Ordering number : EN6793B

CPH5504

Bipolar Transistor
50V, 3A, Low V_{CE}(sat) NPN Dual CPH5

ON Semiconductor®
http://onsemi.com

Applications

- DC-DC converter, relay drivers, lamp drivers, motor drivers, flash

Features

- Composite type with 2 NPN transistors in one package facilitating high-density mounting
- The CPH5504 is composed of 2 chips each equivaient to the CPH3205
- Ultrasmall package facilitates miniaturization in end products. (mounting height : 0.9mm)

Specifications

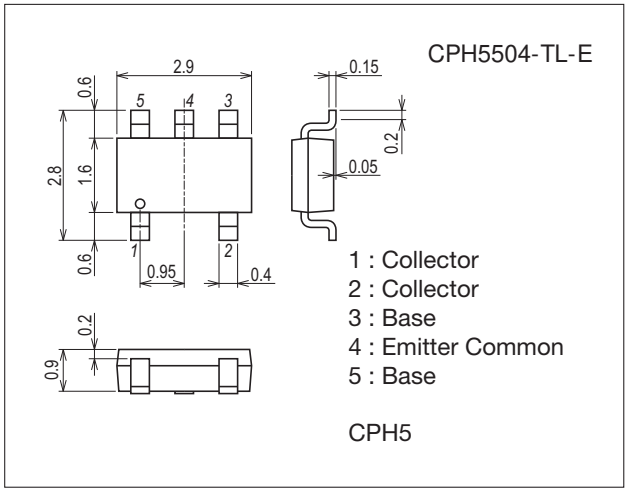
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		100	V
Collector-to-Emitter Voltage	V_{CES}		100	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}		6	A
Base Current	I_B		600	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm^2×0.8mm)	0.9	W
Total Power Dissipation	P_T	Mounted on a ceramic board (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

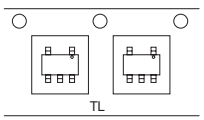
unit : mm (typ)
7017A-009



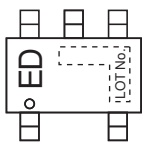
Product & Package Information

- Package : CPH5
- JEITA, JEDEC : SC-74A, SOT-25
- Minimum Packing Quantity : 3,000 pcs./reel

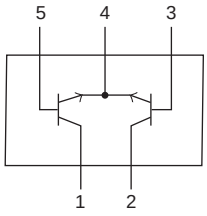
Packing Type : TL



Marking



Electrical Connection

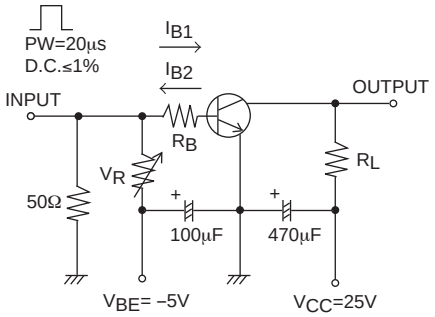


Semiconductor Components Industries, LLC, 2013

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=40V, I_E=0A			1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=100mA	200		560	
	$h_{FE}2$	V_{CE}=2V, I_C=3A	70			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=500mA		380		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		13		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=1A, I_B=50mA		80	120	mV
		I_C=2A, I_B=100mA		140	210	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=2A, I_B=100mA		0.88	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0A	100			V
Collector-to-Base Breakdown Voltage	$V_{(BR)CES}$	I_C=100μA,R_{BE}=0Ω	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0A	6			V
Turn-On Time	t_{on}	See specified Test Circuit.		35		ns
Storage Time	t_{stg}			300		ns
Fall Time	t_f			22		ns

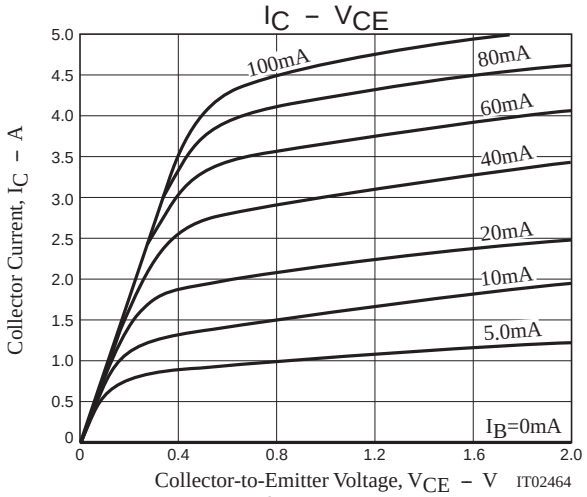
Switching Time Test Circuit

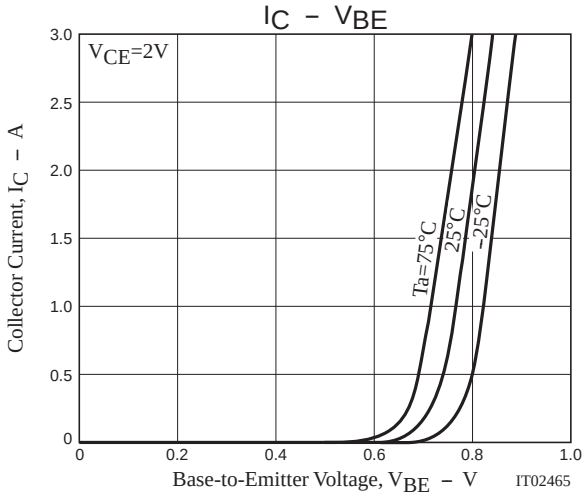


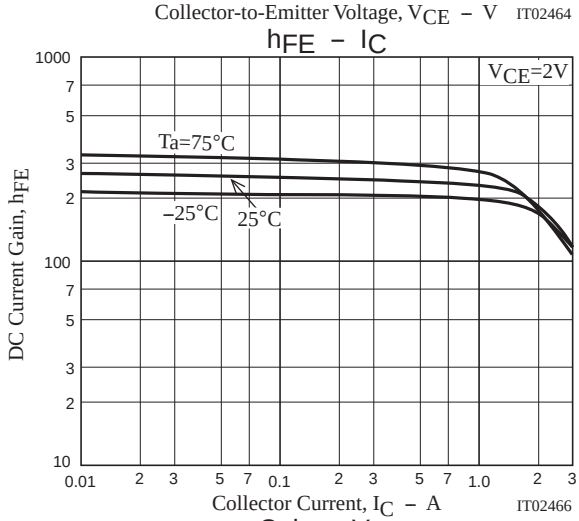
$10I_{B1}=-10I_{B2}=I_C=1A$

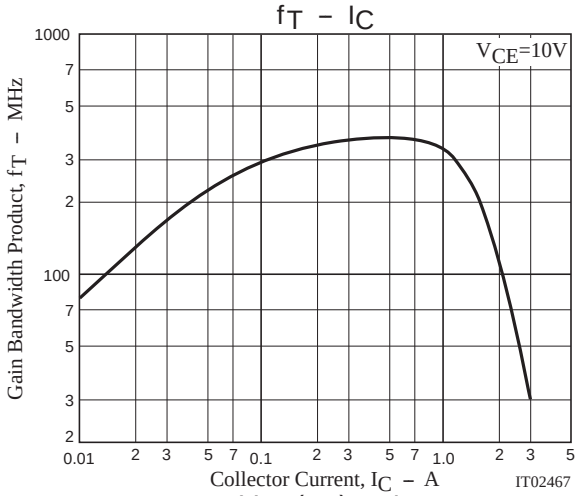
Ordering Information

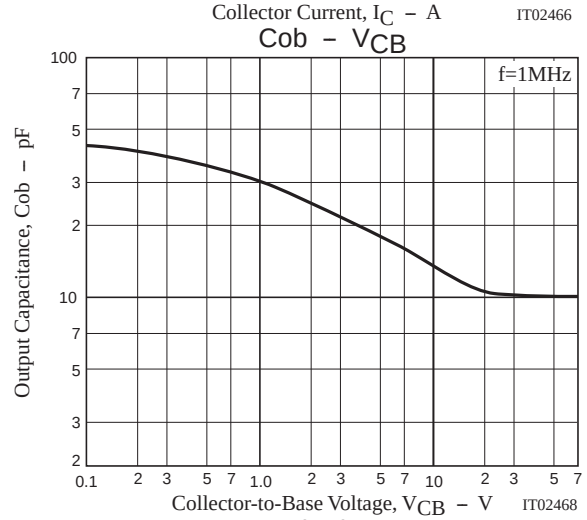
Device	Package	Shipping	memo
CPH5504-TL-E	CPH5	3,000pcs./reel	Pb Free

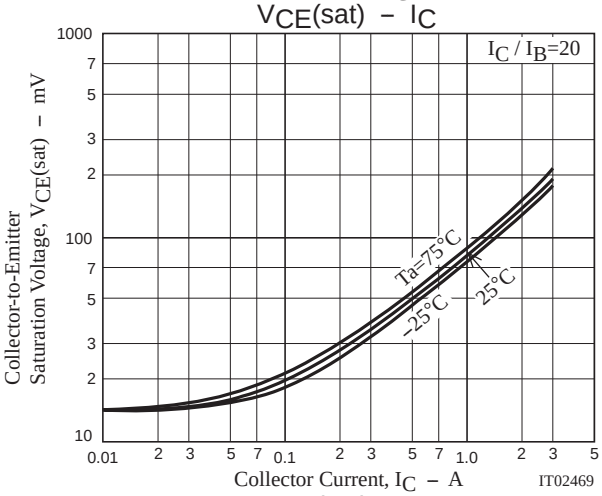

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT02464
100mA
80mA
60mA
40mA
20mA
10mA
5.0mA
IB=0mA

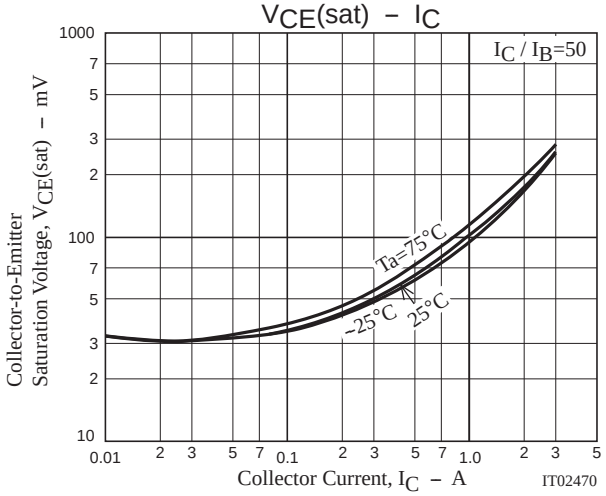

IC – VBE
VCE=2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT02465
Ta=75°C
25°C
–25°C

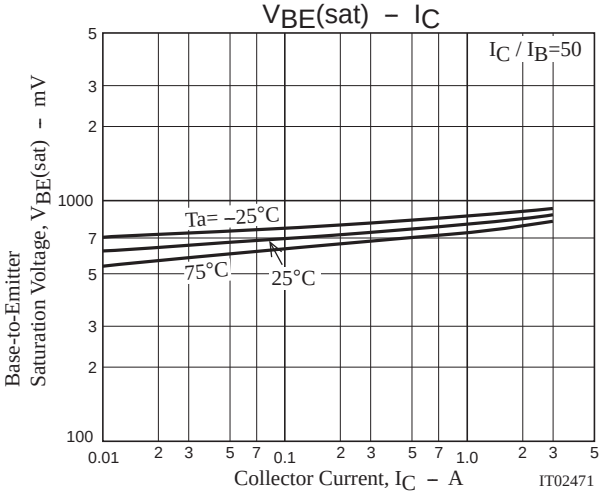

hFE – IC
VCE=2V
DC Current Gain, hFE
Collector Current, IC – A
IT02466
Ta=75°C
–25°C
25°C


fT – IC
VCE=10V
Gain Bandwidth Product, fT – MHz
Collector Current, IC – A
IT02467

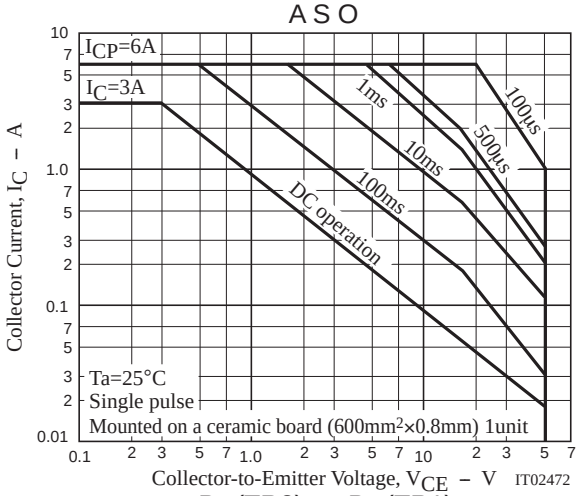

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT02468


VCE(sat) – IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT02469
Ta=75°C
25°C
–25°C

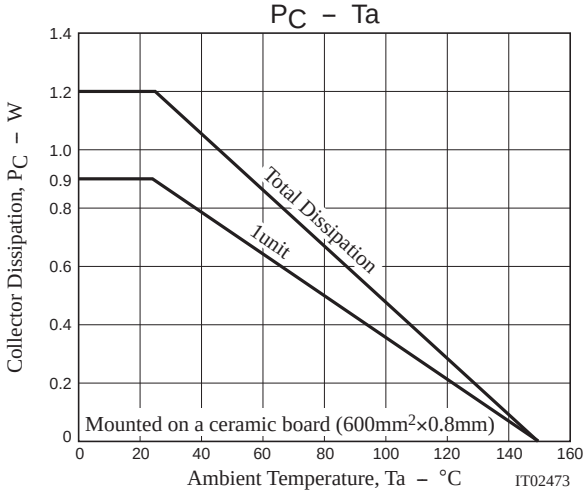

VCE(sat) – IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT02470
Ta=75°C
–25°C
25°C


VBE(sat) – IC
IC / IB=50
Base-to-Emitter Saturation Voltage, VBE(sat) – mV
Collector Current, IC – A
IT02471
Ta= –25°C
75°C
25°C

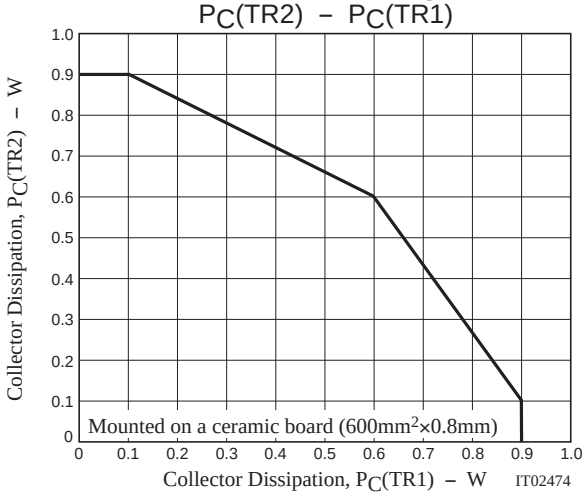
ASO



PC – Ta



PC(TR2) – PC(TR1)



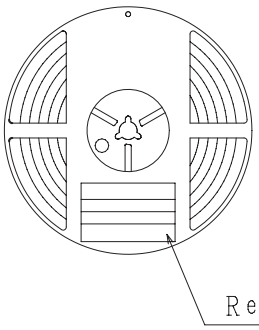
Embossed Taping Specification

CPH5504-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)
CPH5	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

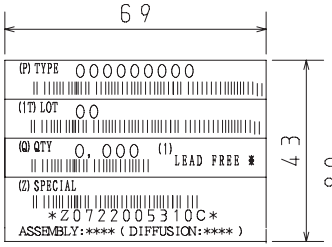
Packing method



Reel label

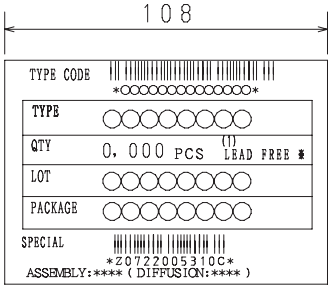
Reel label, Inner box label

(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.



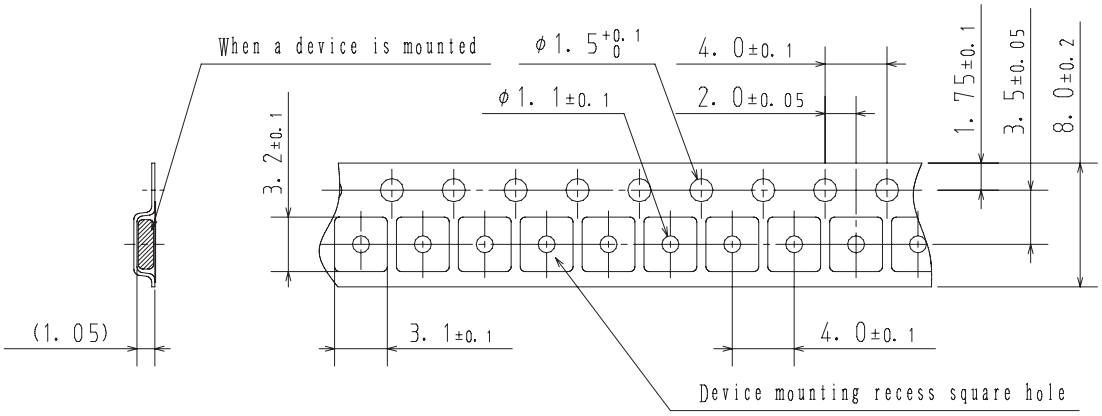
NOTE (1)

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

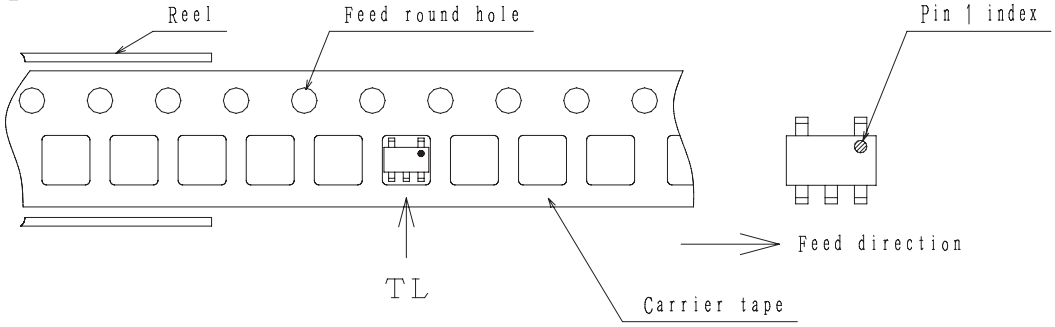
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



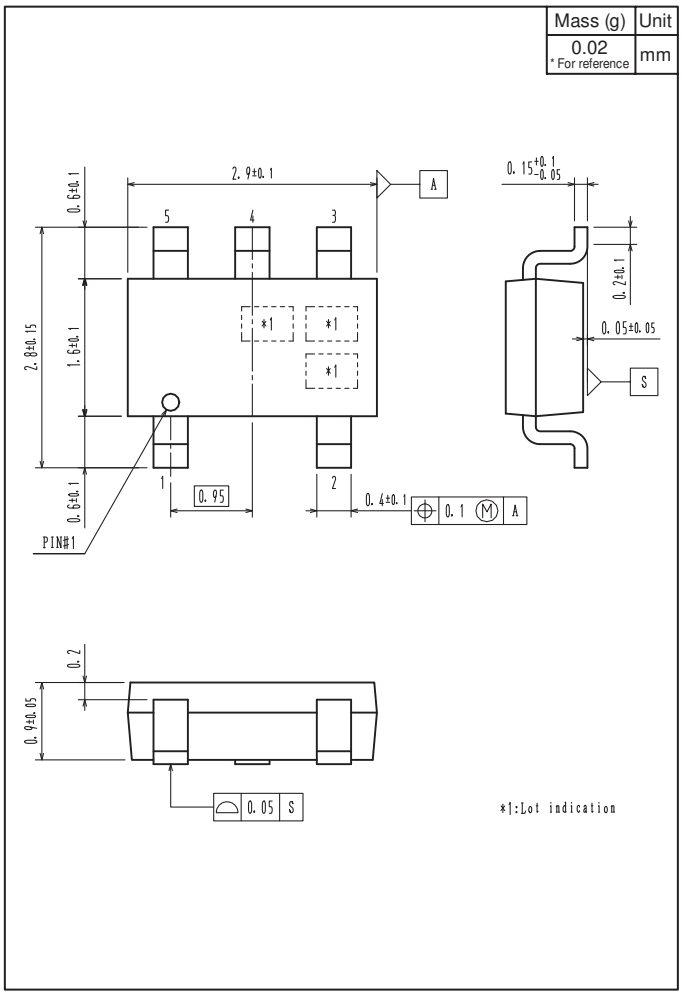
2-2. Device placement direction



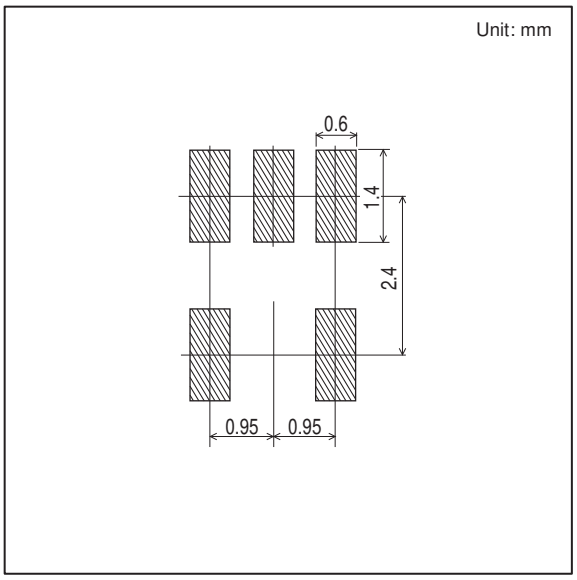
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH5504-TL-E



Land Pattern Example



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