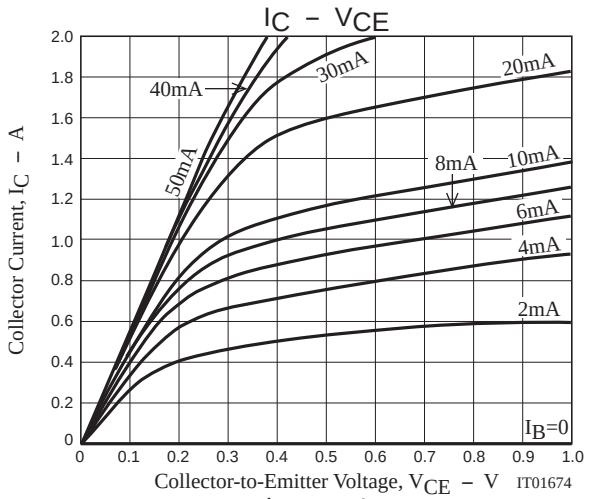
Switching Time Test Circuit

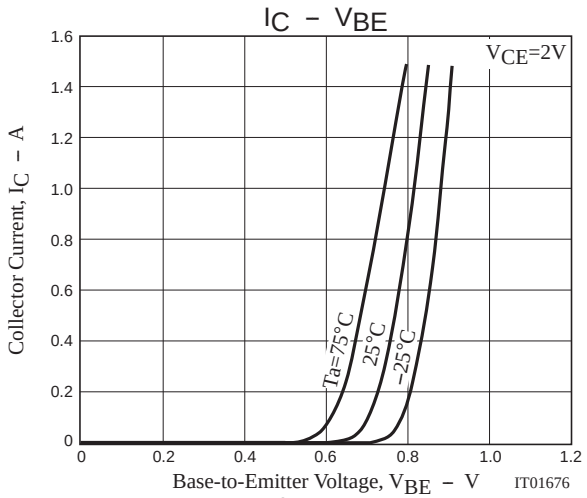


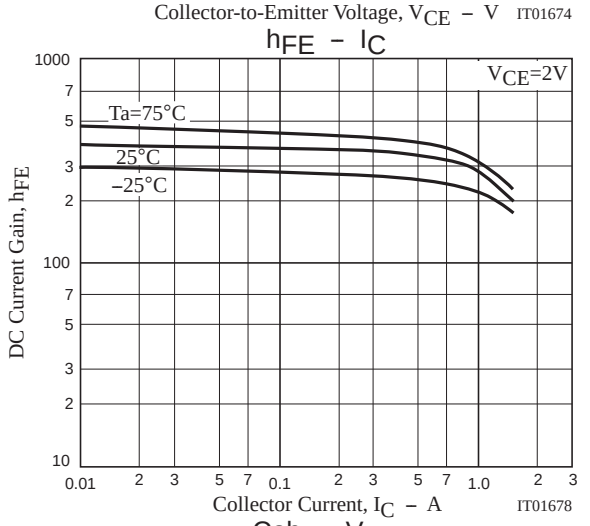
$20I_{B1}$= $-20I_{B2}$=I_C=750mA

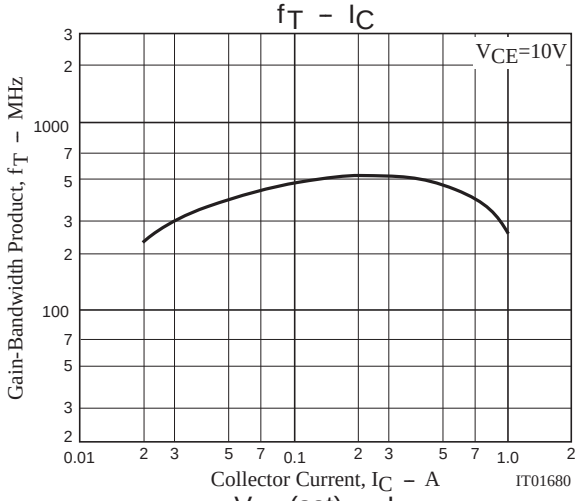
Ordering Information

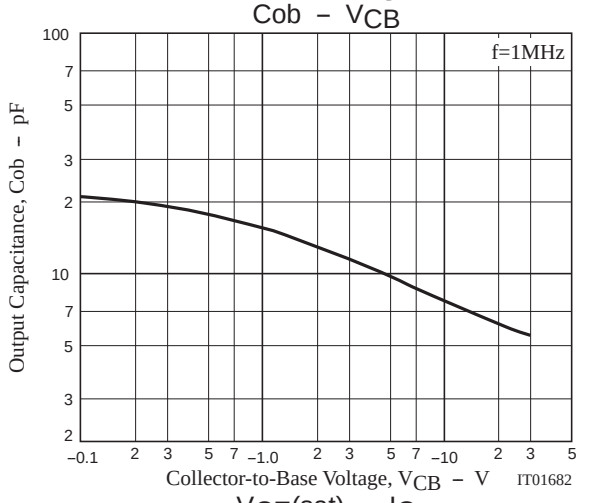
Device	Package	Shipping	memo
CPH6501-TL-E	CPH6	3,000pcs./reel	Pb Free

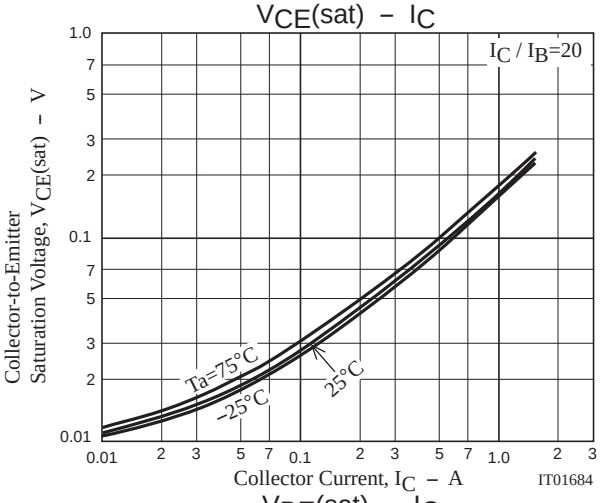

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT01674
40mA
30mA
20mA
50mA
8mA
10mA
6mA
4mA
2mA
IB=0

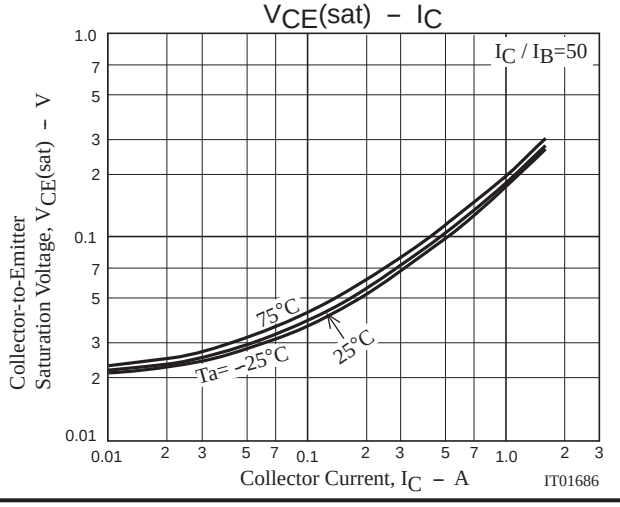

IC – VBE
VCE=2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT01676
Ta=75°C
25°C
–25°C

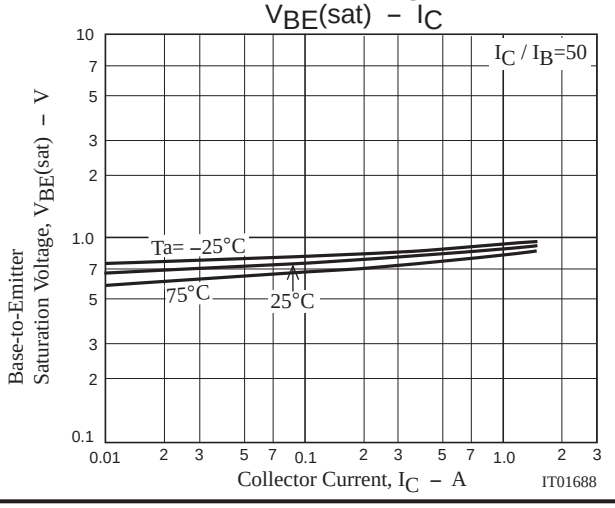

hFE – IC
VCE=2V
DC Current Gain, hFE
Collector Current, IC – A
IT01678
Ta=75°C
25°C
–25°C


fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT01680

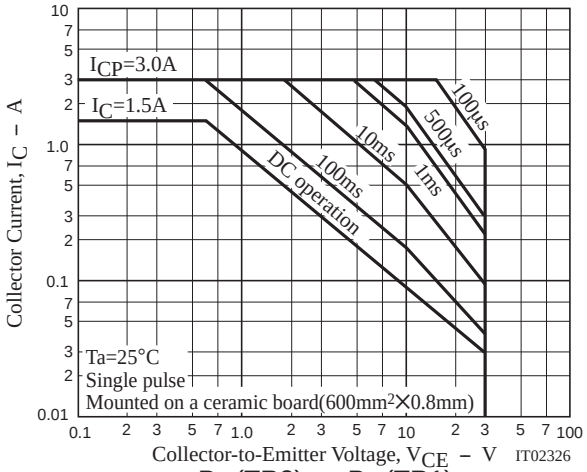

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT01682


VCE(sat) – IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT01684
Ta=75°C
25°C
–25°C

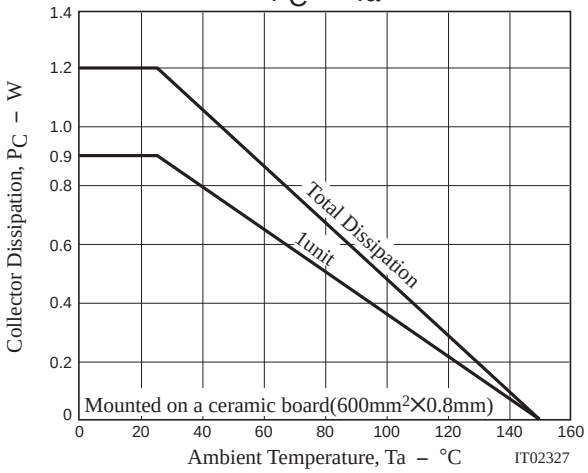

VCE(sat) – IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT01686
75°C
25°C
Ta= –25°C


VBE(sat) – IC
IC / IB=50
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT01688
Ta= –25°C
75°C
25°C

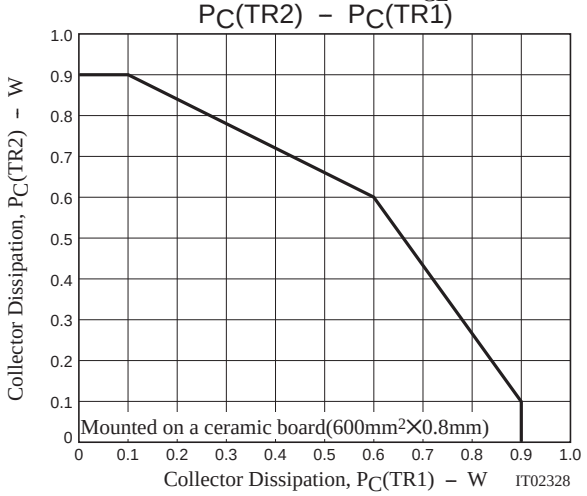
ASO



P_C – Ta



P_C(TR2) – P_C(TR1)



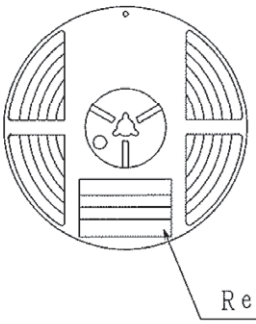
Embossed Taping Specification

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

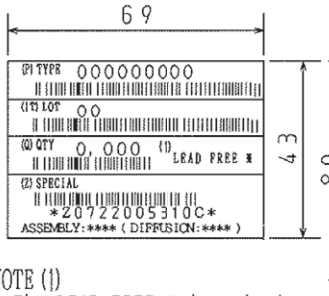
Packing method

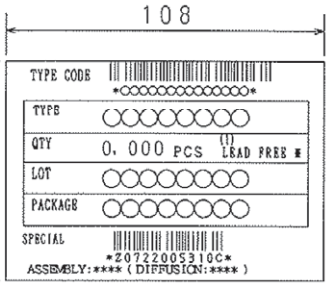


Reel label

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.

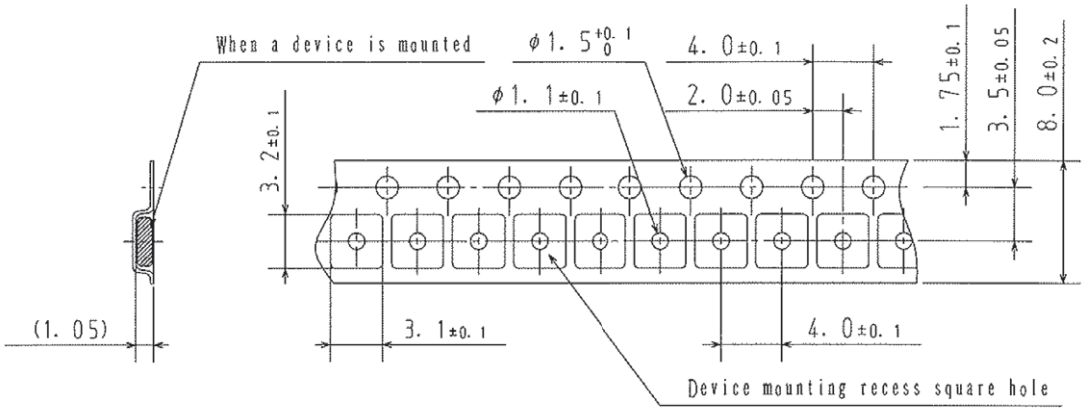
NOTE (1)

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

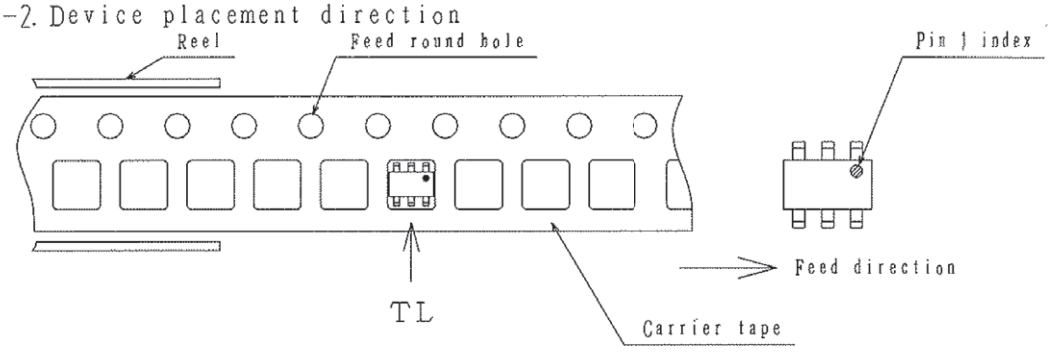
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



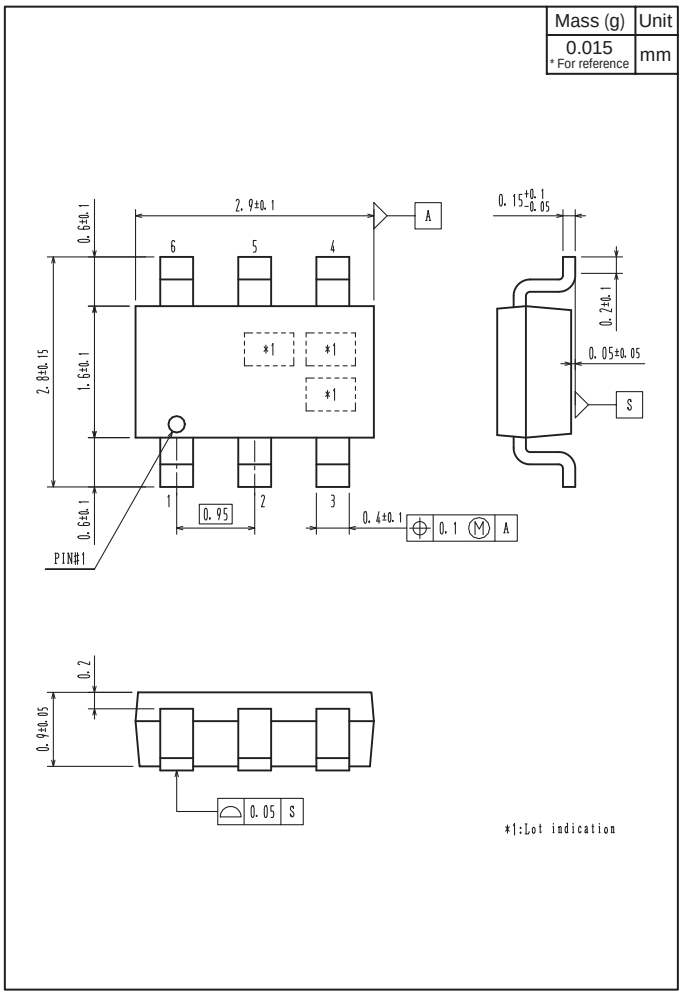
2-2. Device placement direction



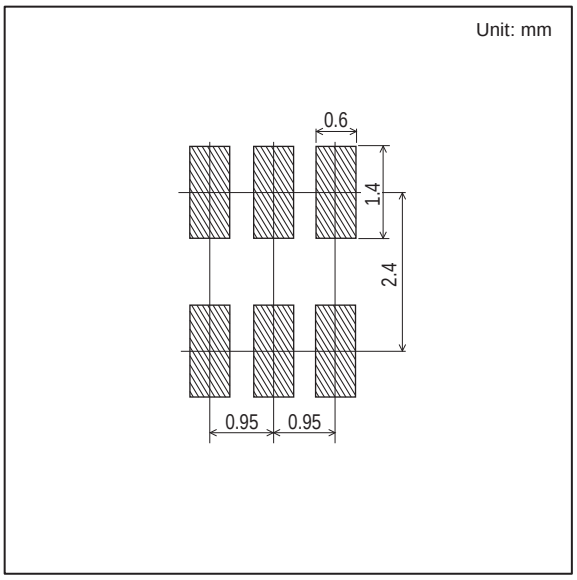
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH6501-TL-E



Land Pattern Example



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