Ordering number : ENA1680A

ECH8503

Bipolar Transistor
−50V, −5A, Low V_{CE}(sat) PNP Dual ECH8

ON Semiconductor®

http://onsemi.com

Features

- Composite type, facilitating high-density mounting
- Mounting height 0.9mm
- Halogen free compliance

Specifications

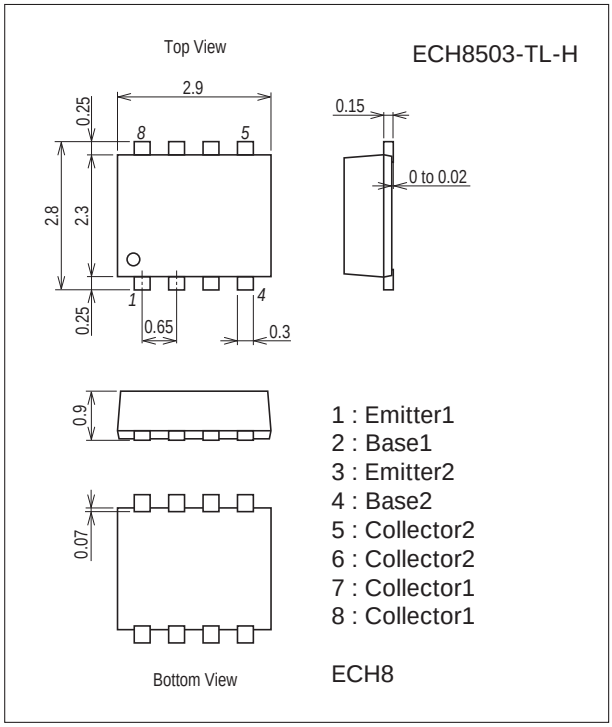
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-50	V
Collector-to-Emitter Voltage	V_{CEO}		-50	V
Emitter-to-Base Voltage	V_{EBO}		-6	V
Collector Current	I_C		-5	A
Collector Current (Pulse)	I_{CP}		-10	A
Base Current	I_B		-1	A
Collector Dissipation	P_C	When mounted on ceramic substrate (900mm^2×0.8mm) 1unit	1.3	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm^2×0.8mm)	1.6	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

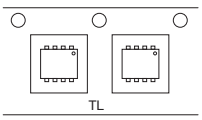
unit : mm (typ)
7011A-008



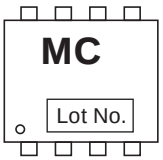
Product & Package Information

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

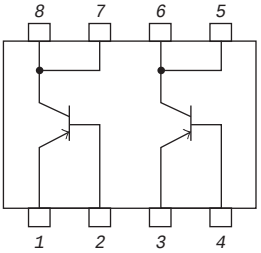
Taping Type : TL



Marking



Electrical Connection



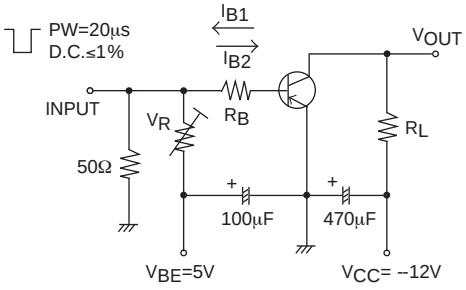
Semiconductor Components Industries, LLC, 2013

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= -50V, 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}= -10V, I_C= -500mA		280		MHz
Output Capacitance	Cob	V_{CB}= -10V, f=1MHz		42		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)1	I_C= -1A, I_B= -50mA		-60	-100	mV
	V_{CE}(sat)2	I_C= -2.5A, I_B= -125mA		-110	-190	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C= -2.5A, I_B= -125mA		-0.9	-1.1	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= -10μA, I_E=0A	-50			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.		30		ns
Storage Time	t_{stg}			170		ns
Fall Time	t_f			17		ns

Note) The specifications shown above are for each individual transistor.

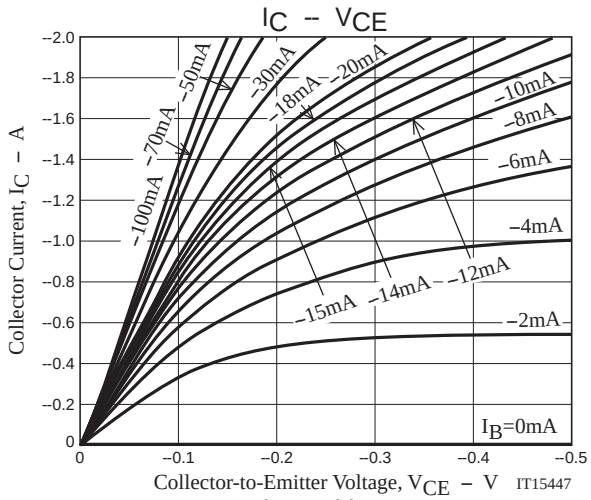
Switching Time Test Circuit

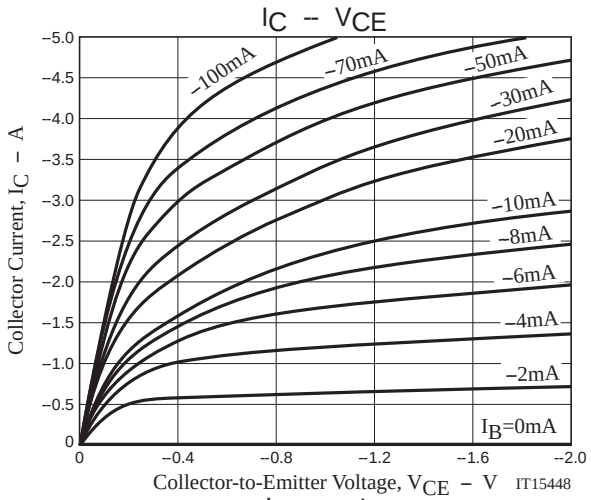


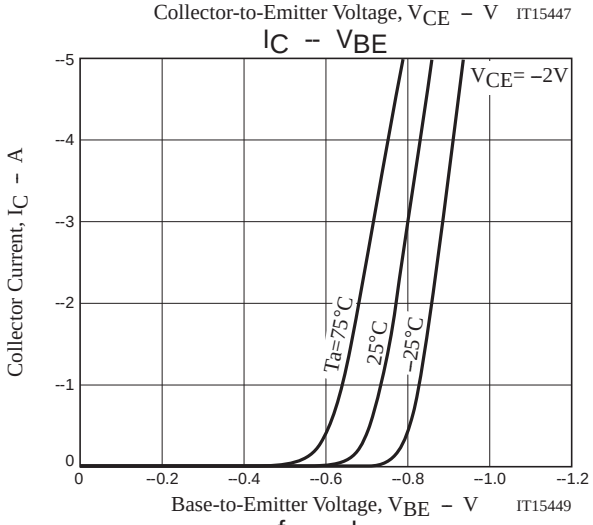
I_C= –20I_{B1}=20I_{B2}= –2.5A

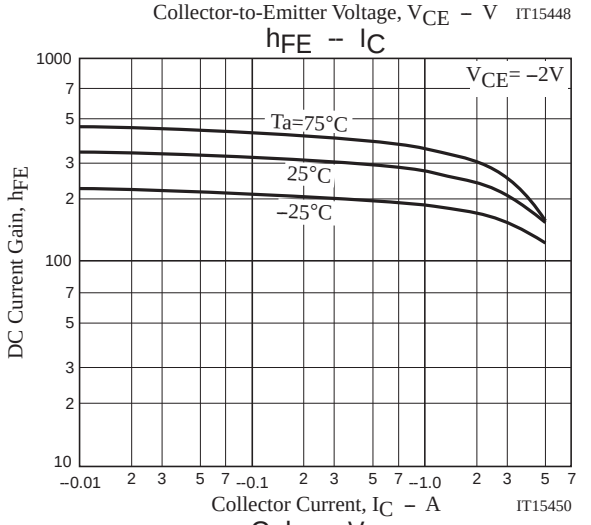
Ordering Information

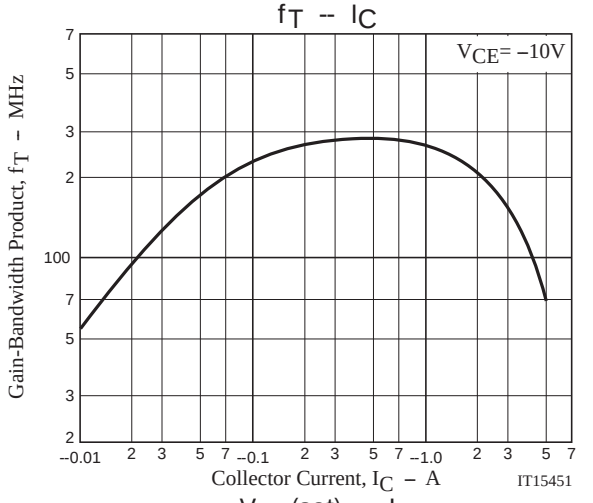
Device	Package	Shipping	memo
ECH8503-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free

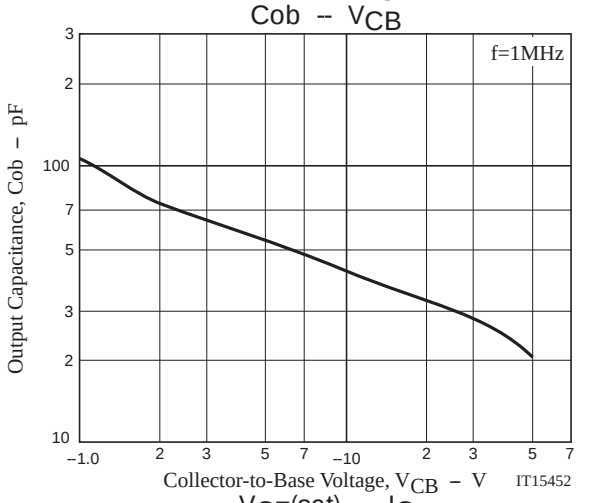

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15447
–100mA
–70mA
–50mA
–30mA
–20mA
–18mA
–10mA
–8mA
–6mA
–4mA
–2mA
–12mA
–14mA
–15mA
IB=0mA

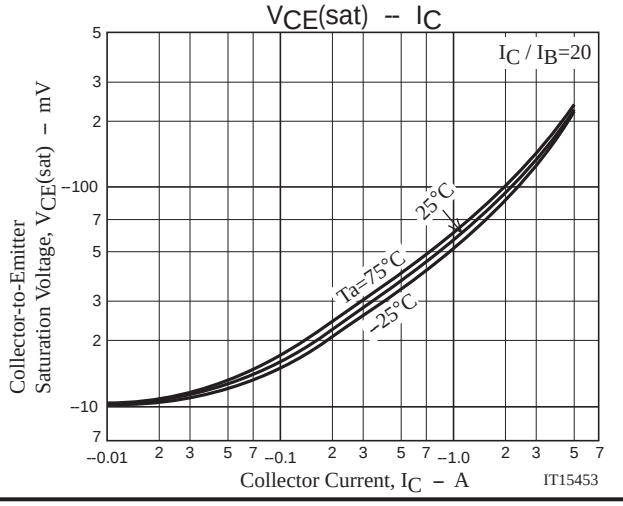

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15448
–100mA
–70mA
–50mA
–30mA
–20mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0mA

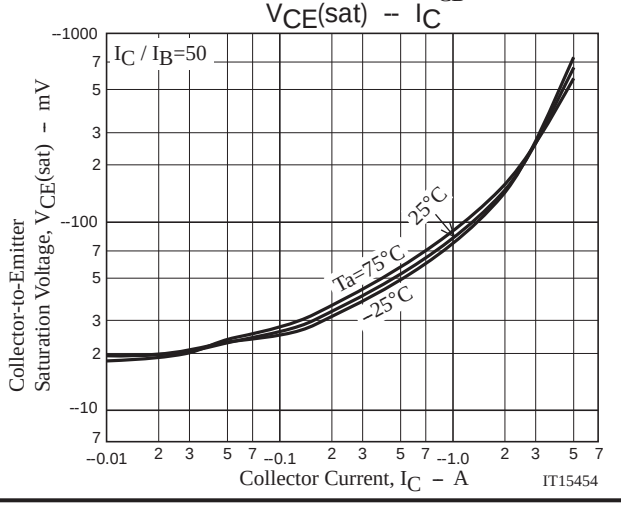

IC – VBE
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT15449
VCE= –2V
Ta=75°C
25°C
–25°C

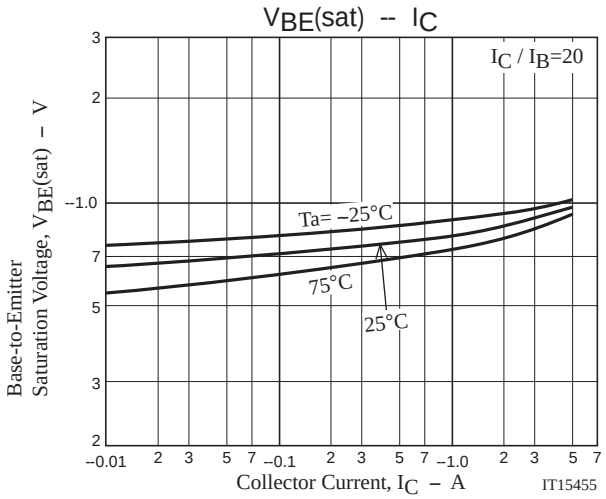

hFE – IC
DC Current Gain, hFE
Collector Current, IC – A
IT15450
VCE= –2V
Ta=75°C
25°C
–25°C

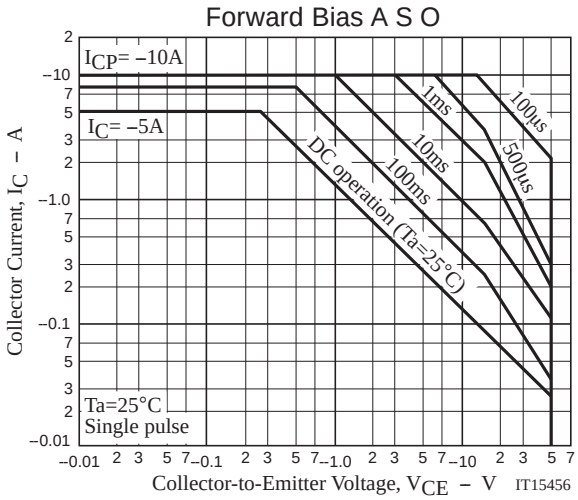

fT – IC
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT15451
VCE= –10V

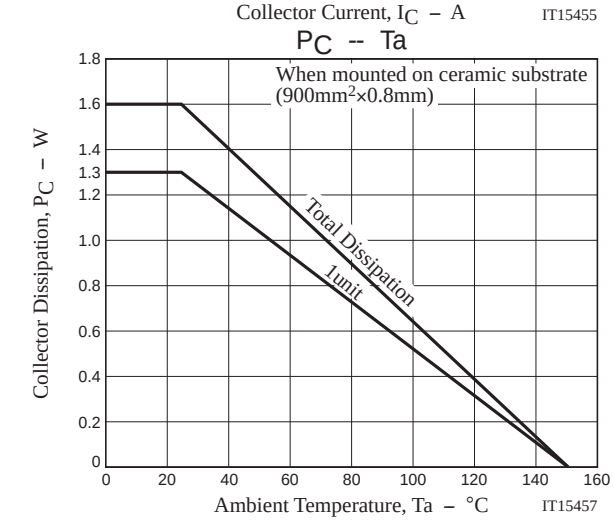

Cob – VCB
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT15452
f=1MHz


VCE(sat) – IC
Collector-to-Emitter
Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT15453
IC / IB=20
25°C
Ta=75°C
–25°C


VCE(sat) – IC
Collector-to-Emitter
Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT15454
IC / IB=50
25°C
Ta=75°C
–25°C


VBE(sat) -- IC
IC / IB=20
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT15455


Forward Bias A S O
ICP= –10A
IC= –5A
1ms
100µs
10ms
500µs
100ms
DC operation (Ta=25°C)
Ta=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15456


PC -- Ta
When mounted on ceramic substrate
(900mm2×0.8mm)
Total Dissipation
1unit
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT15457

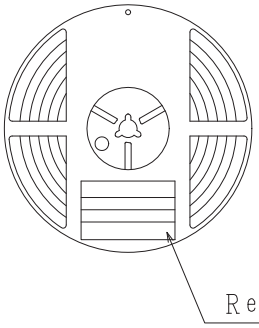
Embossed Taping Specification

ECH8503-TL-H

1. Packing Format

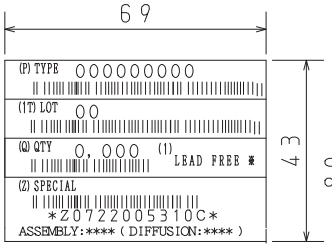
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm(external) 183×72×185	6 inner boxes contained Dimensions:mm(external) 440×195×210

Packing method



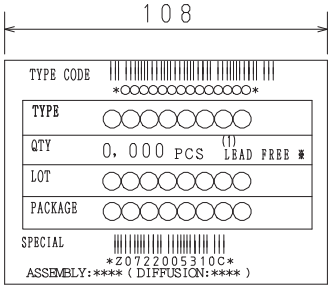
Reel label, Inner box label

(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.



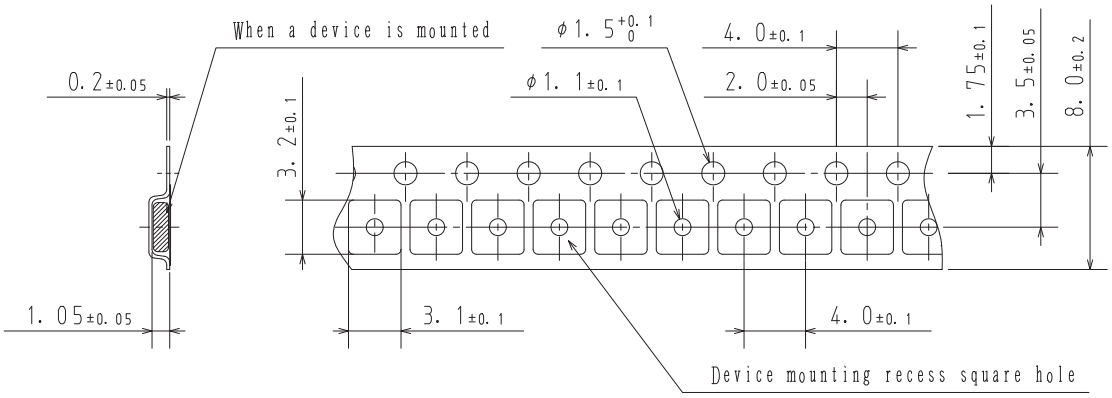
NOTE (1)

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

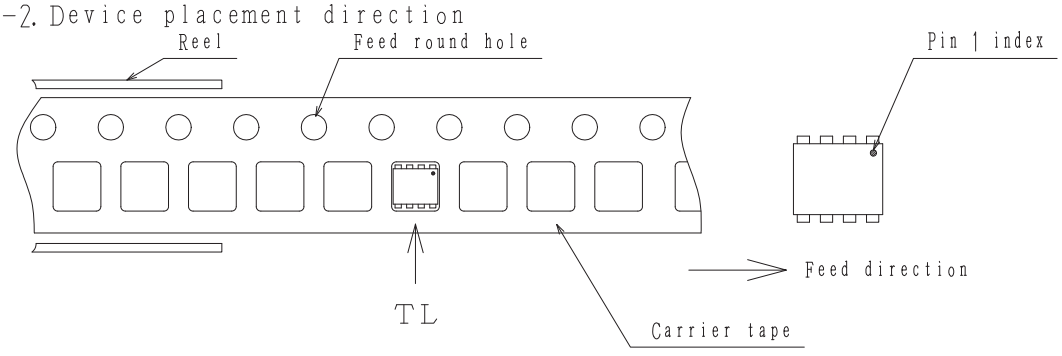
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



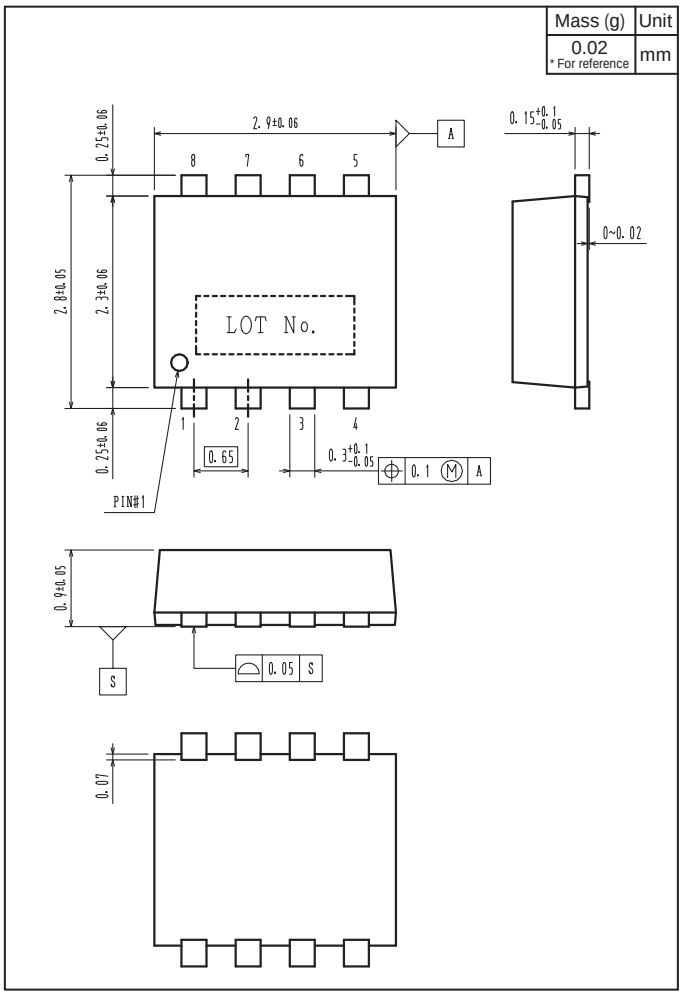
2-2. Device placement direction



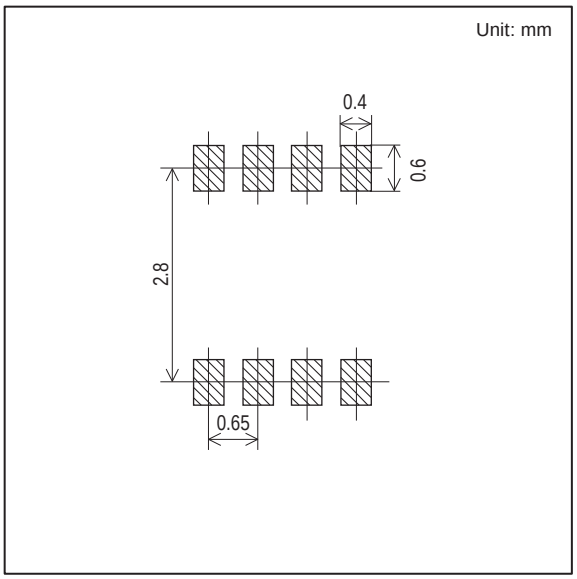
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

ECH8503-TL-H



Land Pattern Example



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