



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

PNP / NPN Epitaxial Planar Silicon Transistors

MCH3105/MCH3205 — High-Current Switching Applications

Applications

- DC / DC converters, relay drivers, lamp drivers, motor drivers, flash

Features

- Adoption of FBET, MBIT processes
- Low collector-to-emitter saturation voltage
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.85mm)
- High allowable power dissipation
- Large current capacity
- High-speed switching

Specifications () : MCH3105

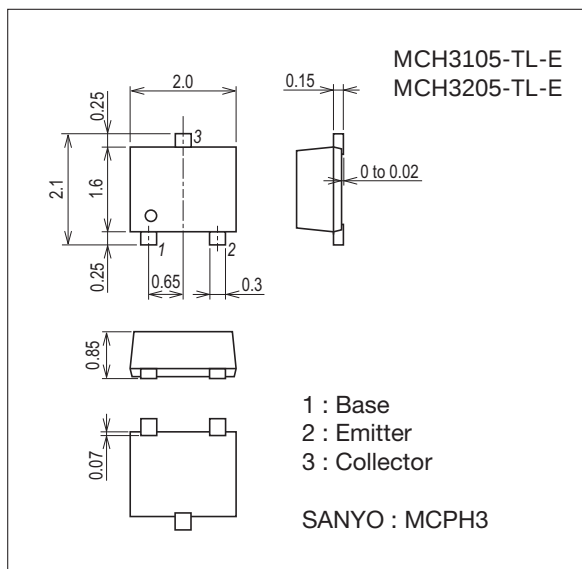
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		(-50)80	V
Collector-to-Emitter Voltage	V _{CES}		(-50)80	V
	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	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.8	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

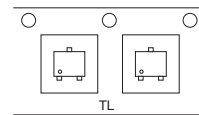
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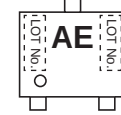
Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

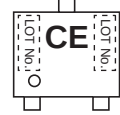
Packing Type : TL



Marking

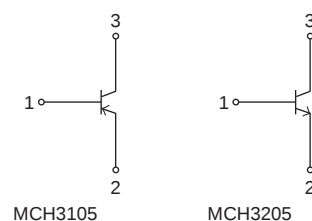


MCH3105



MCH3205

Electrical Connection



SANYO Semiconductor Co., Ltd.

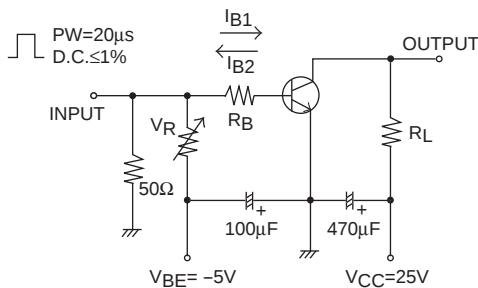
<http://www.sanyosemi.com/en/network/>

MCH3105/MCH3205

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	VCE=(-)40V, IE=0A			(-)1	μA
Emitter Cutoff Current	IEBO	VEB=(-)4V, IC=0A			(-)1	μA
DC Current Gain	hFE	VCE=(-)2V, IC=(-)100mA	200		560	
Gain-Bandwidth Product	fT	VCE=(-)10V, IC=(-)500mA		(360)380		MHz
Output Capacitance	Cob	VCE=(-)10V, f=1MHz		(24)13		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)1	IC=(-)1A, IB=(-)50mA		(-100)80	(-200)120	mV
	VCE(sat)2	IC=(-)2A, IB=(-)100mA		(-185)140	(-500)210	mV
Base-to-Emitter Saturation Voltage	VBE(sat)	IC=(-)2A, IB=(-)100mA		(-)0.88	(-)1.2	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC=(-)10μA, IE=0A	(-50)80			V
Collector-to-Emitter Breakdown Voltage	V(BR)CES	IC=(-)100μA, RBE=0Ω	(-50)80			V
	V(BR)CEO	IC=(-)1mA, RBE=∞	(-)50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	IE=(-)10μA, IC=0A	(-)6			V
Turn-On Time	ton	See specified Test Circuit.		(30)35		ns
Storage Time	tstg			(230)300		ns
Fall Time	tf			(15)22		ns

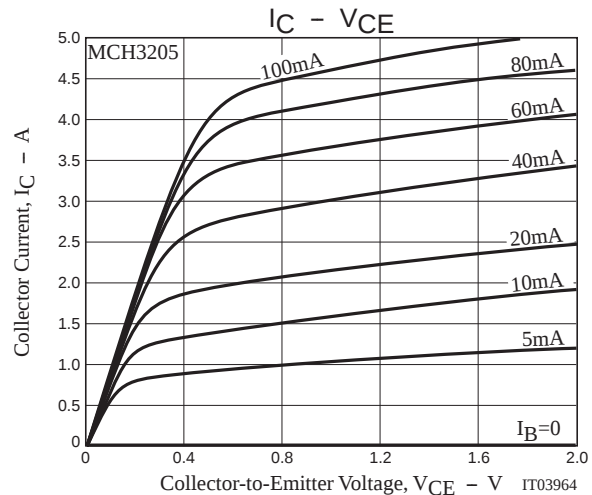
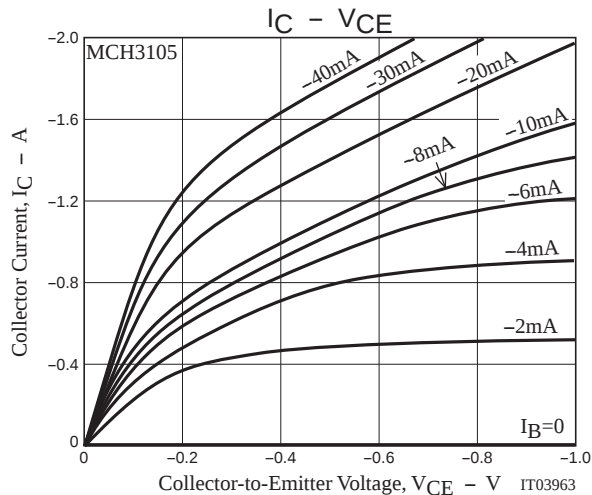
Switching Time Test Circuit



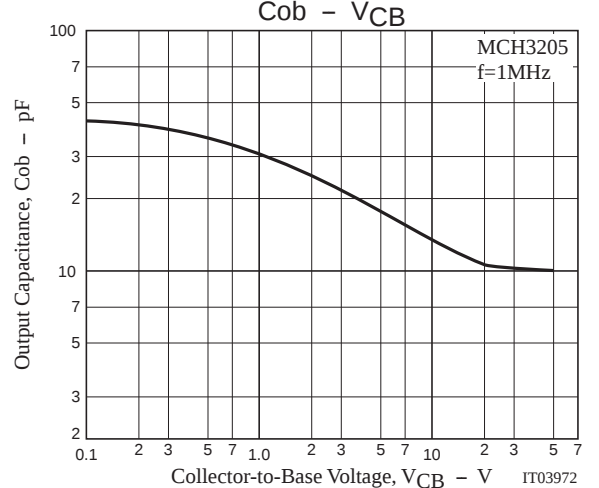
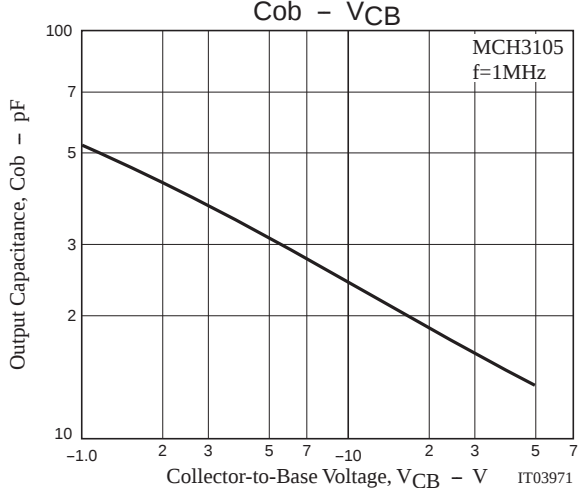
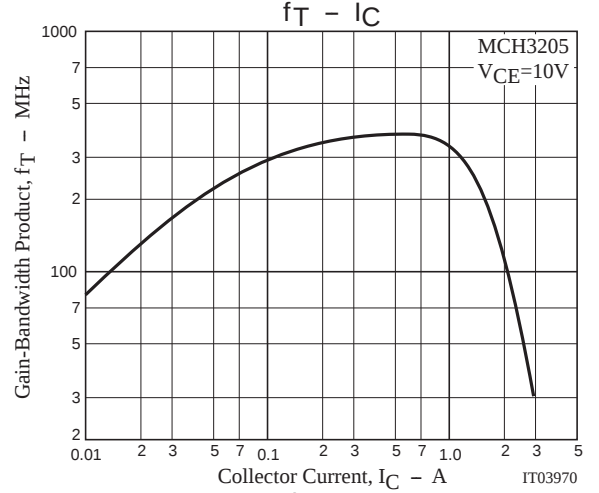
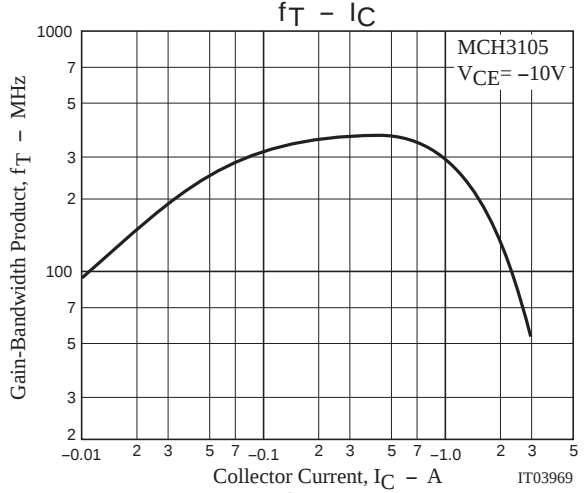
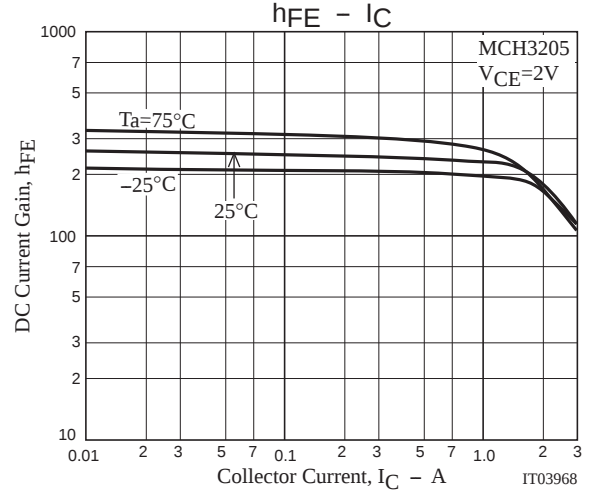
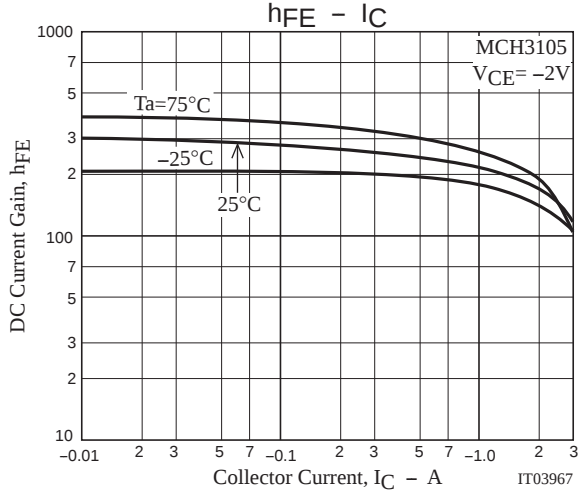
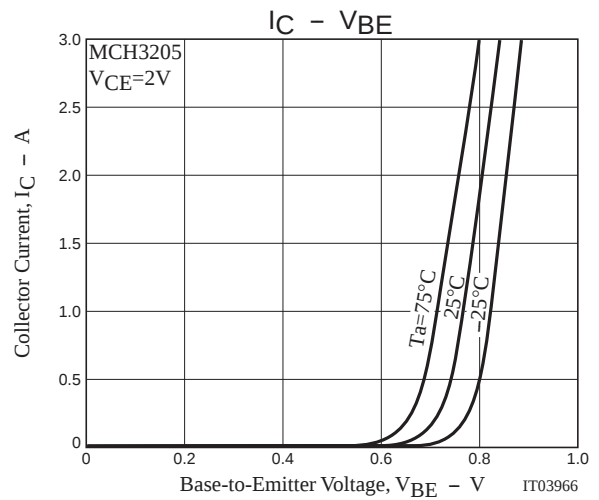
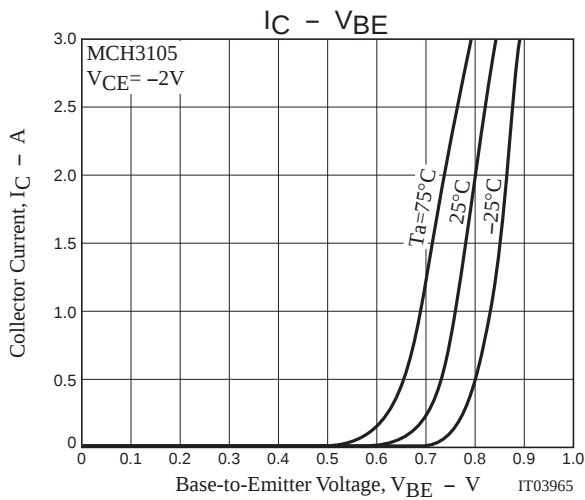
IC=10IB1= -10IB2=1A
(For PNP, the polarity is reversed.)

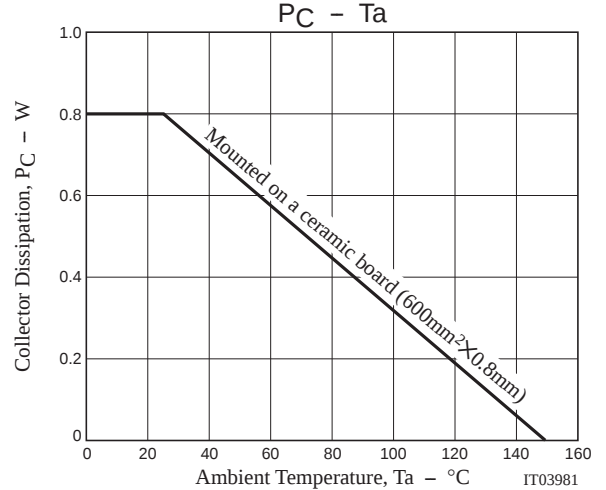
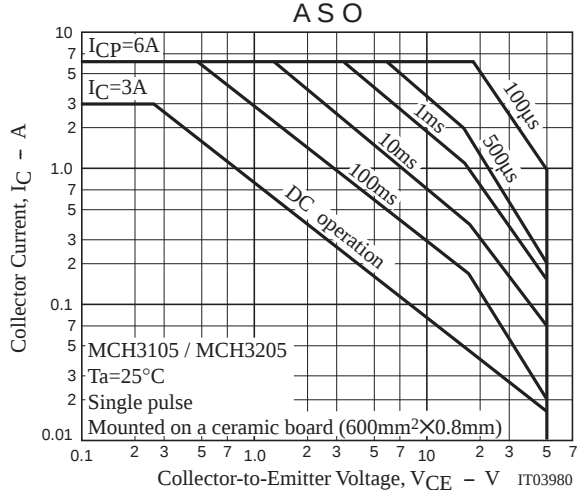
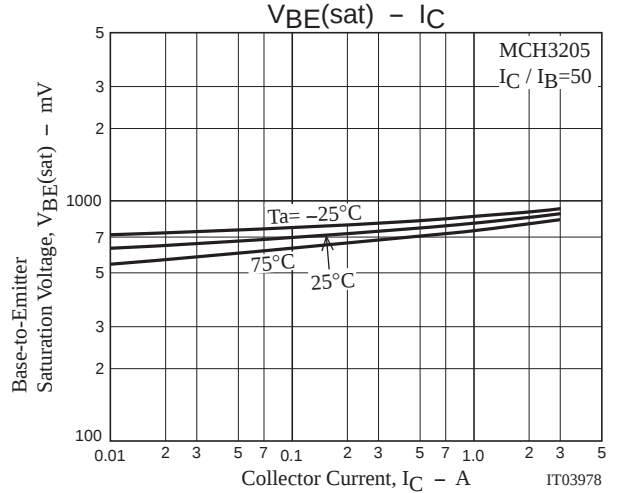
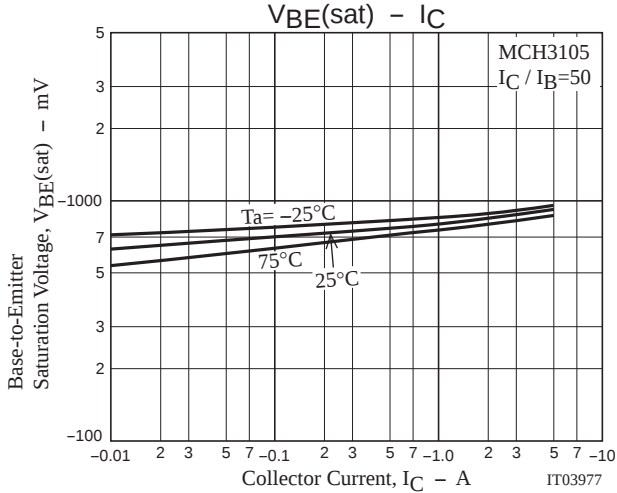
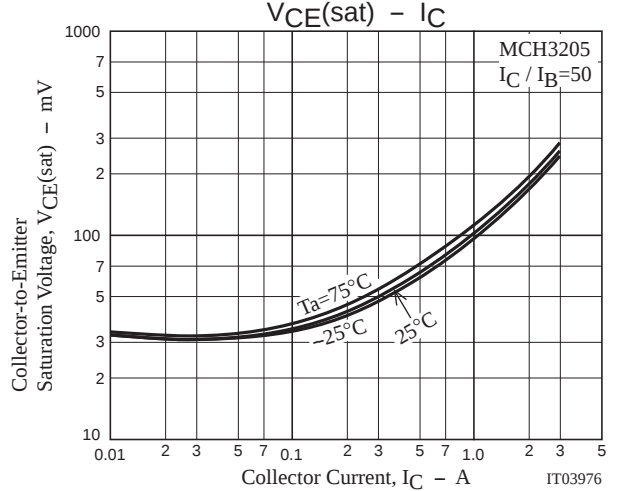
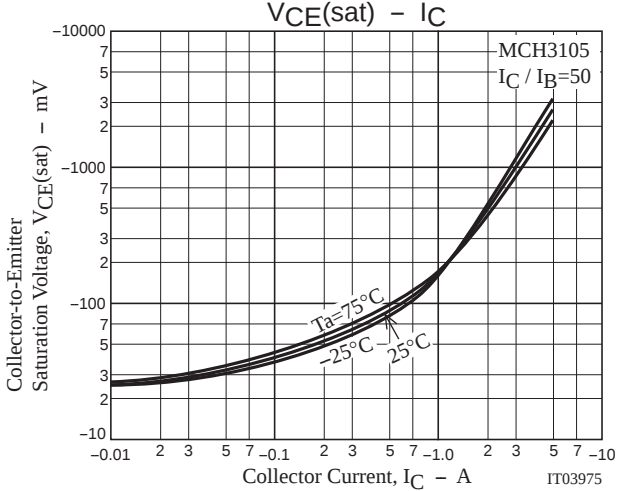
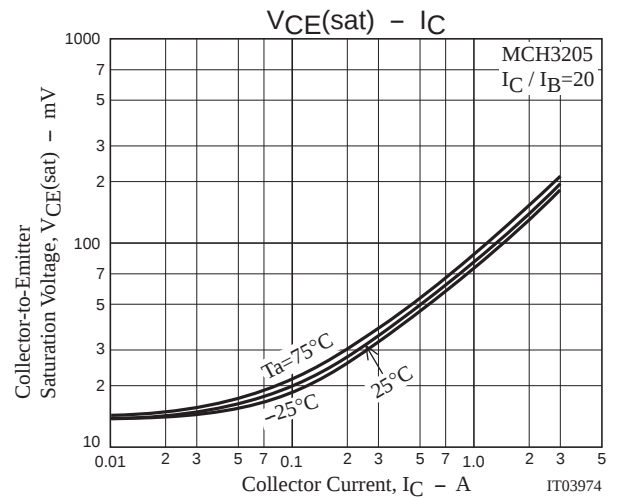
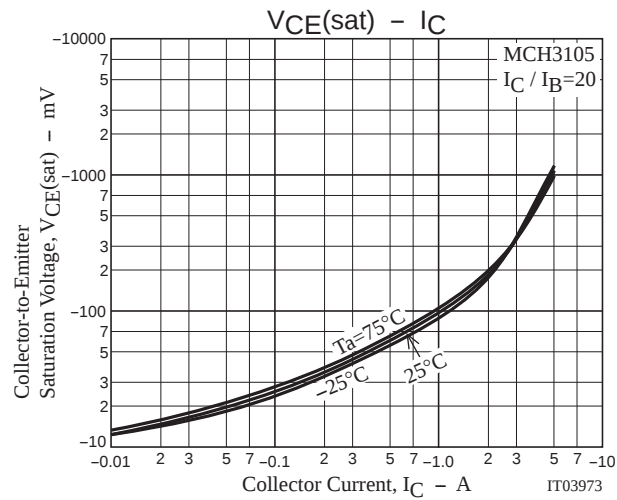
Ordering Information

Device	Package	Shipping	memo
MCH3105-TL-E	MCPH3	3,000pcs./reel	Pb Free
MCH3205-TL-E	MCPH3	3,000pcs./reel	



MCH3105/MCH3205





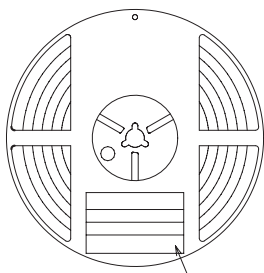
Taping Specification

MCH3105-TL-E, MCH3205-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)
MCPH3	MCPH3	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



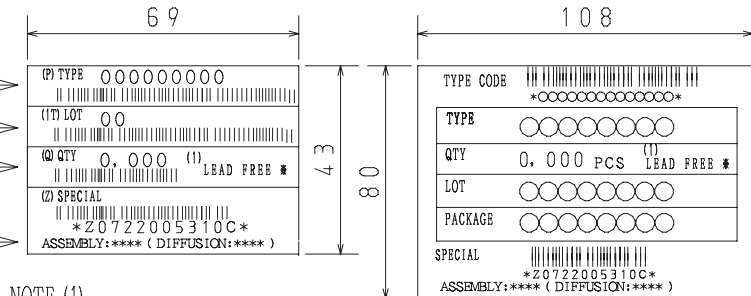
Reel label

Type No.
LOT No.
Quantity
Origin

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.



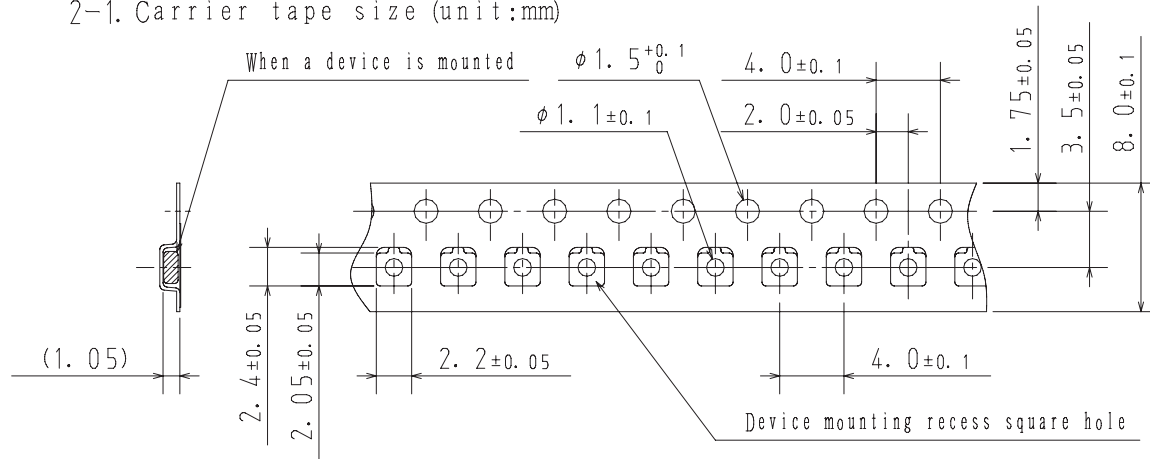
NOTE (1)

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

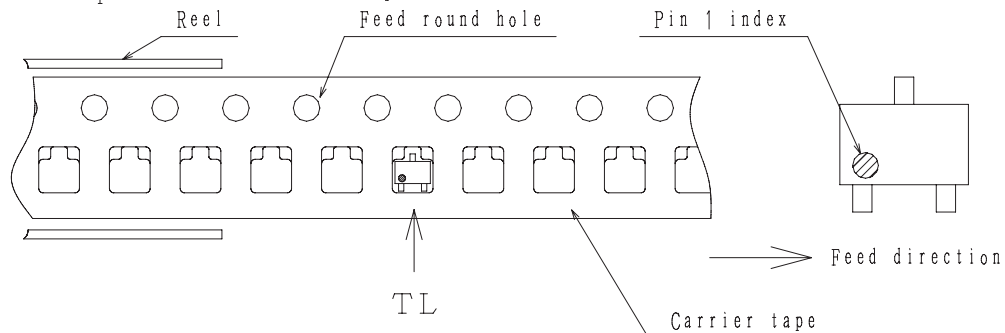
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



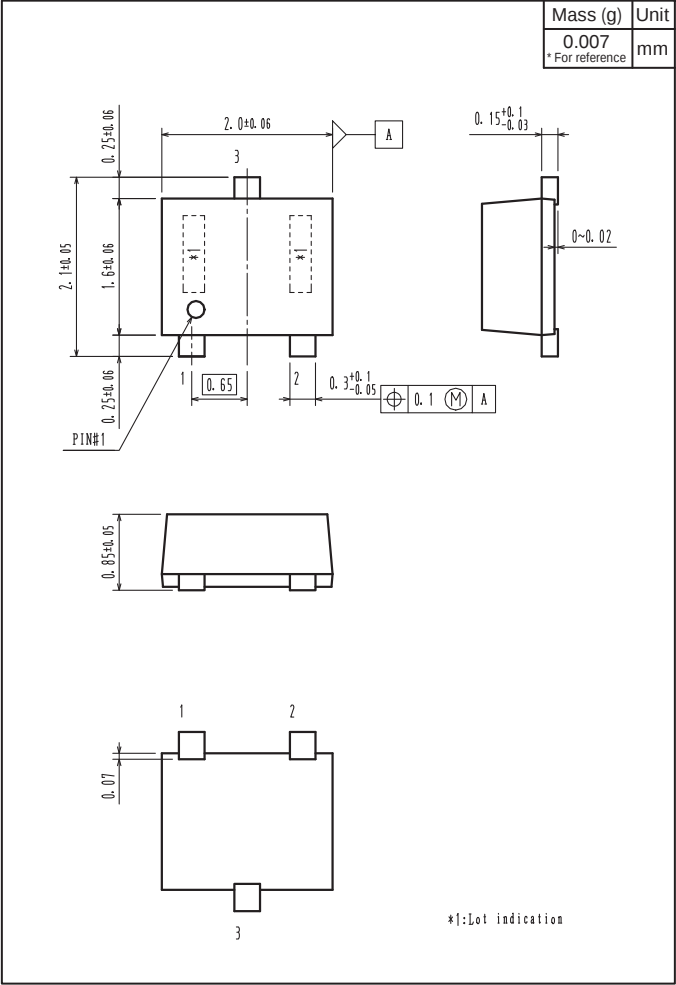
2-2. Device placement direction



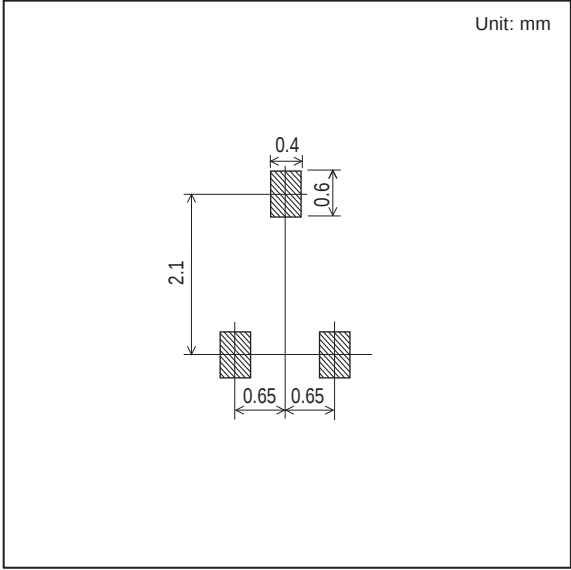
Those with pin 1 index on the feed hole side.....TL

Outline Drawing

MCH3105-TL-E, MCH3205-TL-E



Land Pattern Example



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