



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH6536 — PNP / NPN Epitaxial Planar Silicon Transistor Push-Pull Circuit Applications

### Applications

- MOSFET gate drivers, low-frequency power amplifier, high-speed switching, motor drivers

### Features

- Composite type with a PNP transistor and an NPN transistor contained in one package facilitating high-density mounting
- Ultrasmall package permitting applied sets to be small and slim
- Small ON-resistance (Ron)

### Specifications ( ) : PNP

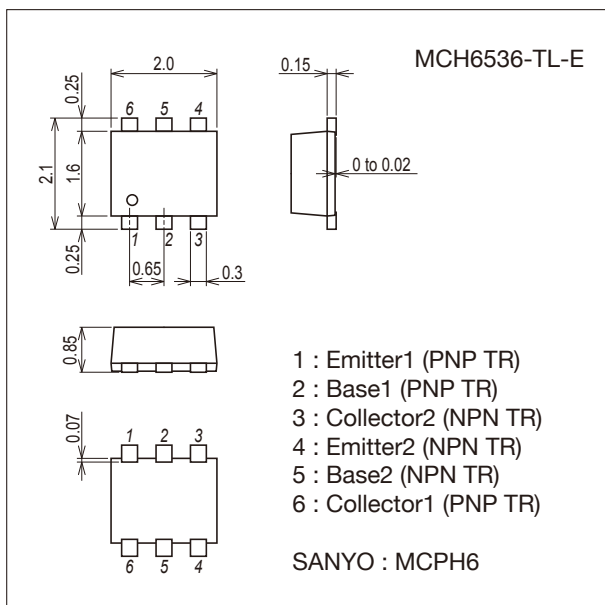
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-15)20	V
Collector-to-Emitter Voltage	VCEO		(-12)15	V
Emitter-to-Base Voltage	VEBO		(-5)	V
Collector Current	IC		(-500)700	mA
Collector Current (Pulse)	ICP		(-1.0)1.4	A
Collector Dissipation	PC	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	0.5	W
Total Power Dissipation	PT	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	0.55	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

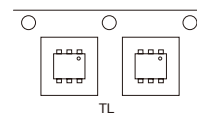
7022A-012



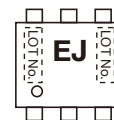
### Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

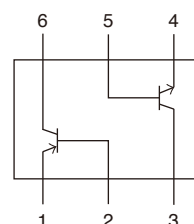
### Packing Type : TL



### Marking



### Electrical Connection



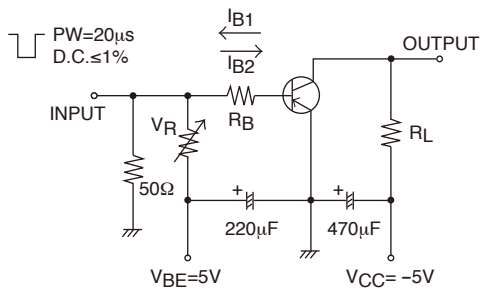
# MCH6536

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-12)15V, I_E=0A$			(-)100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0A$			(-)100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2V, I_C=(-)10mA$	300		(700)800	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)2V, I_C=(-)50mA$		(490)330		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(4)3.2		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)200mA, I_B=(-)10mA$		(-)150	(-)300	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)200mA, I_B=(-)10mA$		(-)0.9	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-15)20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-12)15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	(-)5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$			(57)77		ns
Fall Time	$t_f$			(30)40		ns

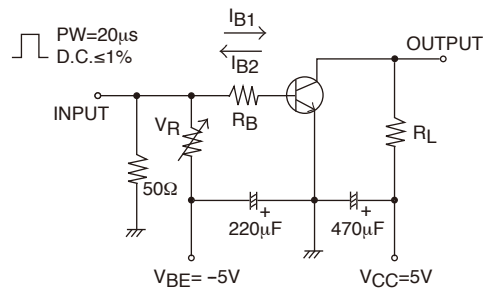
## Switching Time Test Circuit

[PNP]



$$I_C=20I_{B1}=-20I_{B2}=-400mA$$

[NPN]

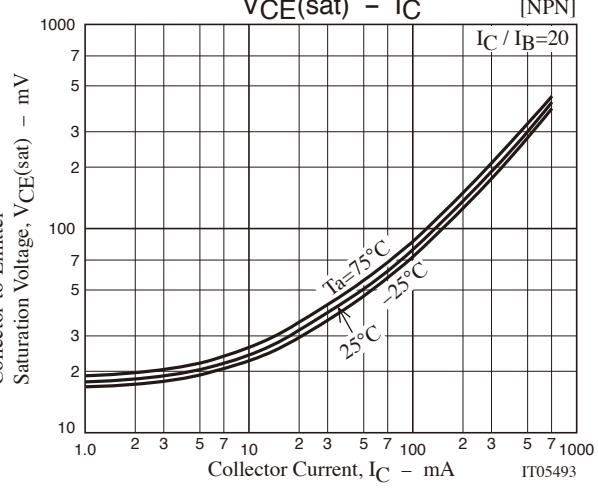
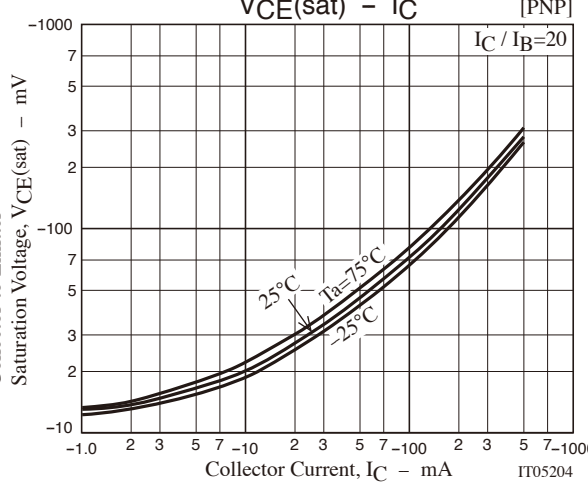
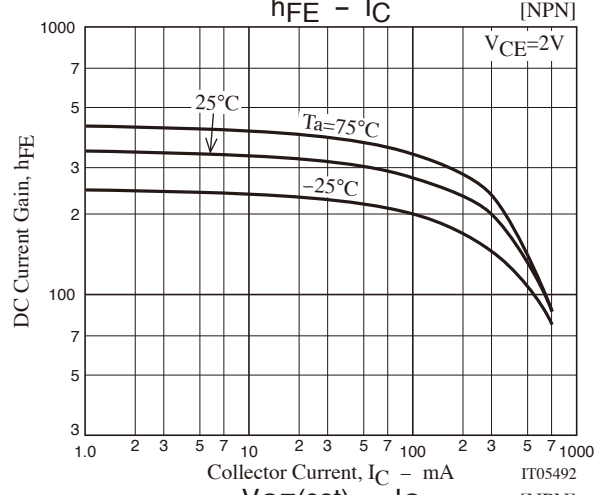
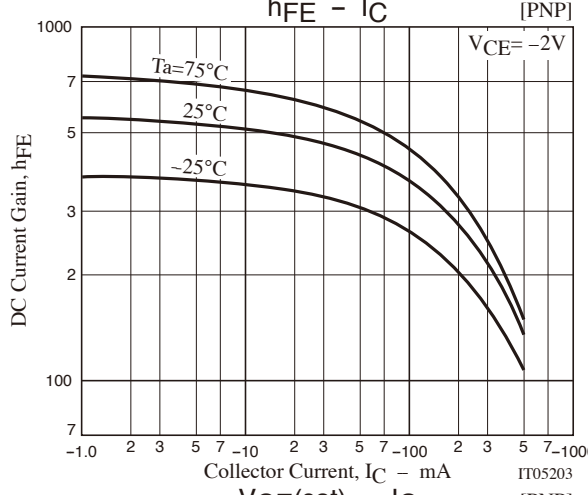
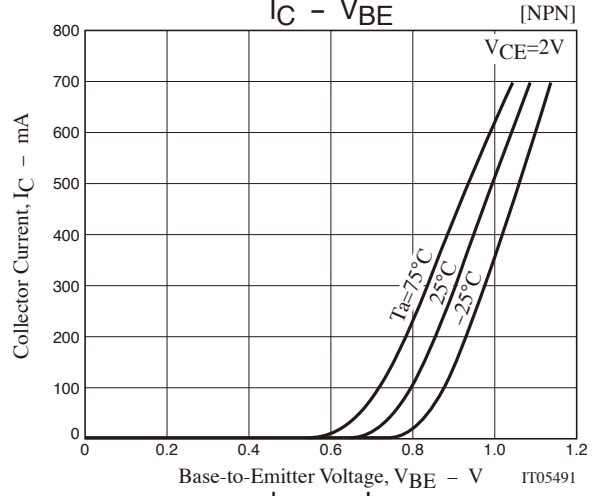
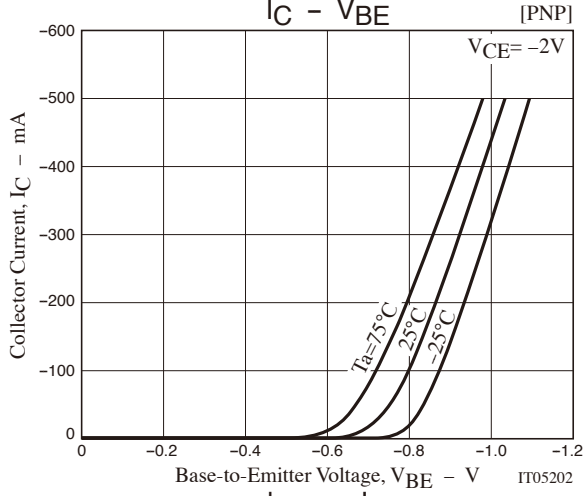
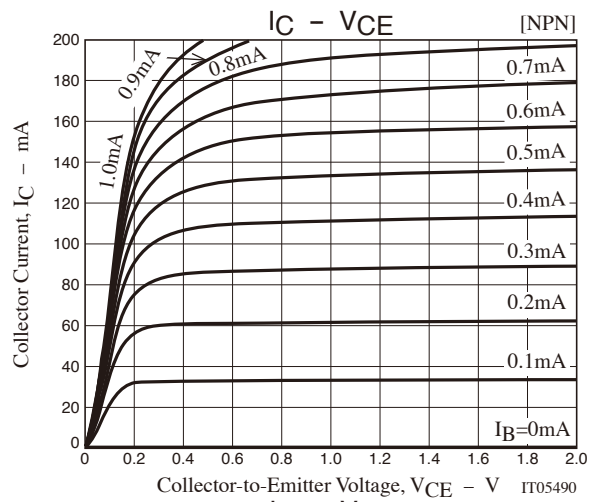
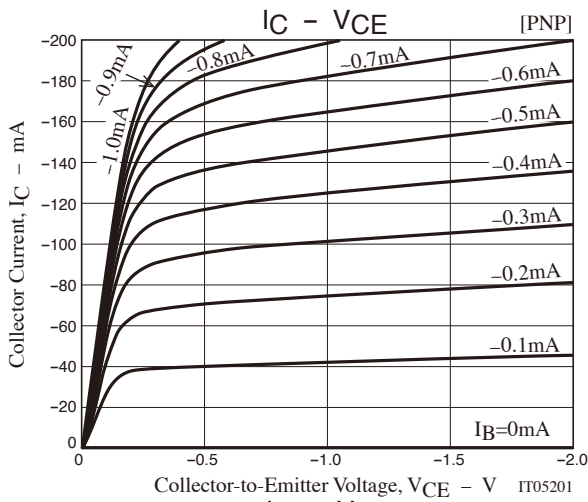


$$I_C=20I_{B1}=-20I_{B2}=500mA$$

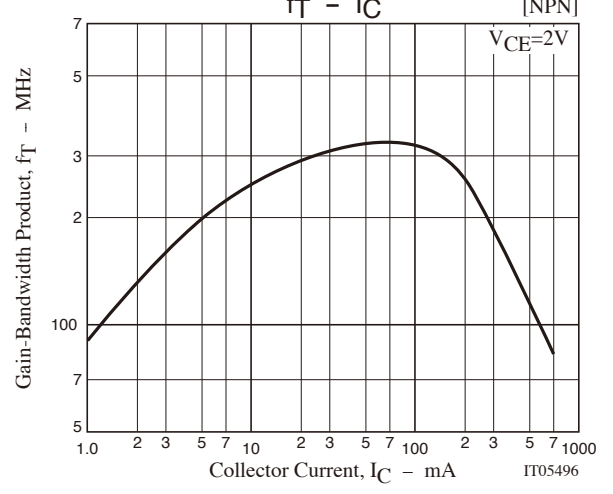
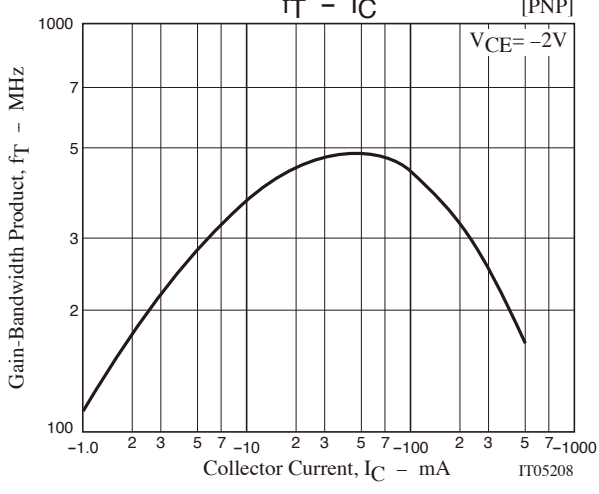
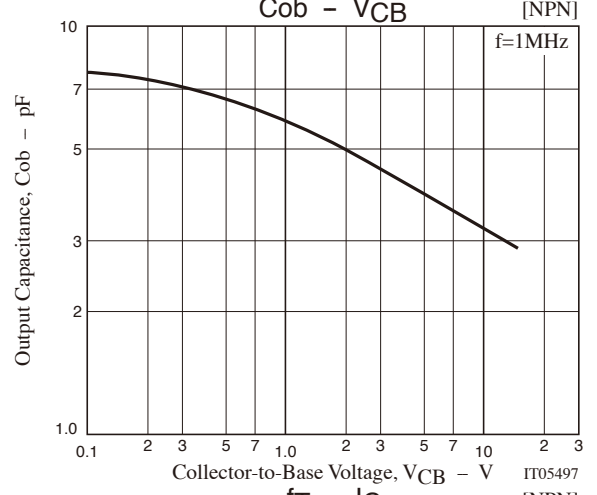
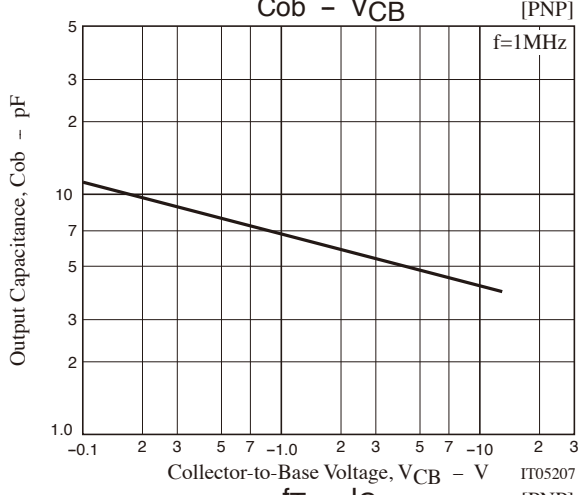
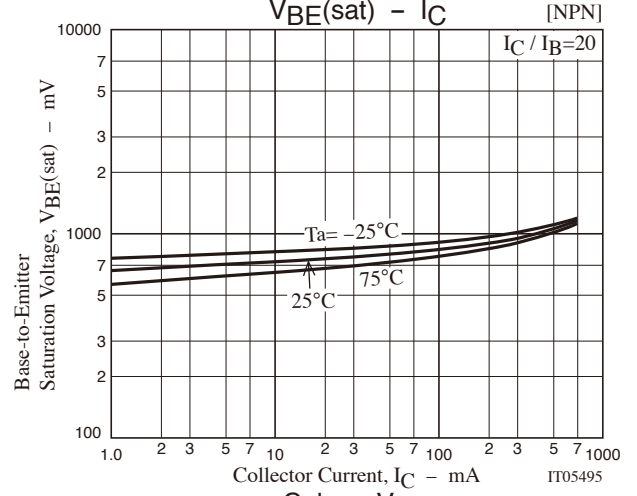
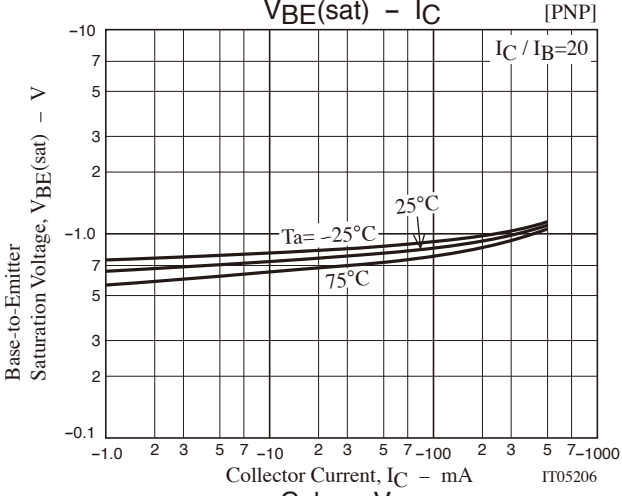
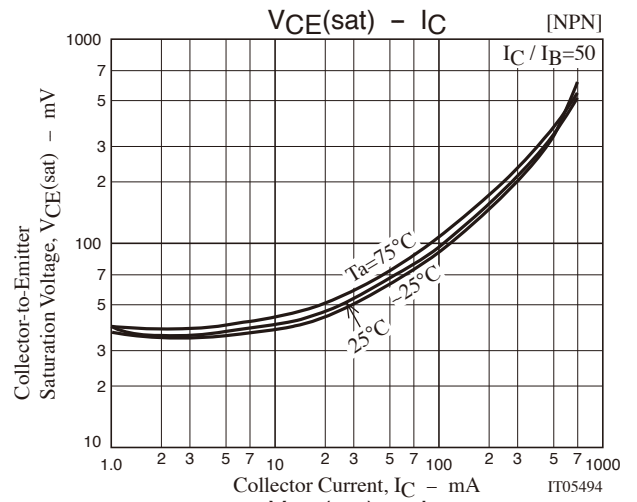
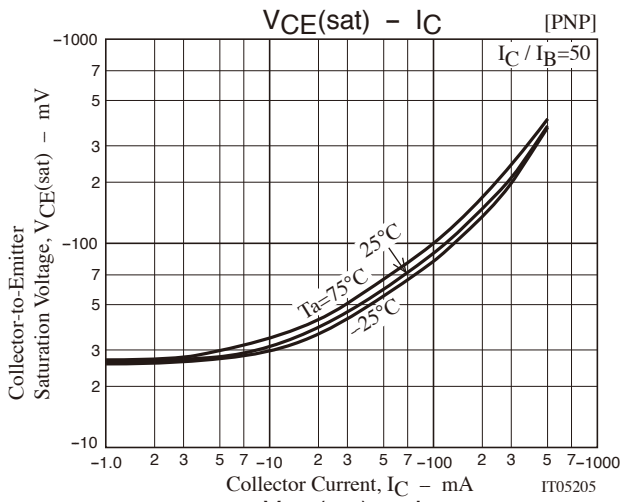
## Ordering Information

Device	Package	Shipping	memo
MCH6536-TL-E	MCPH6	3,000pcs./reel	Pb Free

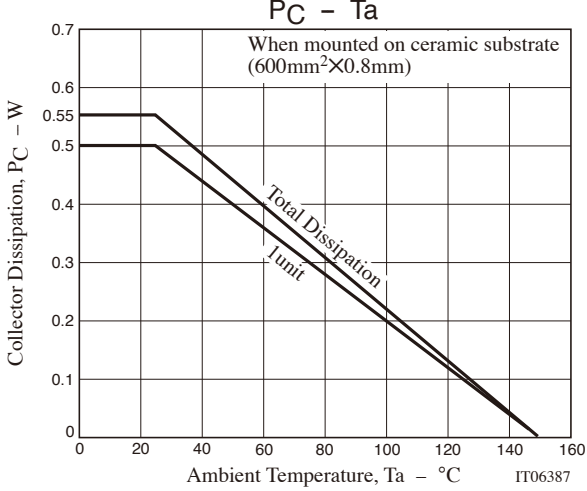
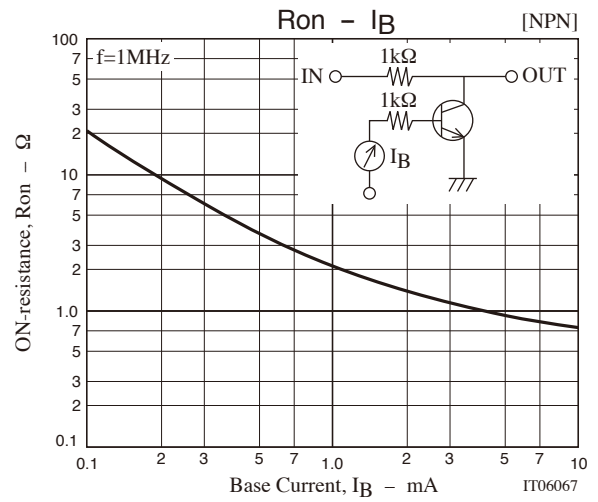
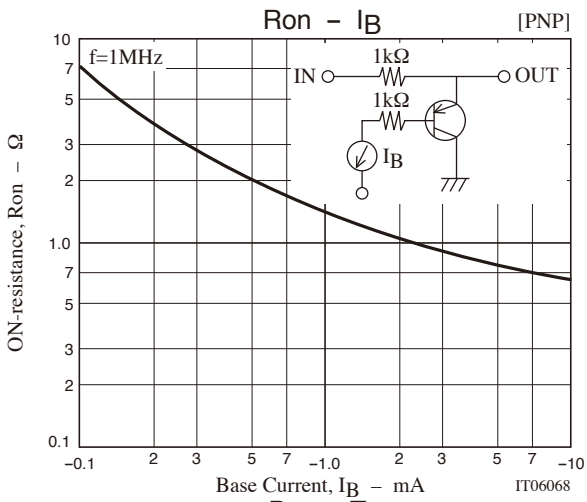
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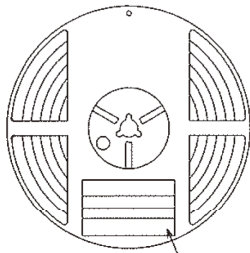
## Embossed Taping Specification

MCH6536-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)
MCPH6	MCP4	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



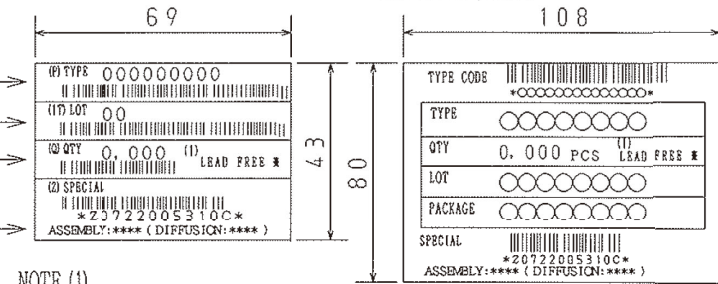
Type No.  
LOT No.  
Quantity  
Origin

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.



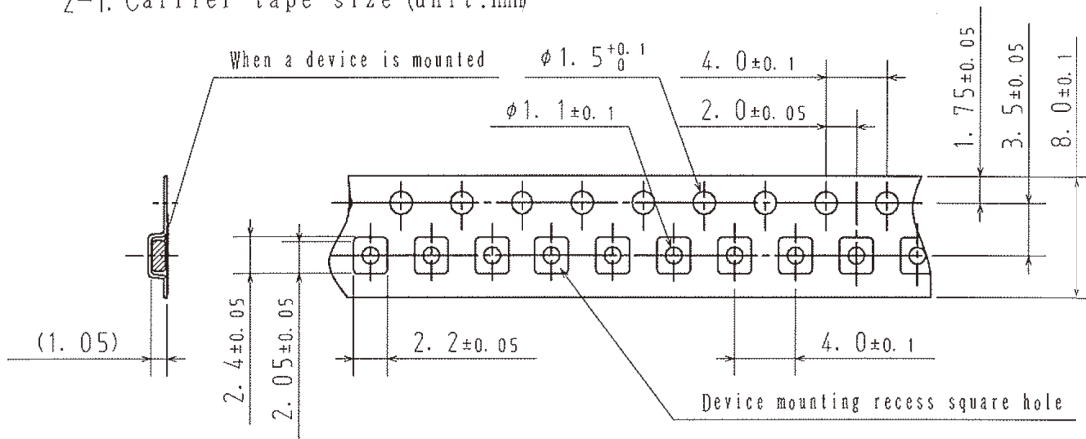
NOTE (1)

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

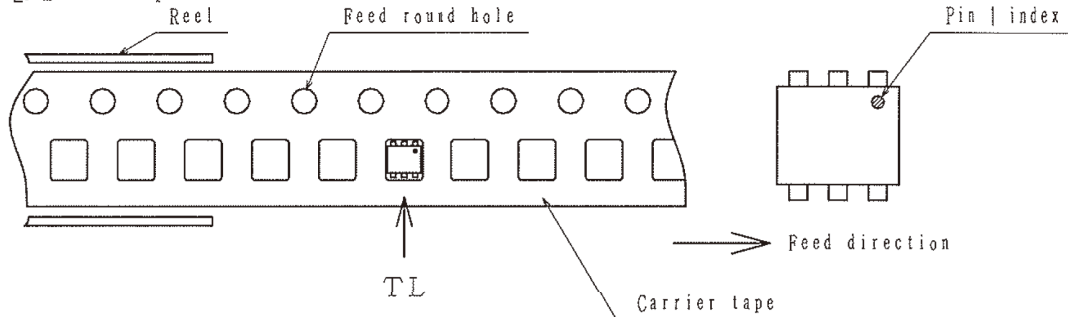
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

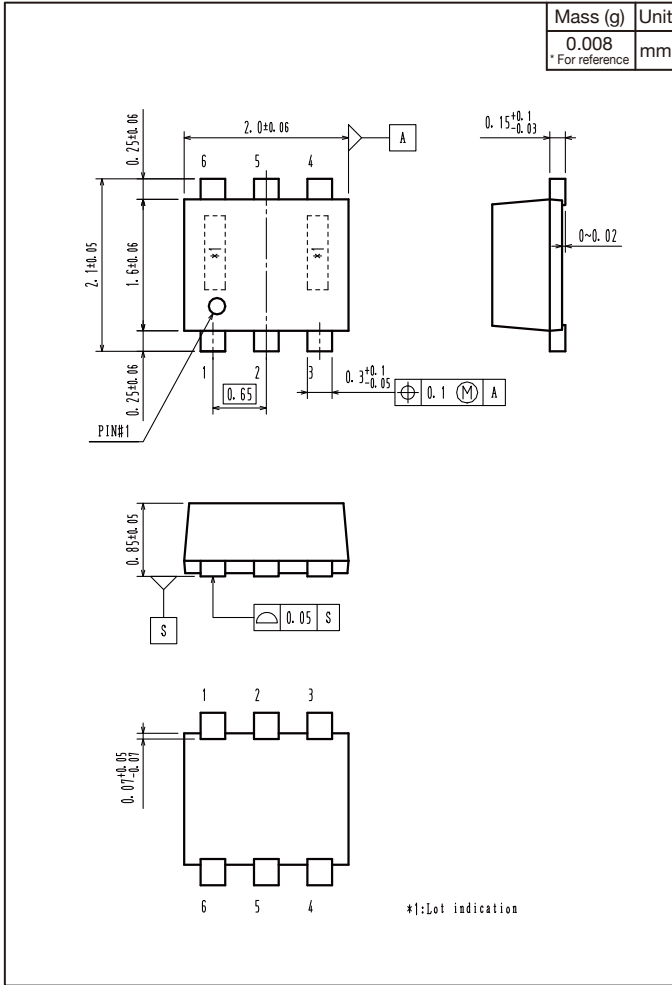


Those with pin 1 index on the feed hole side.....TL

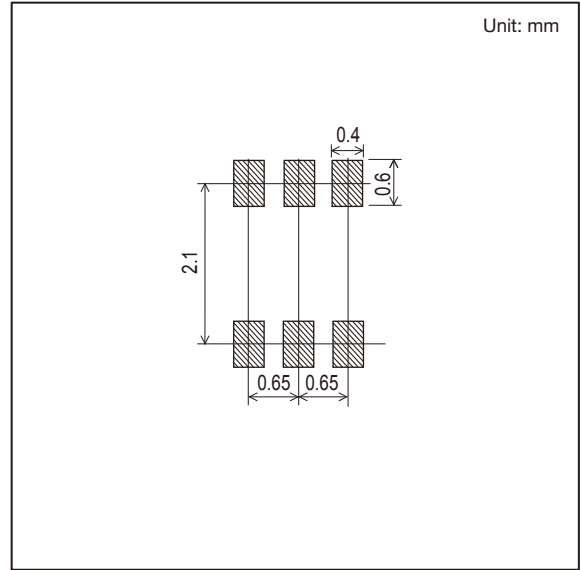
# MCH6536

## Outline Drawing

MCH6536-TL-E



## Land Pattern Example



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