



# ECH8102 — PNP Epitaxial Planar Silicon Transistor

## High-Current Switching Applications

### Applications

- High-power IGBT / MOSFET gate drivers, DC / DC converters, lamp drivers, motor drivers

### Features

- Adoption of FBET, MBIT process
- Low collector-to-emitter saturation voltage
- High allowable power dissipation
- IECO is guaranteed for preventing reverse flow from the collector to the emitter
- High current capacitance
- High speed switching
- Halogen free compliance

### Specifications

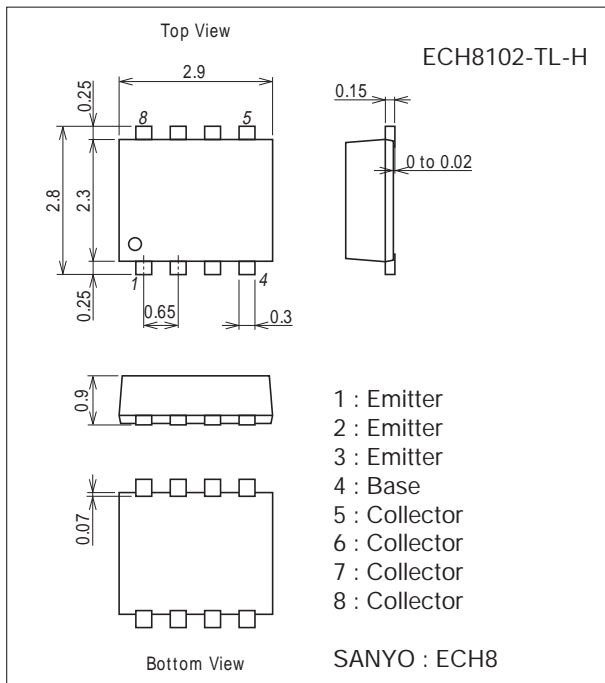
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		-30	V
Collector-to-Emitter Voltage	VCES		-30	V
Collector-to-Emitter Voltage	VCEO		-30	V
Emitter-to-Base Voltage	VEBO		-6	V
Collector Current	IC		-12	A
Collector Current (Pulse)	ICP		-24	A
Base Current	IB		-1.2	A
Collector Dissipation	PC	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.6	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

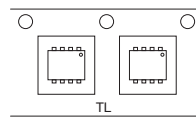
7011A-005



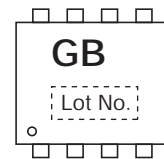
### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

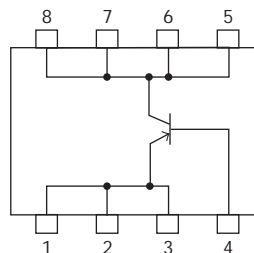
### Packing Type : TL



### Marking



### Electrical Connection

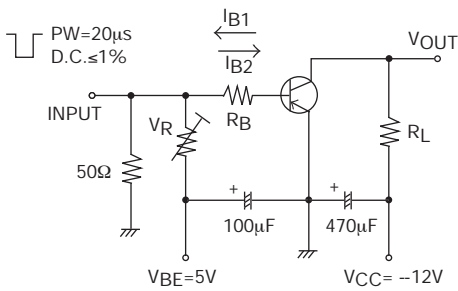


# ECH8102

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> = -30V, I <sub>E</sub> =0A			-0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = -4V, I <sub>C</sub> =0A			-0.1	μA
Emitter Cutoff Current	I <sub>ECO</sub>	V <sub>EC</sub> = -4.5V, I <sub>C</sub> =0A			-1	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -500mA	200		560	
	h <sub>FE2</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -4A	150			
	h <sub>FE3</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -10A	100			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -500mA		140		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10V, f=1MHz		120		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)1</sub>	I <sub>C</sub> = -6A, I <sub>B</sub> = -300mA		-80	-135	mV
	V <sub>CE(sat)2</sub>	I <sub>C</sub> = -2A, I <sub>B</sub> = -40mA		-50	-85	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -2A, I <sub>B</sub> = -40mA		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -10μA, I <sub>E</sub> =0A	-30			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CES</sub>	I <sub>C</sub> = -100μA, R <sub>BE</sub> =0Ω	-30			V
	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -1mA, R <sub>BE</sub> =∞	-30			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -10μA, I <sub>C</sub> =0A	-6			V
Turn-On Time	t <sub>on</sub>	See specified Test Circuit.		91		ns
Storage Time	t <sub>stg</sub>			125		ns
Fall Time	t <sub>f</sub>			17		ns

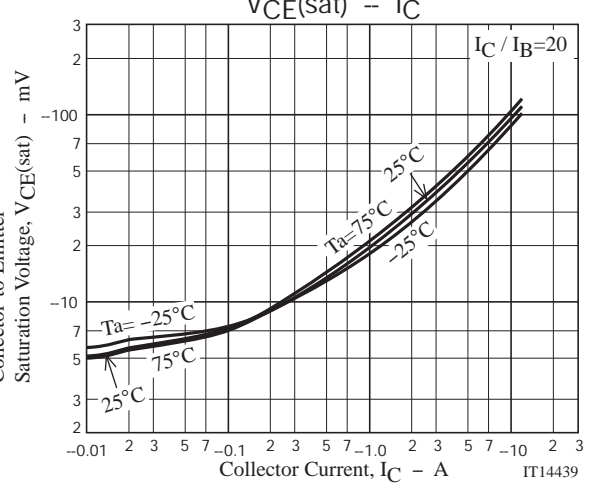
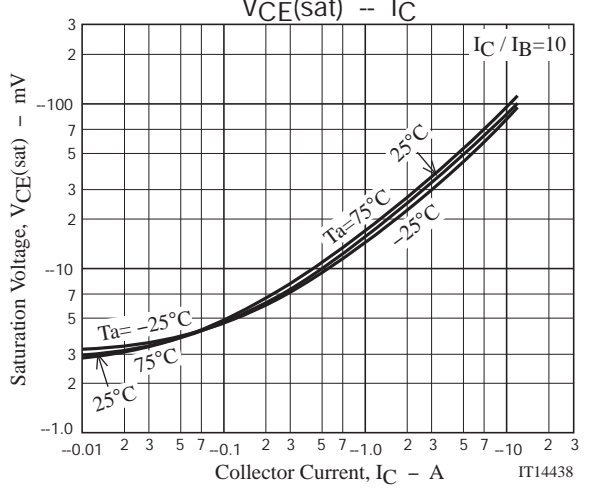
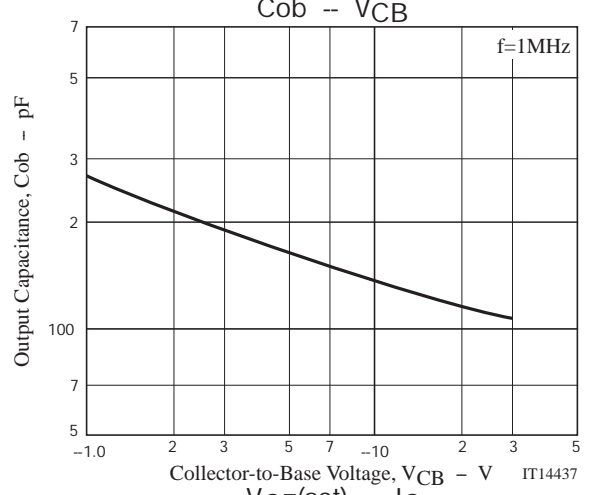
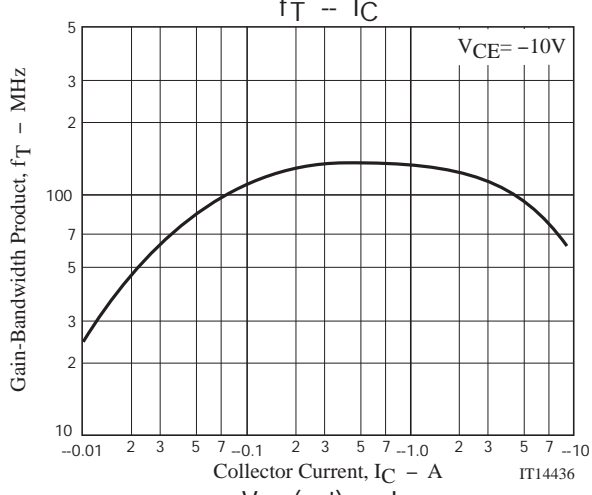
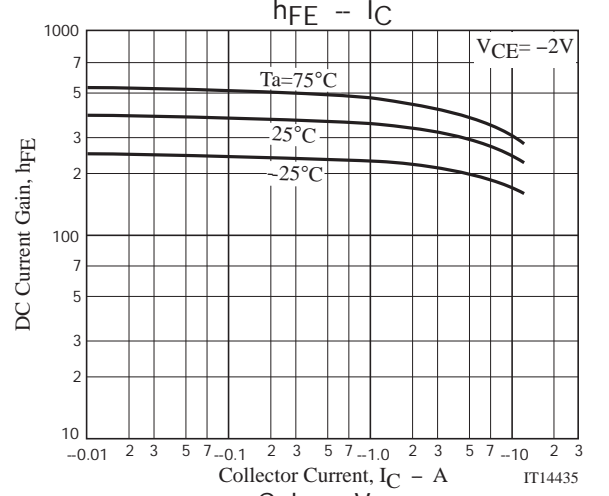
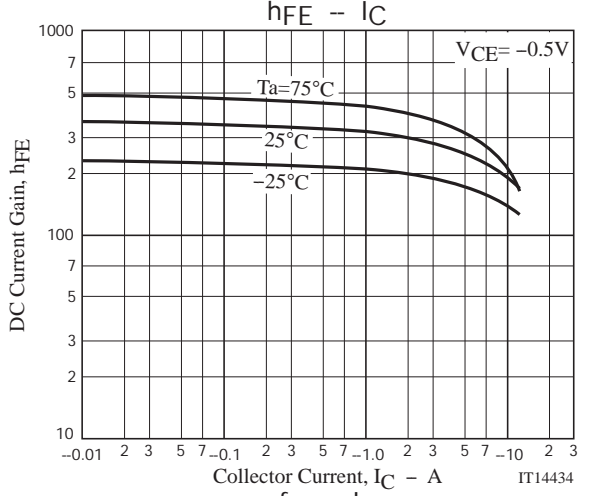
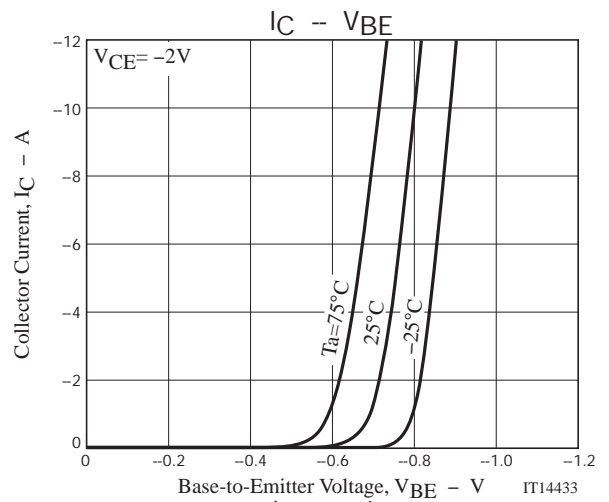
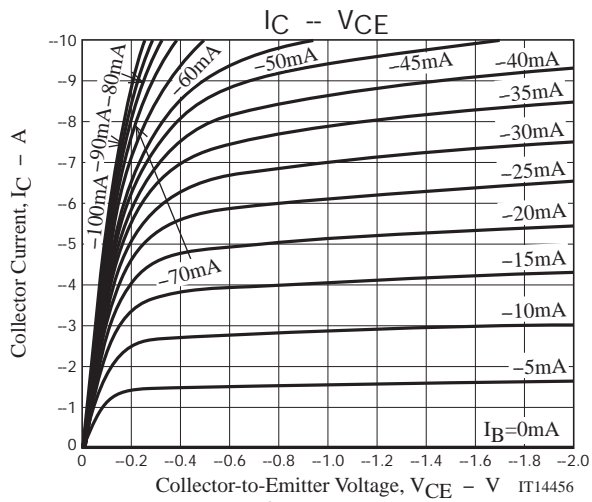
## Switching Time Test Circuit

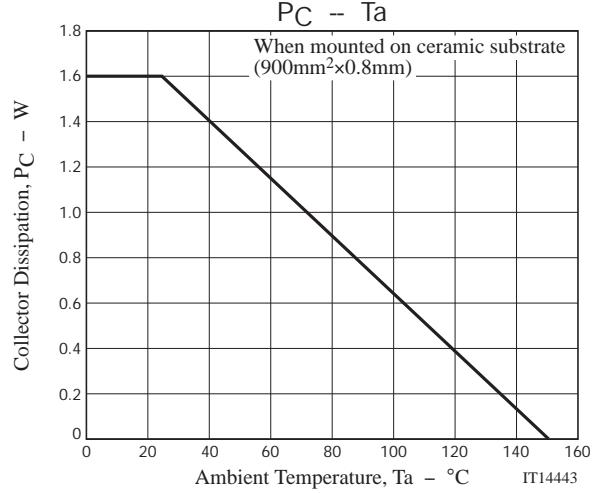
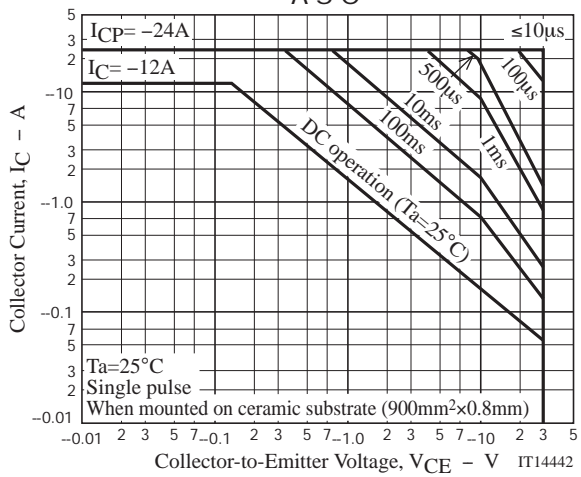
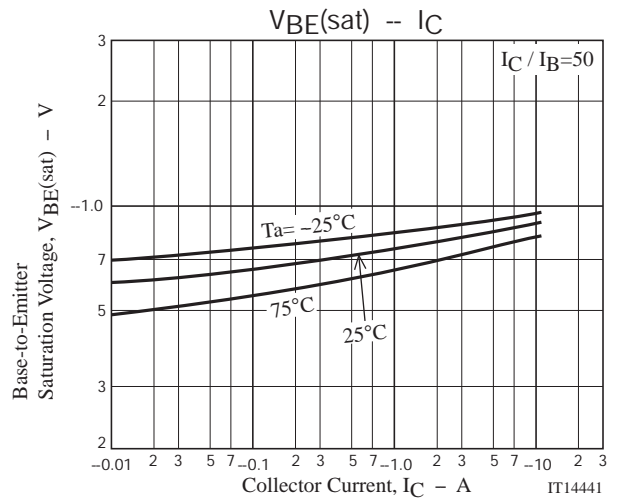
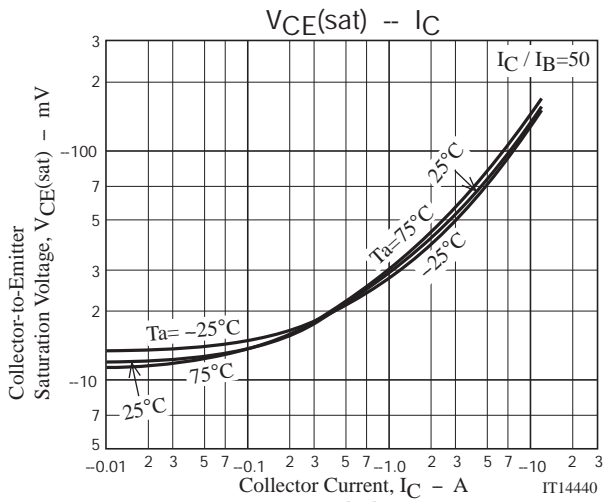


$$I_C = -50I_{B1} = 25I_{B2} = -5A$$

## Ordering Information

Device	Package	Shipping	memo
ECH8102-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

ECH8102-TL-H

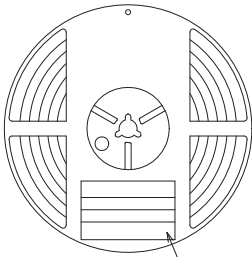
1. Packing Format

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)
ECH8	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

Reel label, Inner box label  
(unit :mm)

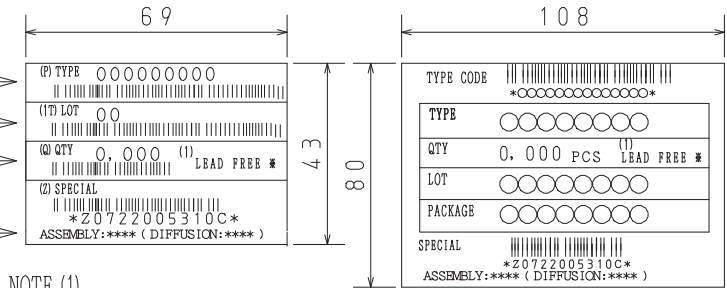
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



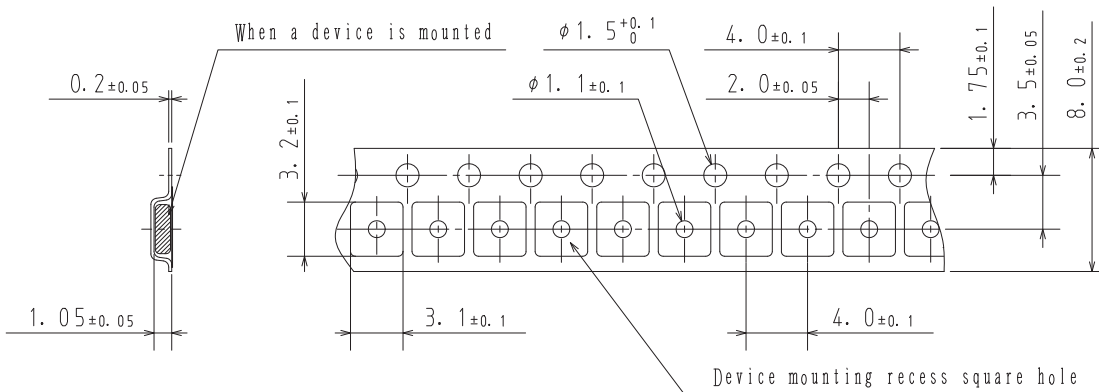
NOTE (1)

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

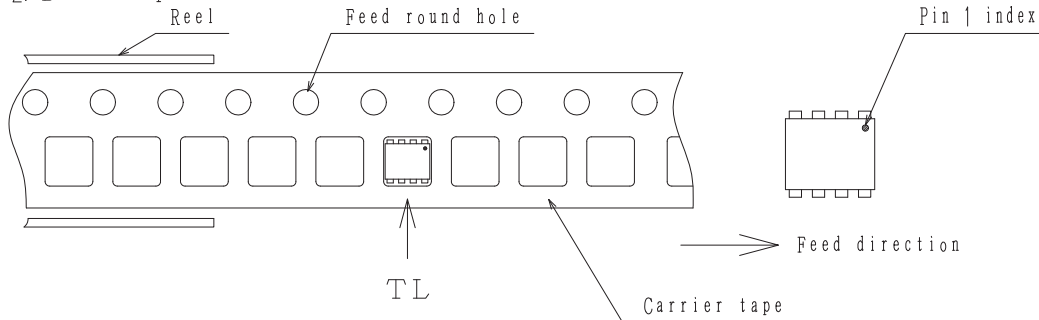
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



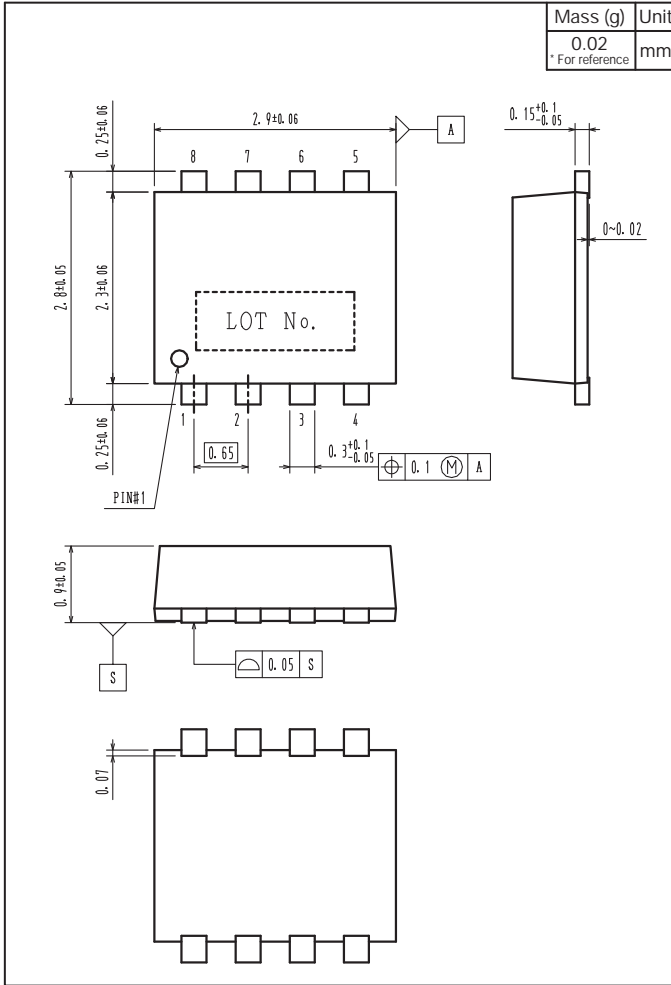
2-2. Device placement direction



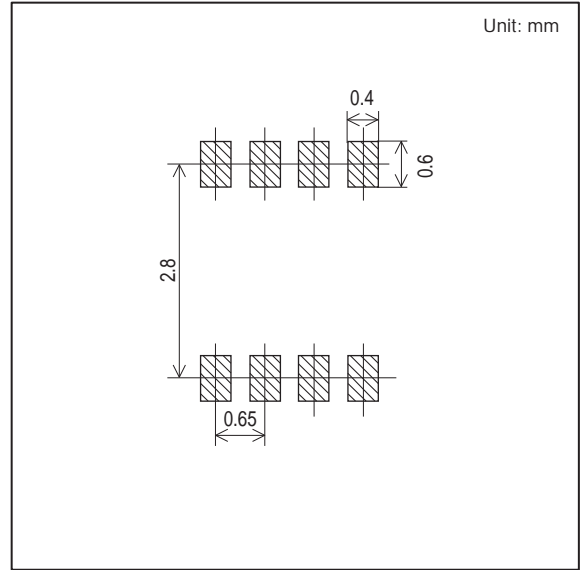
Those with pin 1 index on the feed hole side.....TL

# ECH8102

## Outline Drawing ECH8102-TL-H



## Land Pattern Example



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