Ordering number : EN6005B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH3106 — PNP Epitaxial Planar Silicon Transistor

DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash

Features

- Adoption of MBIT processes
- High current capacitance
- 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

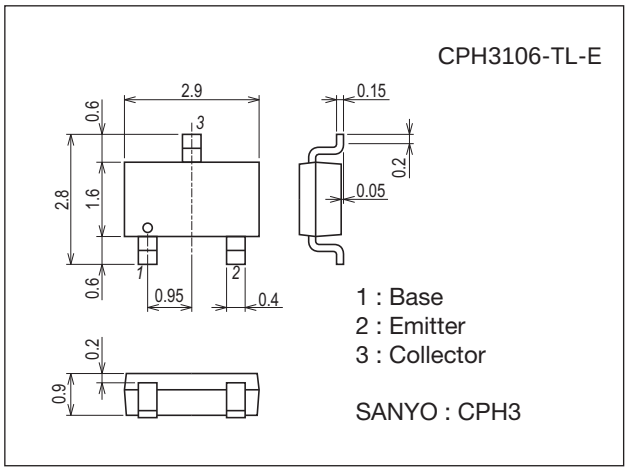
Absolute Maximum Ratings at Ta=25°C

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	Mounted on a ceramic board (600mm^2×0.8mm)	0.9	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

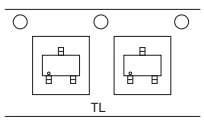
7015A-003



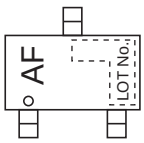
Product & Package Information

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

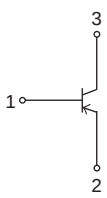
Packing Type: TL



Marking



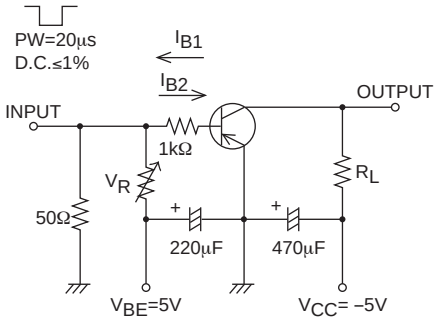
Electrical Connection



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		280		MHz
Output Capacitance	Cob	V_{CB}= −10V, f=1MHz		36		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	mV
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			10		ns

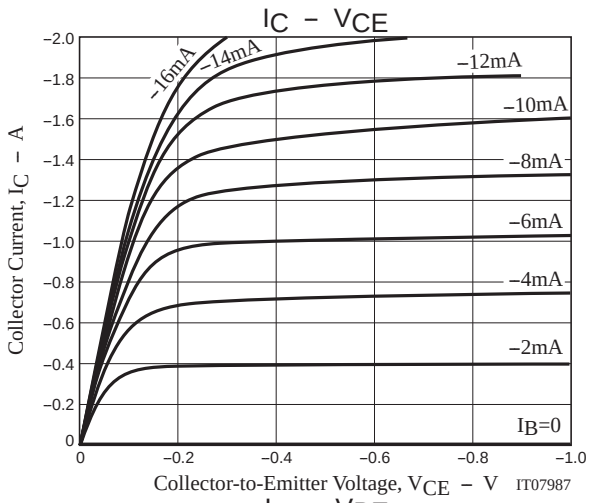
Switching Time Test Circuit

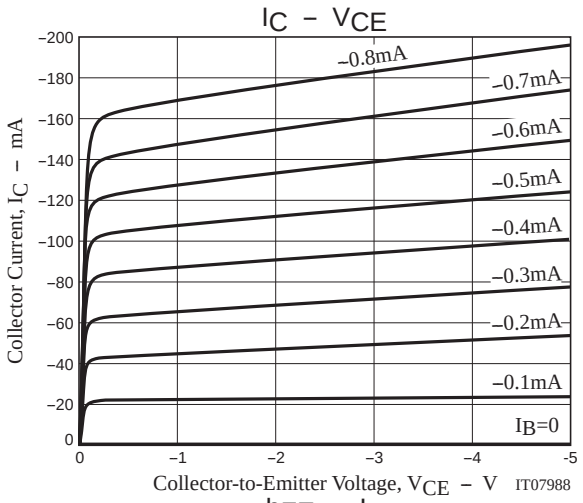


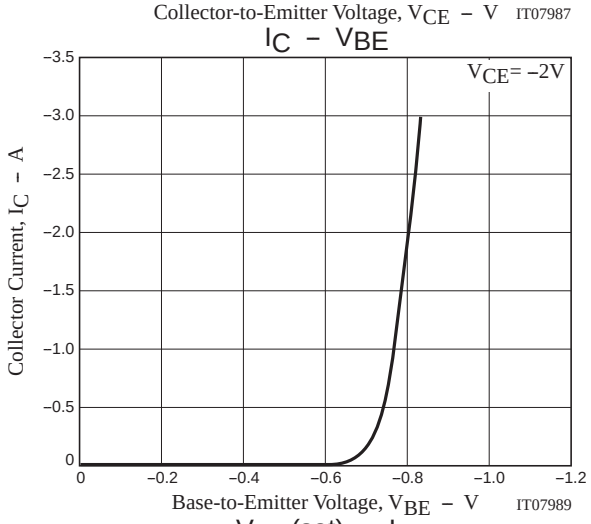
$-20I_{B1}=20I_{B2}=I_C=-1.5A$

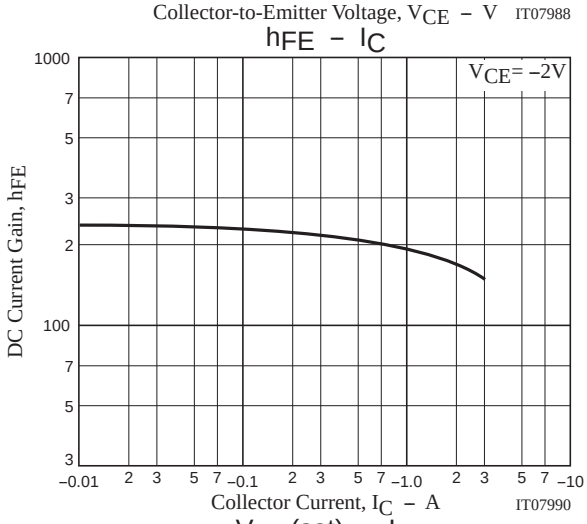
Ordering Information

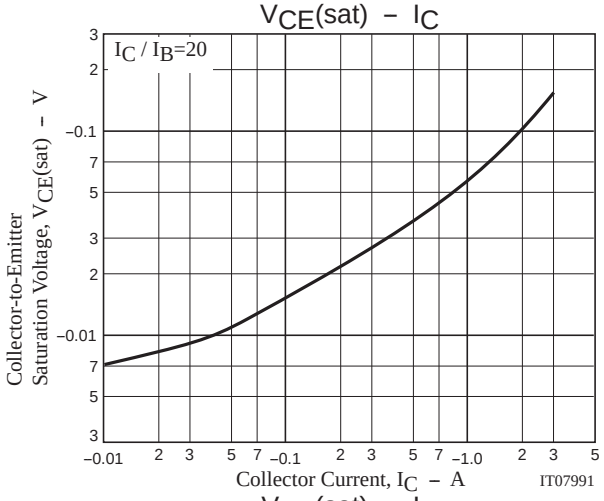
Device	Package	Shipping	memo
CPH3106-TL-E	CPH3	3,000pcs./reel	Pb Free

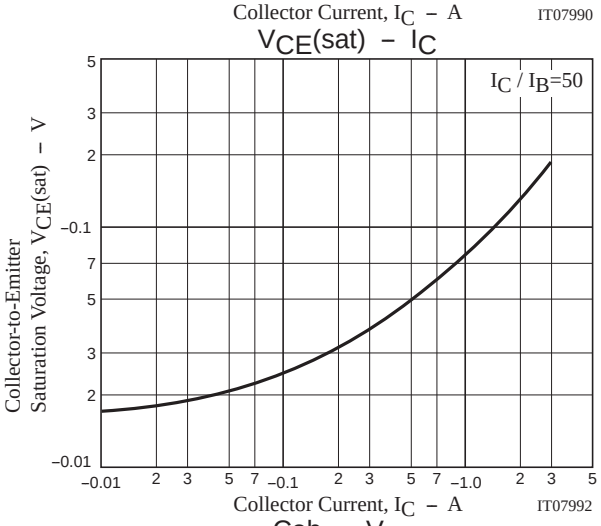

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07987
–16mA
–14mA
–12mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0

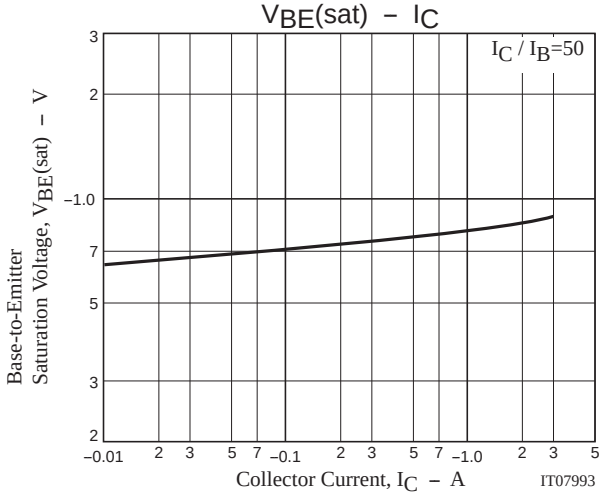

IC – VCE
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
IT07988
–0.8mA
–0.7mA
–0.6mA
–0.5mA
–0.4mA
–0.3mA
–0.2mA
–0.1mA
IB=0

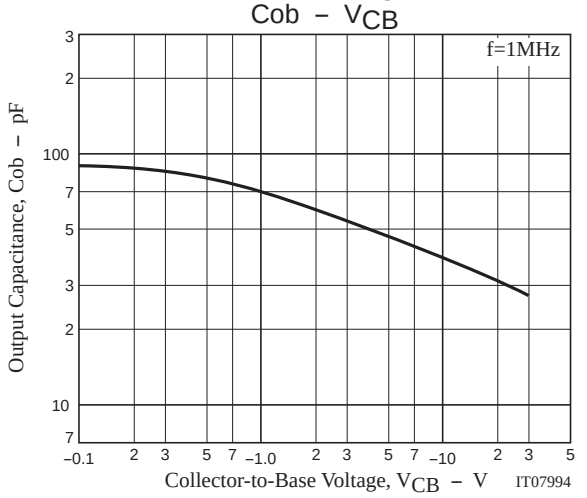

IC – VBE
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT07989

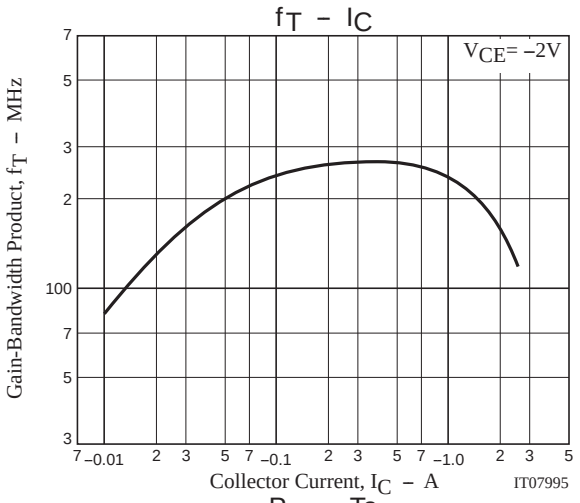

hFE – IC
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
IT07990

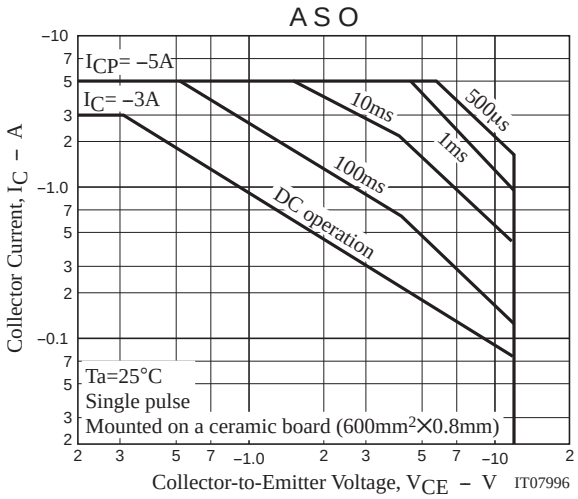

VCE(sat) – IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07991

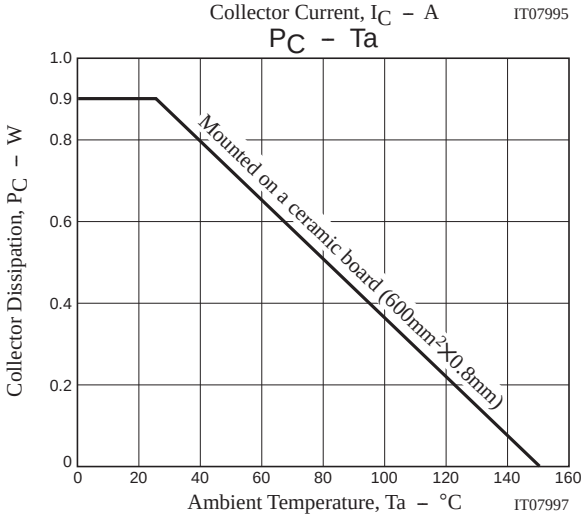

VCE(sat) – IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07992


VBE(sat) – IC
IC / IB=50
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT07993


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT07994


fT – IC
VCE= –2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT07995


ASO
ICP= –5A
IC= –3A
10ms
500µs
1ms
100ms
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
IT07996


PC – Ta
Mounted on a ceramic board (600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT07997

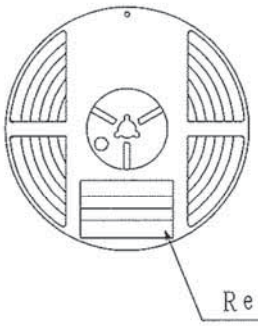
Embossed Taping Specification

CPH3106-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)
CPH3	CPH3	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

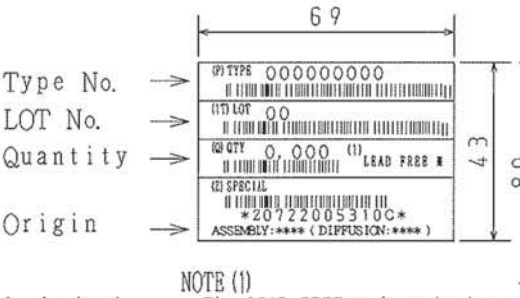
Packing method



Reel label

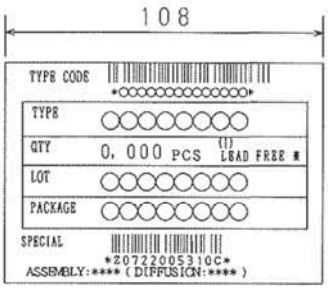
Reel label, Inner box label

(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.



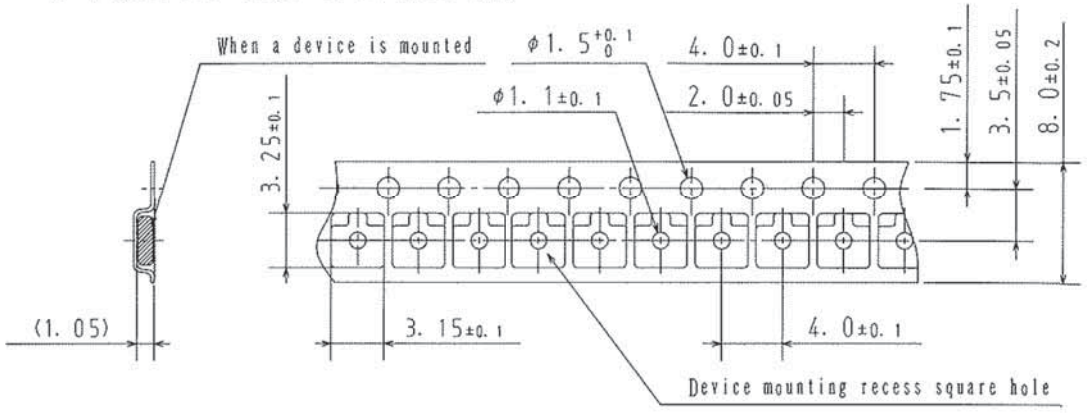
NOTE (1)

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

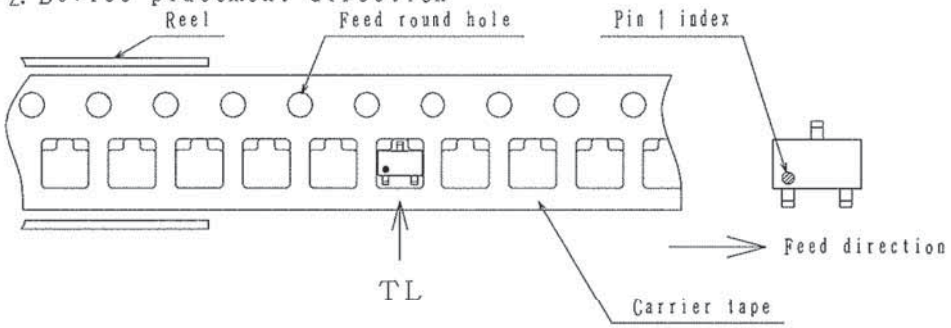
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



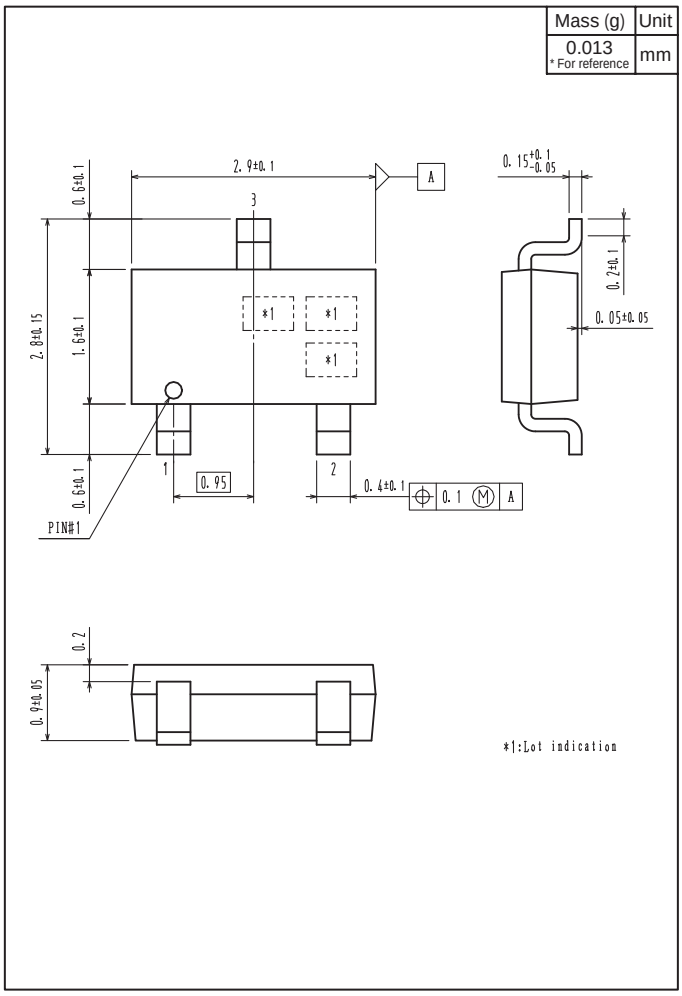
2-2. Device placement direction



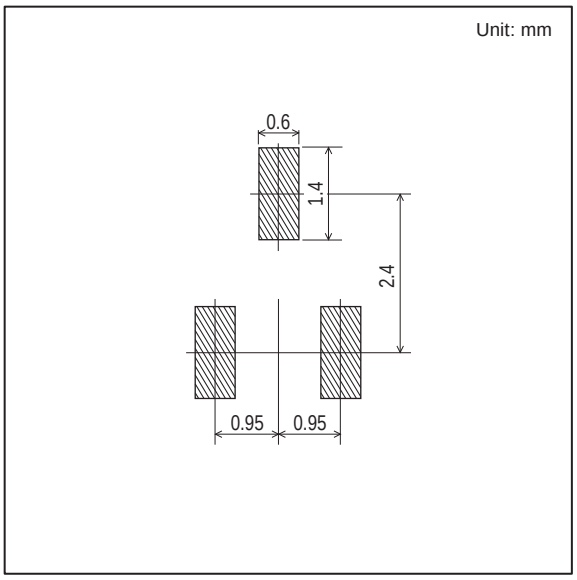
Those with one electrode terminal on the feed hole side·····TL

Outline Drawing

CPH3106-TL-E



Land Pattern Example



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