



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

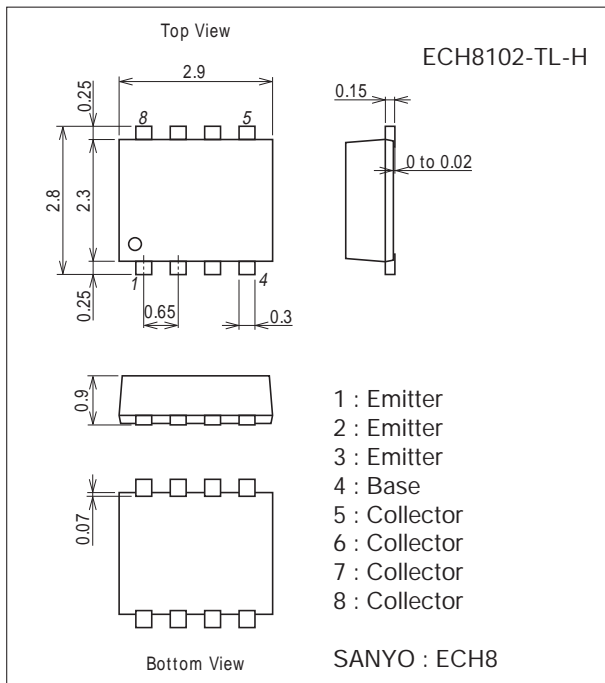
Absolute Maximum Ratings at Ta=25°C

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 ² ×0.8mm)	1.6	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Package Dimensions

unit : mm (typ)

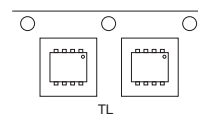
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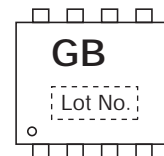
Product & Package Information

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

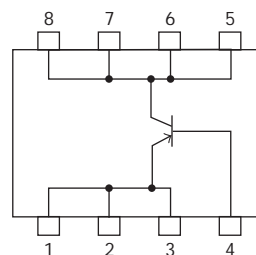
Packing Type : TL



Marking



Electrical Connection

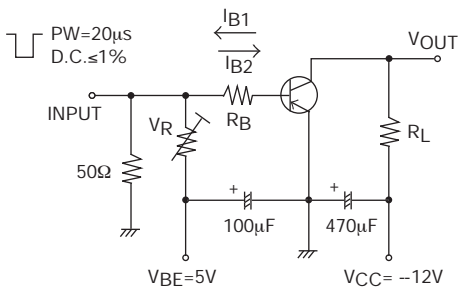


ECH8102

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = -30\text{V}, I_E = 0\text{A}$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0\text{A}$			-0.1	μA
Emitter Cutoff Current	I_{ECO}	$V_{EC} = -4.5\text{V}, I_C = 0\text{A}$			-1	μA
DC Current Gain	h_{FE1}	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	200		560	
	h_{FE2}	$V_{CE} = -2\text{V}, I_C = -4\text{A}$	150			
	h_{FE3}	$V_{CE} = -2\text{V}, I_C = -10\text{A}$	100			
Gain-Bandwidth Product	f_T	$V_{CE} = -10\text{V}, I_C = -500\text{mA}$		140		MHz
Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		120		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = -6\text{A}, I_B = -300\text{mA}$		-80	-135	mV
	$V_{CE(sat)2}$	$I_C = -2\text{A}, I_B = -40\text{mA}$		-50	-85	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -2\text{A}, I_B = -40\text{mA}$		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0\text{A}$	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = -100\mu\text{A}, R_{BE} = 0\Omega$	-30			V
	$V_{(BR)CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0\text{A}$	-6			V
Turn-On Time	t_{on}	See specified Test Circuit.		91		ns
Storage Time	t_{stg}			125		ns
Fall Time	t_f			17		ns

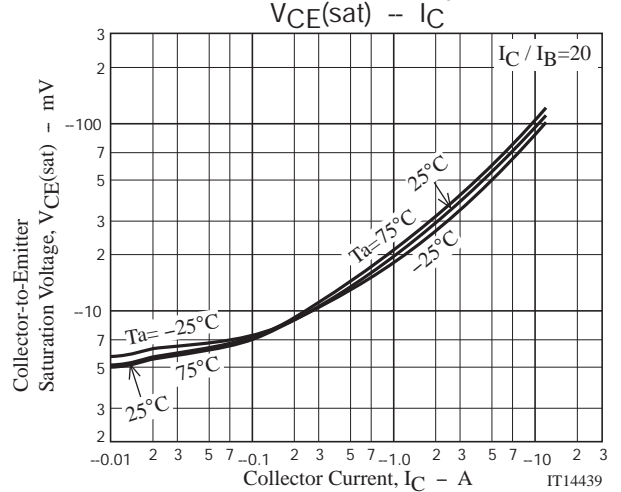
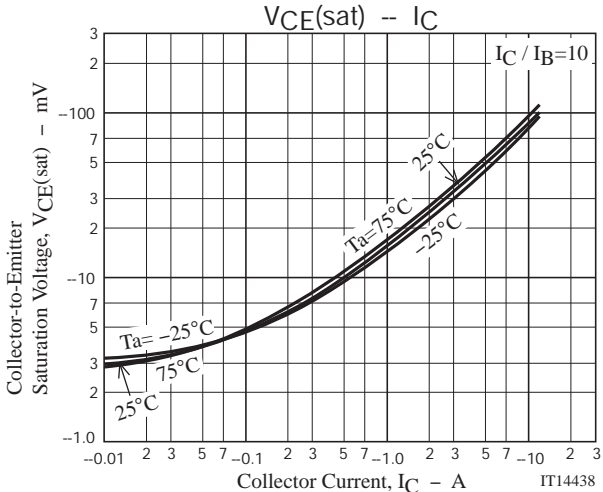
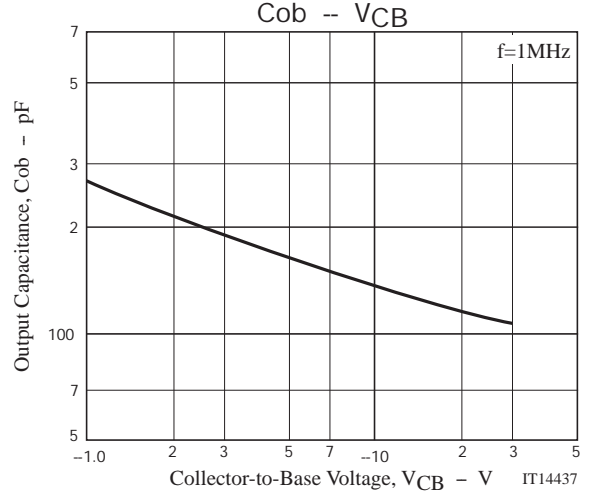
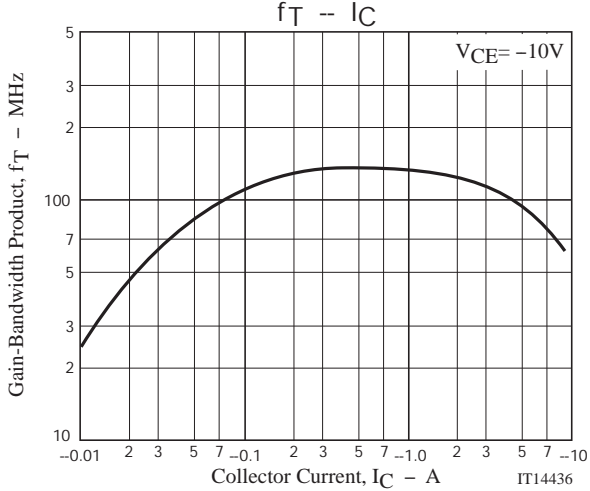
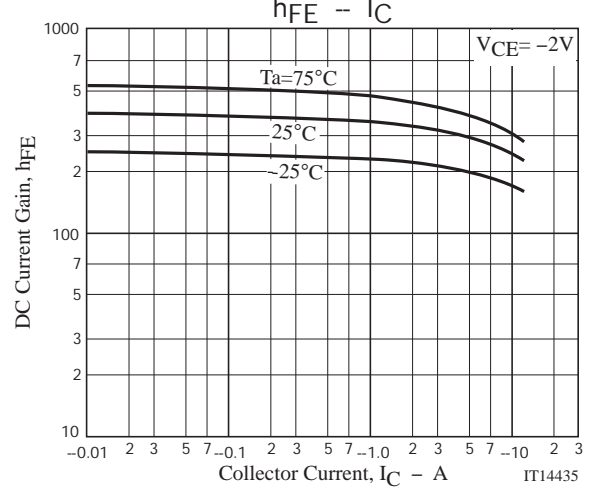
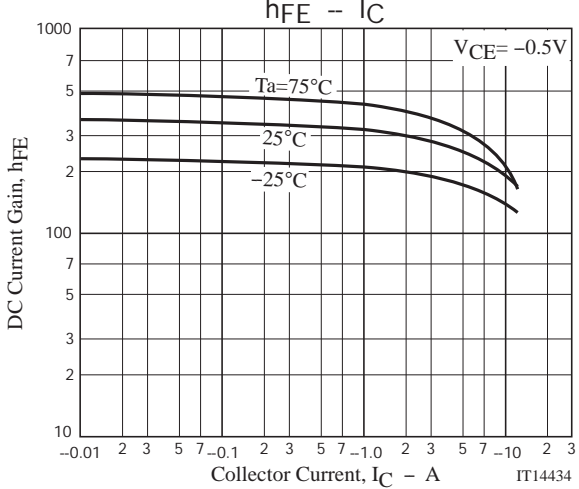
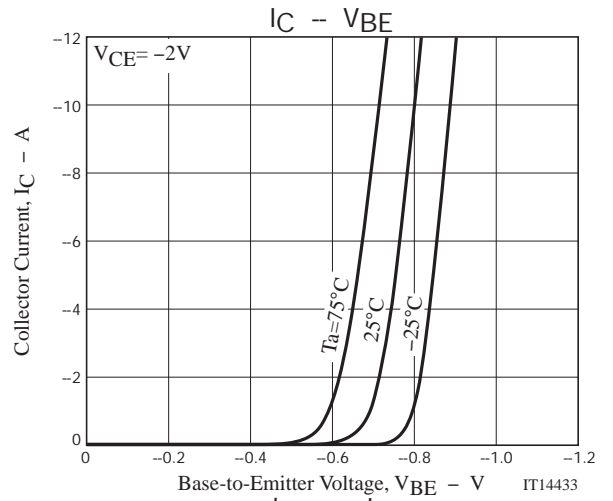
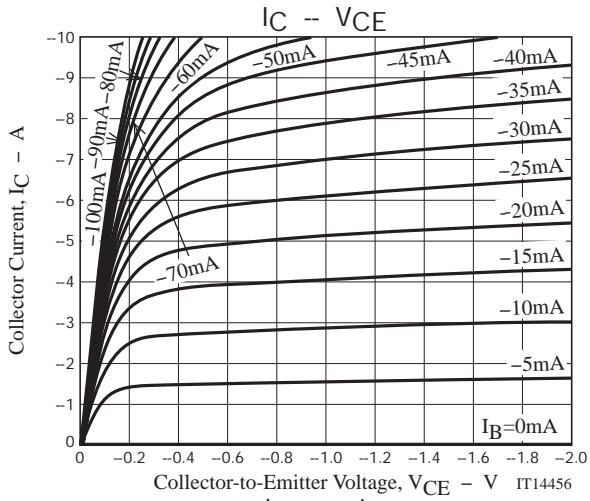
Switching Time Test Circuit

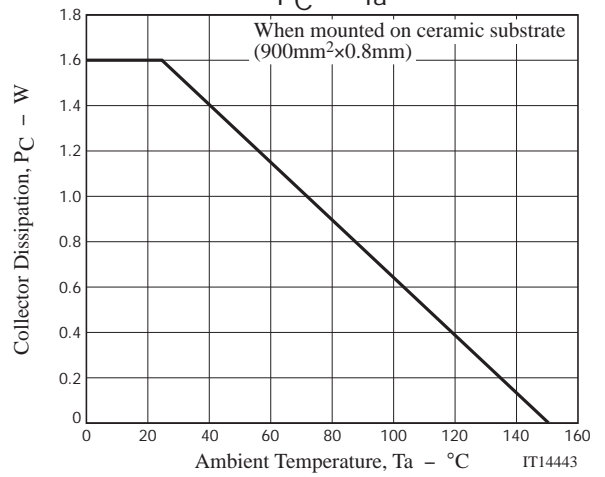
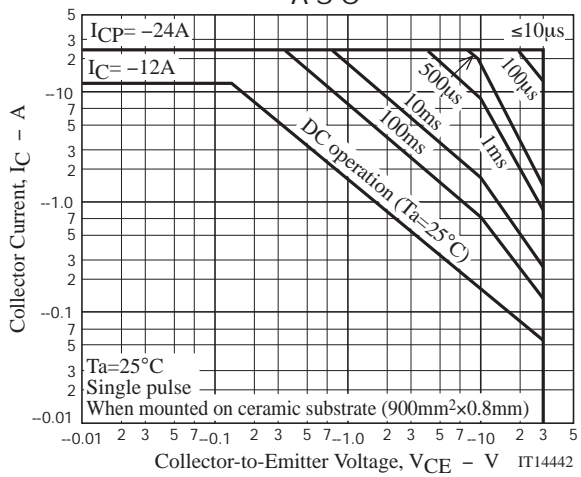
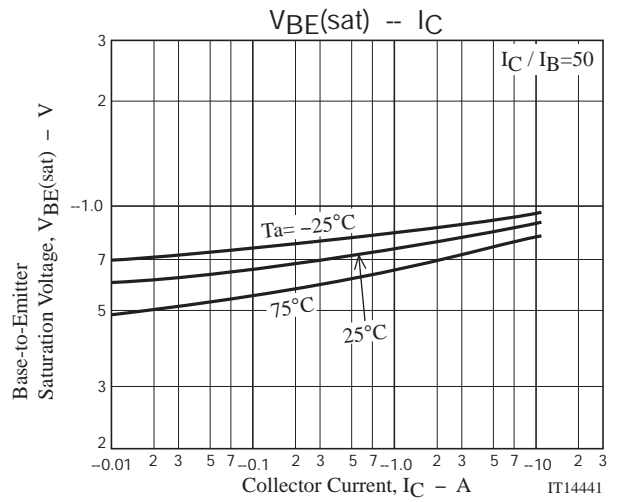
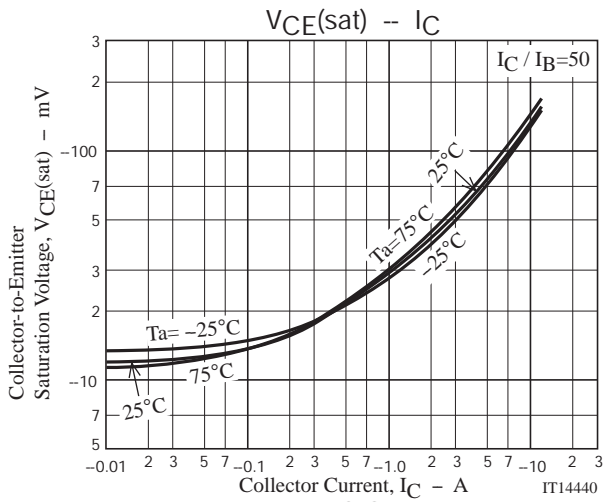


$$I_C = -50I_{B1} = 25I_{B2} = -5\text{A}$$

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

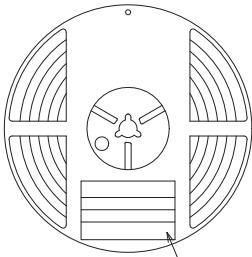
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Reel label, Inner box label
(unit :mm)

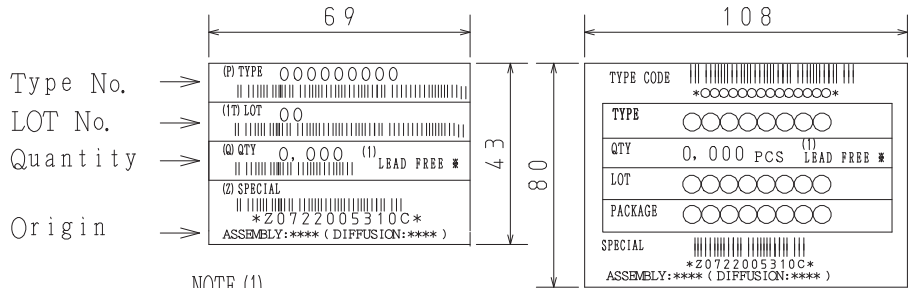
Outer box label

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



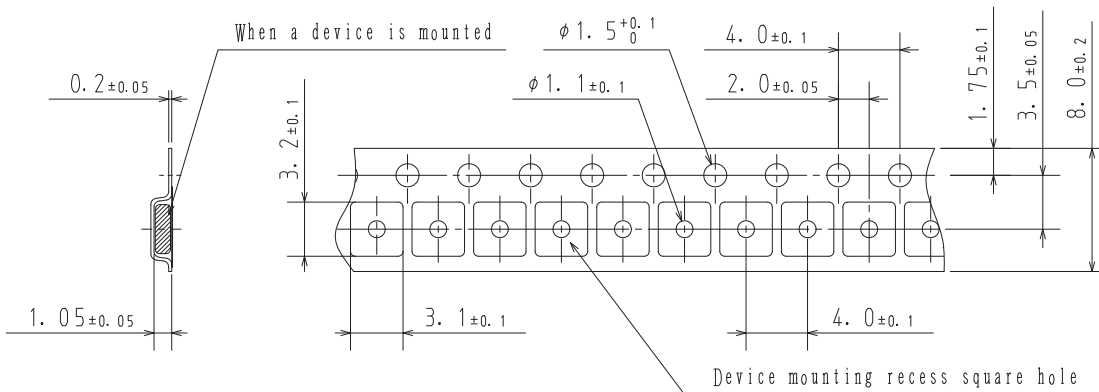
NOTE (1)

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

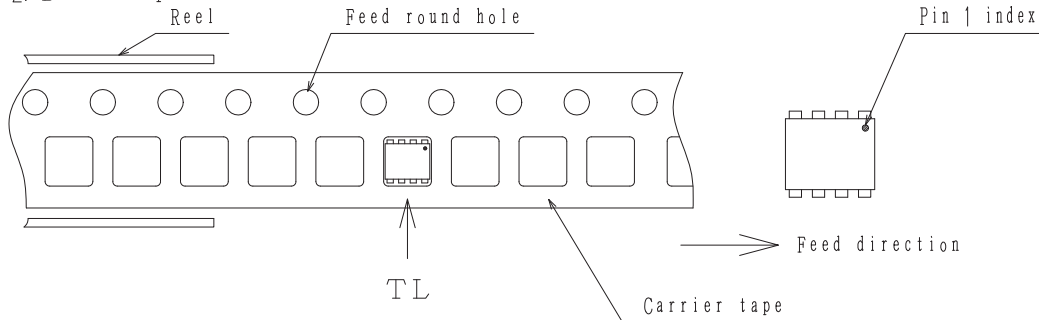
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



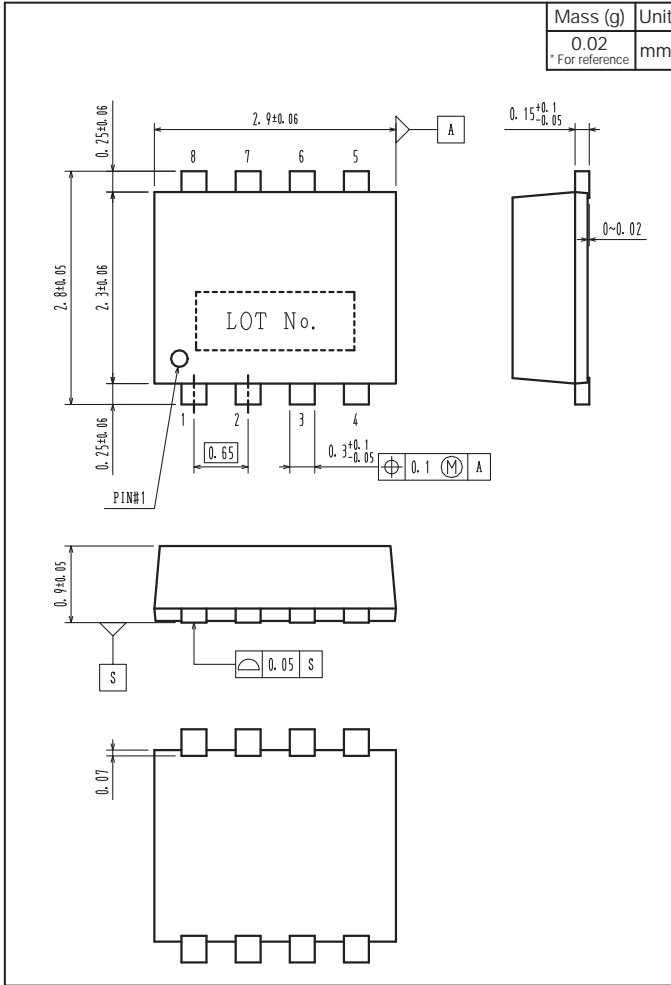
2-2. Device placement direction



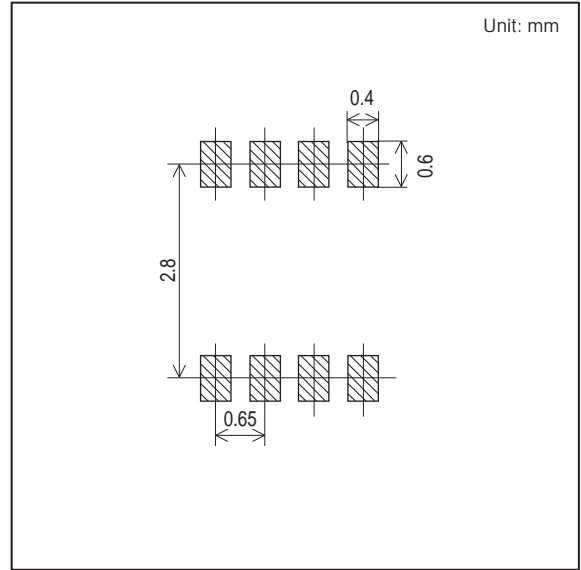
Those with pin 1 index on the feed hole side.....TL

ECH8102

Outline Drawing ECH8102-TL-H



Land Pattern Example



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