Ordering number : EN6793B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH5504 — NPN Epitaxial Planar Silicon Transistor
High-Current Switching Applications

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

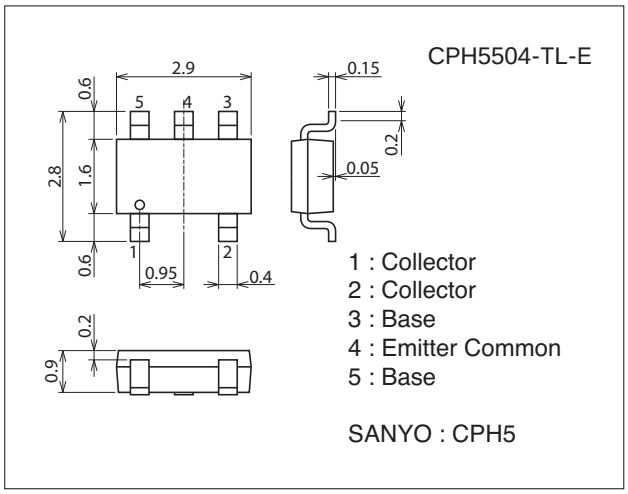
Absolute Maximum Ratings at Ta=25°C

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

Package Dimensions

unit : mm (typ)

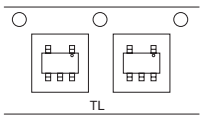
7017A-009



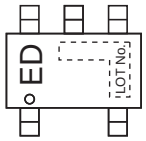
Product & Package Information

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

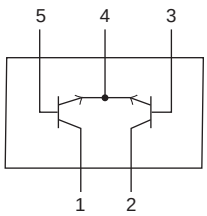
Packing Type : TL



Marking



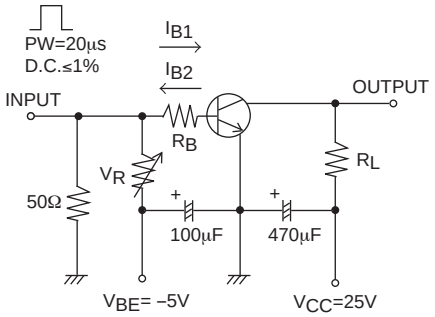
Electrical Connection



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

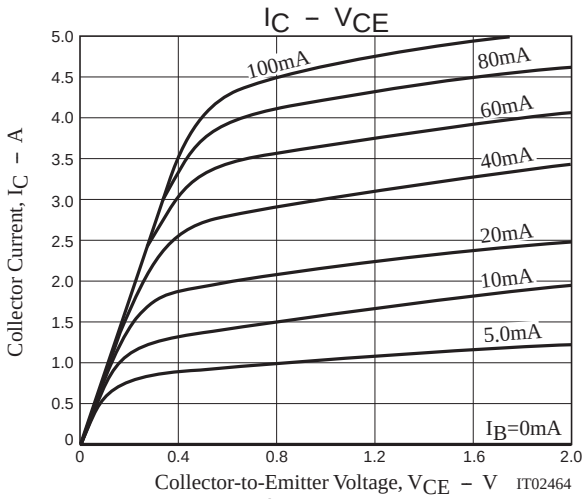
Switching Time Test Circuit

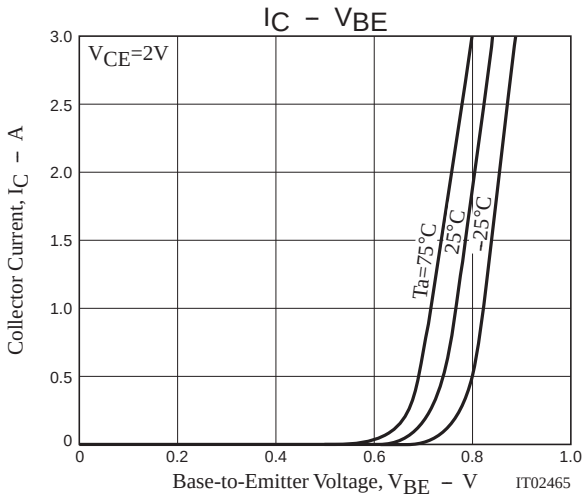


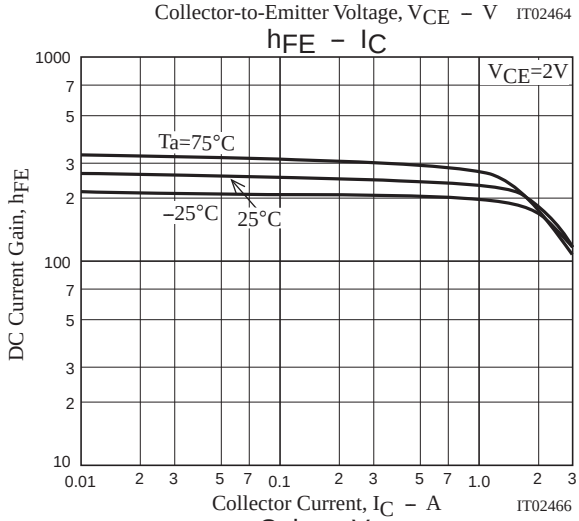
$10I_{B1}=-10I_{B2}=I_C=1A$

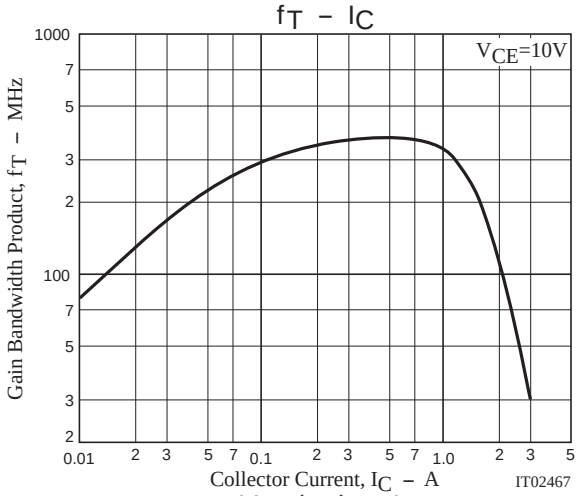
Ordering Information

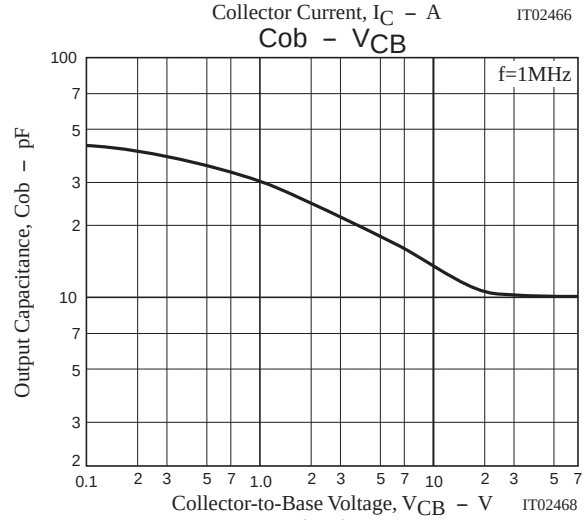
Device	Package	Shipping	memo
CPH5504-TL-E	CPH5	3,000pcs./reel	Pb Free

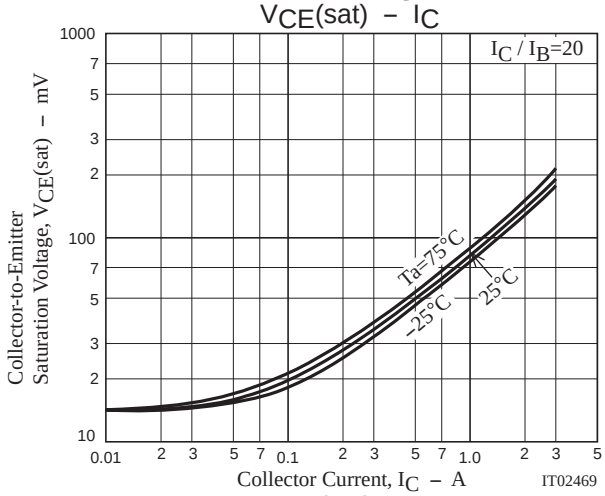

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT02464
100mA
80mA
60mA
40mA
20mA
10mA
5.0mA
IB=0mA

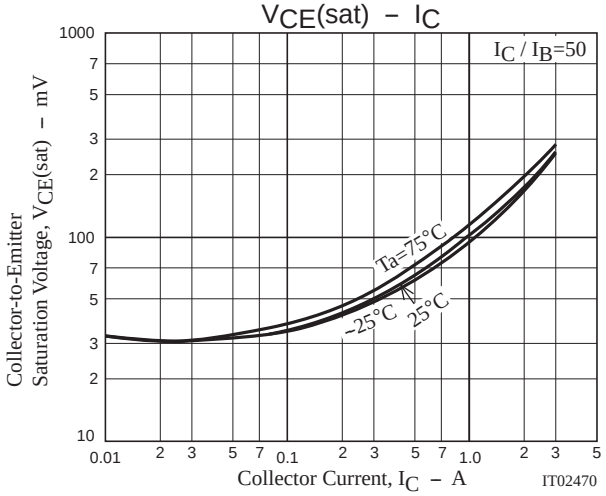

IC – VBE
VCE=2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT02465
Ta=75°C
25°C
–25°C

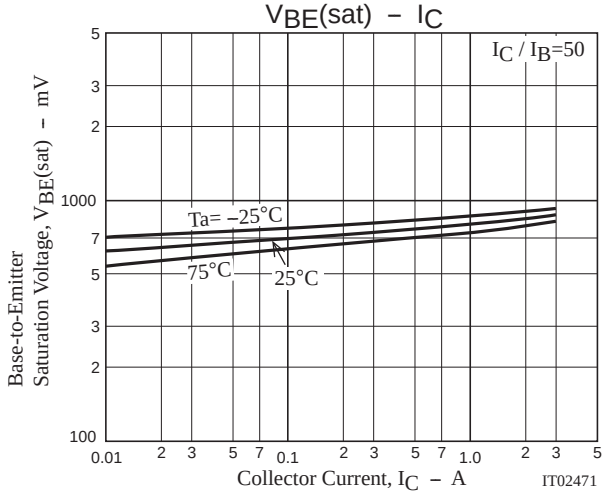

hFE – IC
VCE=2V
DC Current Gain, hFE
Collector Current, IC – A
IT02466
Ta=75°C
–25°C
25°C


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

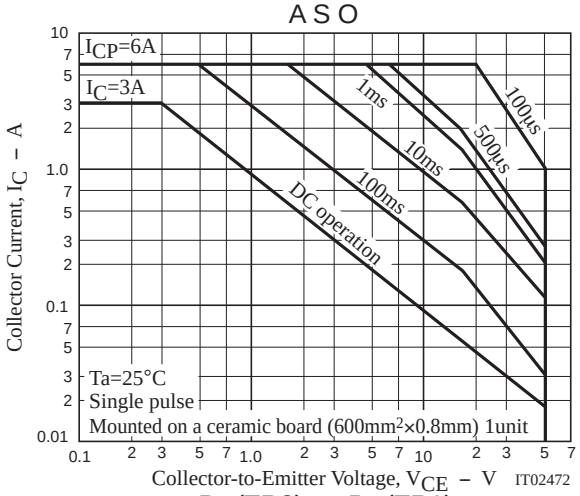

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT02468


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

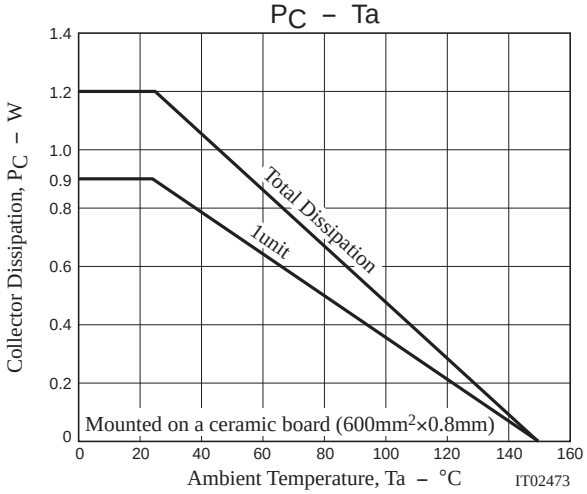

VCE(sat) – IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT02470
Ta=75°C
25°C
–25°C


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

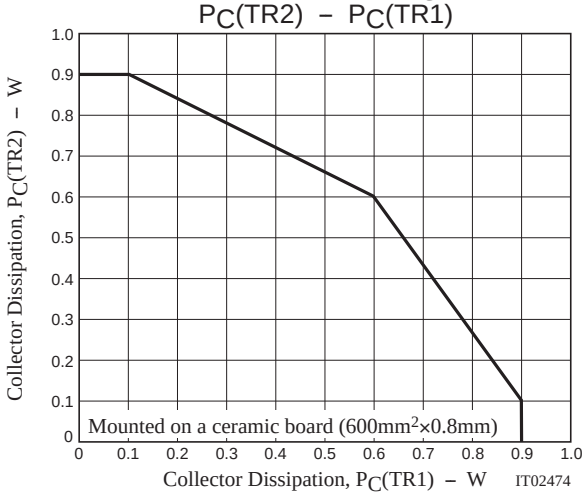
ASO



PC – Ta



PC(TR2) – PC(TR1)



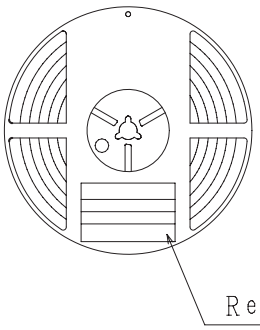
Embossed Taping Specification

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

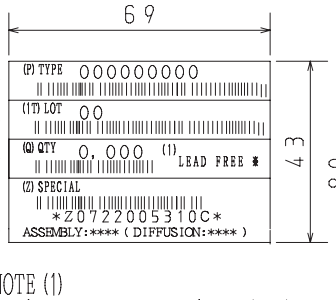
Packing method



Reel label

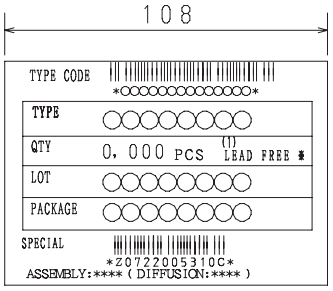
Reel label, Inner box label

(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.



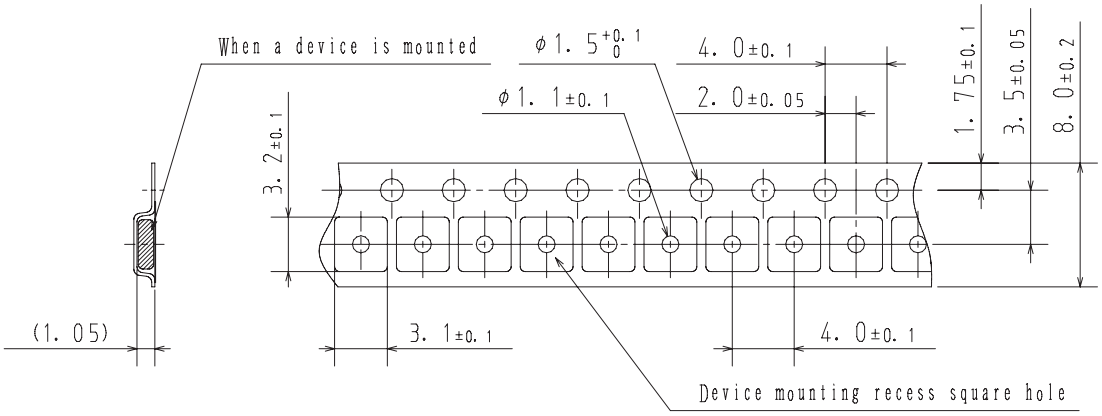
NOTE (1)

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

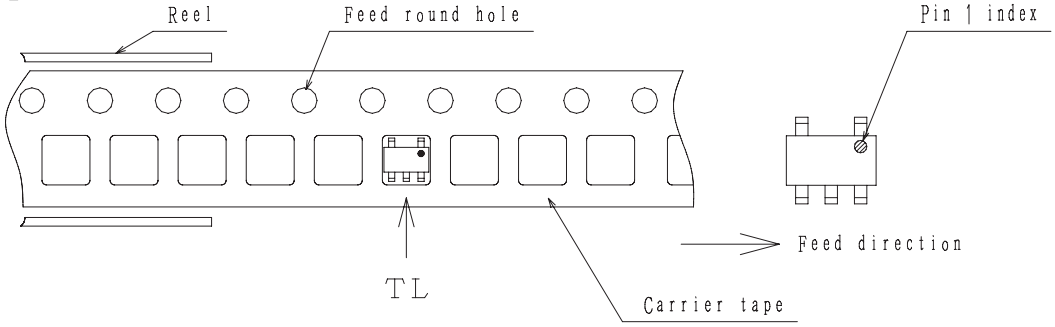
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



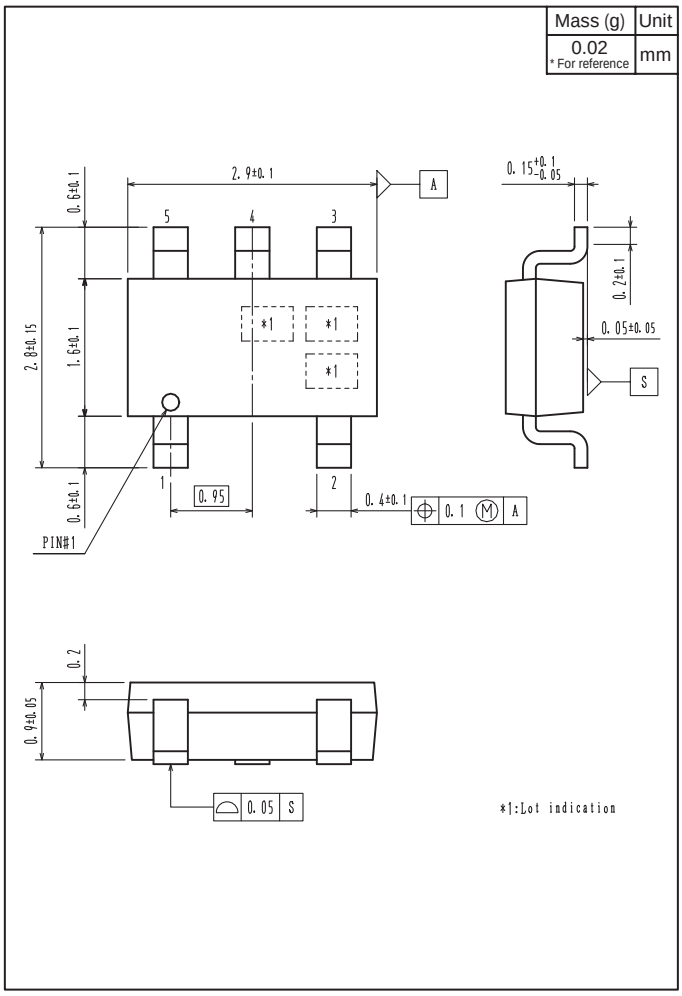
2-2. Device placement direction



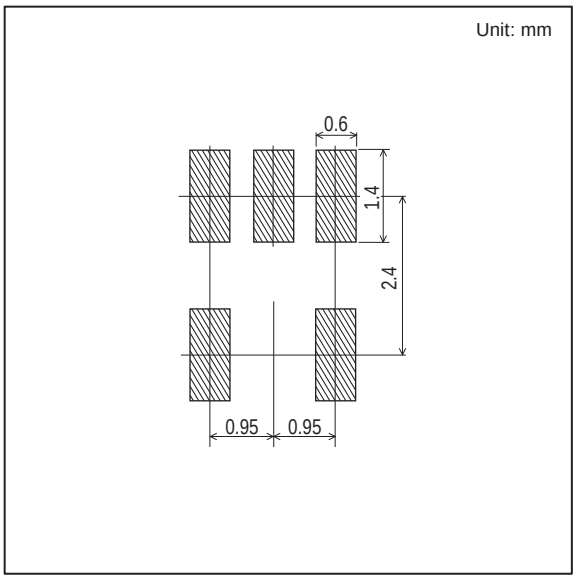
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH5504-TL-E



Land Pattern Example



This catalog provides information as of June, 2012. Specifications and information herein are subject to change without notice.