

# MCH6102-TL-E Datasheet



DiGi Electronics Part Number	MCH6102-TL-E-DG
Manufacturer	<a href="#">onsemi</a>
Manufacturer Product Number	MCH6102-TL-E
Description	TRANS PNP 30V 1.5A 6MCPH
Detailed Description	Bipolar (BJT) Transistor PNP 30 V 1.5 A 450MHz 1 W Surface Mount 6-MCPH



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## Purchase and inquiry

Manufacturer Product Number:

MCH6102-TL-E

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

30 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

1 W

Operating Temperature:

150°C (TJ)

Package / Case:

6-SMD, Flat Leads

Base Product Number:

MCH6102

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

1.5 A

Vce Saturation (Max) @ Ib, Ic:

375mV @ 15mA, 750mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

200 @ 100mA, 2V

Frequency - Transition:

450MHz

Mounting Type:

Surface Mount

Supplier Device Package:

6-MCPH

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Ordering number : EN6480C



# MCH6102/MCH6202

## Bipolar Transistor

(-30V, (-)1.5A, Low  $V_{CE(sat)}$ , (PNP)NPN Single MCPH6

ON Semiconductor®

<http://onsemi.com>

### Applications

- Relay drivers, lamp drivers, motor drivers, flash

### Features

- Adoption of 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 ( ) : MCH6102

#### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

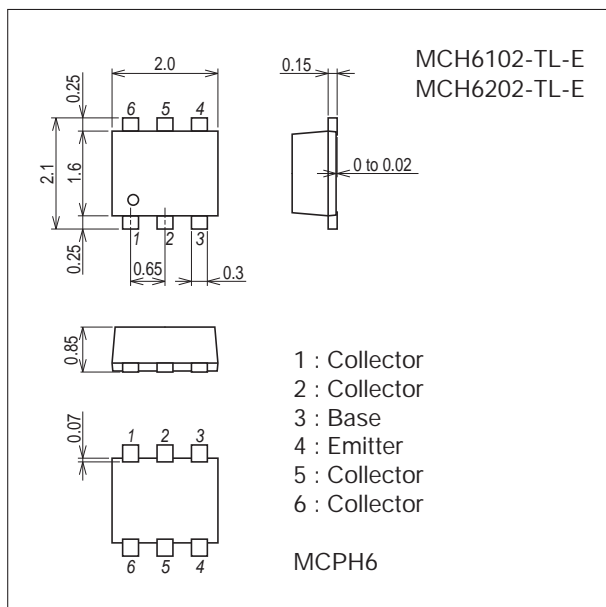
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-30)40	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-30)	V
Emitter-to-Base Voltage	$V_{EBO}$		(-5)	V

Continued on next page.

### Package Dimensions

unit : mm (typ)

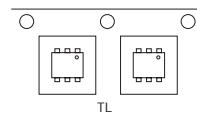
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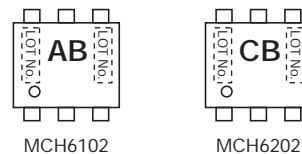
### Product & Package Information

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

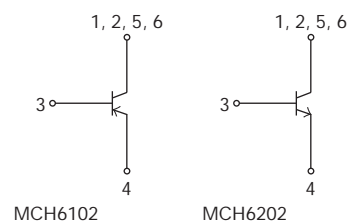
### Packing Type: TL



### Marking



### Electrical Connection



## MCH6102/MCH6202

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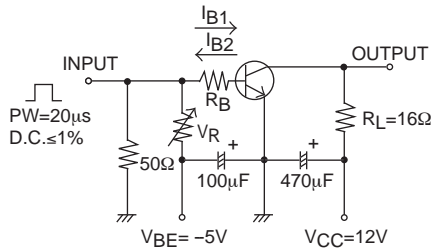
Parameter	Symbol	Conditions	Ratings	Unit
Collector Current	$I_C$		(-)1.5	A
Collector Current (Pulse)	$I_{CP}$		(-)3	A
Base Current	$I_B$		(-)300	mA
Collector Dissipation	$P_C$	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	1.0	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-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.

### 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	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4\text{V}, I_C=0\text{A}$			(-)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2\text{V}, I_C=(-)100\text{mA}$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)300\text{mA}$		(450)500		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(9)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)750\text{mA}, I_B=(-)15\text{mA}$		(-250)150	(-375)225	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)750\text{mA}, I_B=(-)15\text{mA}$		(-)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)40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0\text{A}$	(-)5			V
Turn-ON Time	$t_{on}$			(37)35		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		(115)205		ns
Fall Time	$t_f$			(26)32		ns

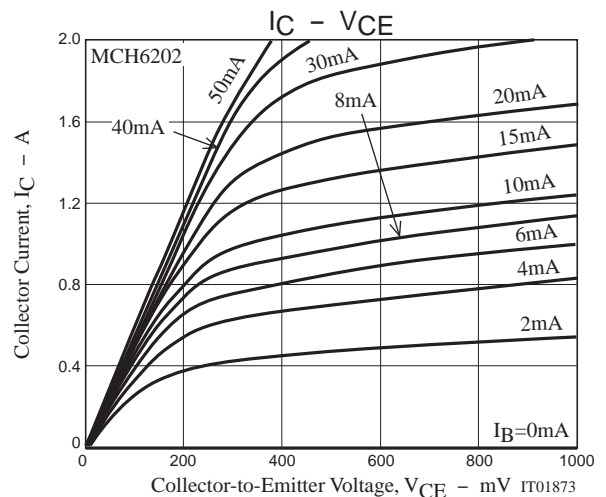
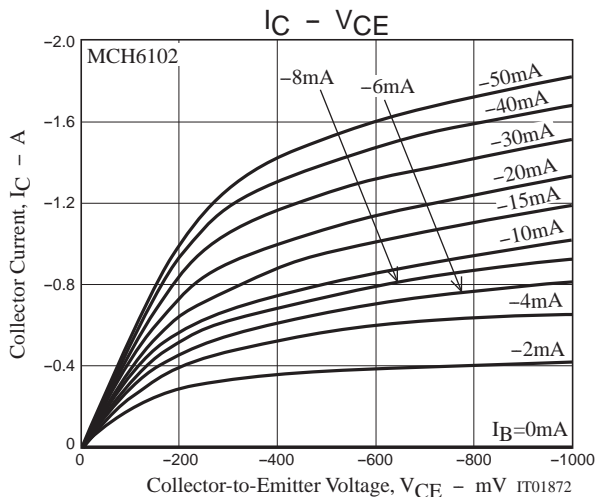
### Switching Time Test Circuit



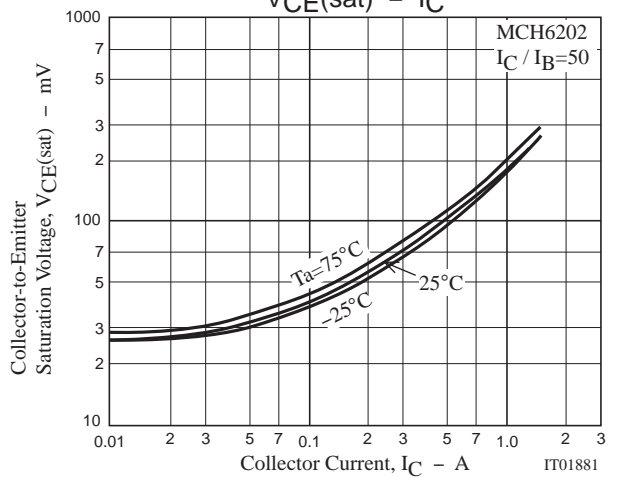
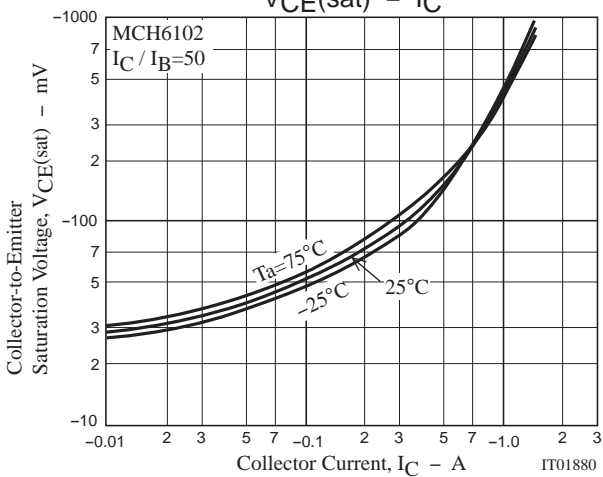
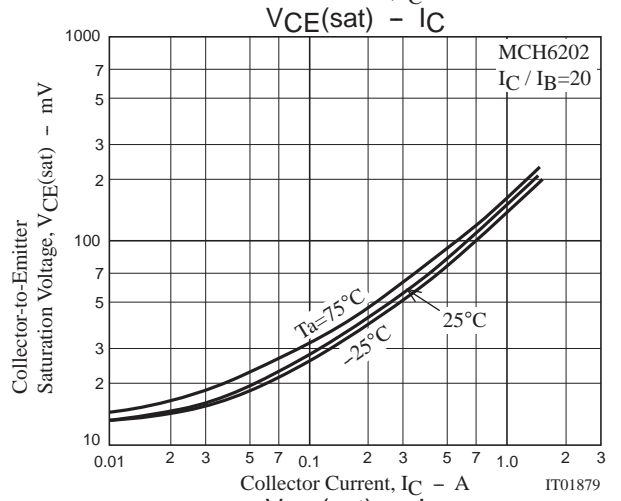
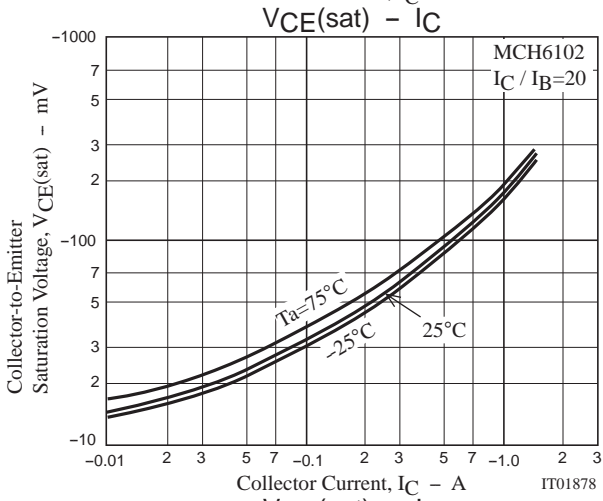
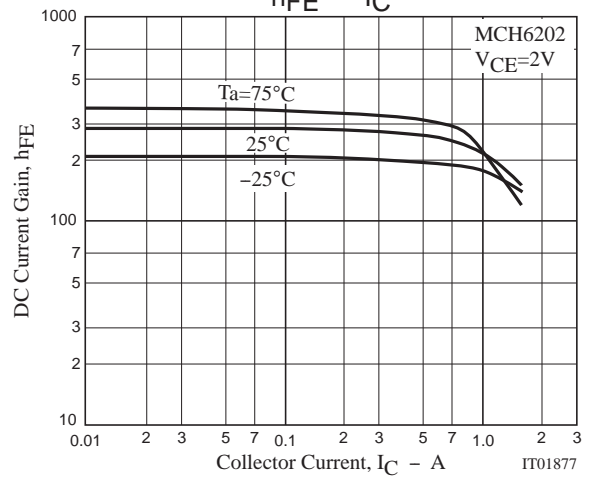
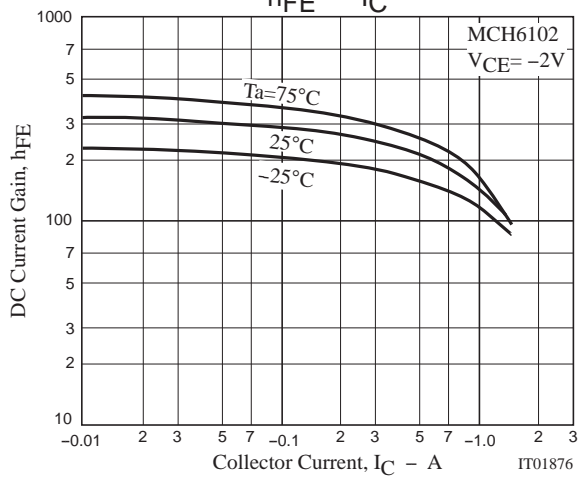
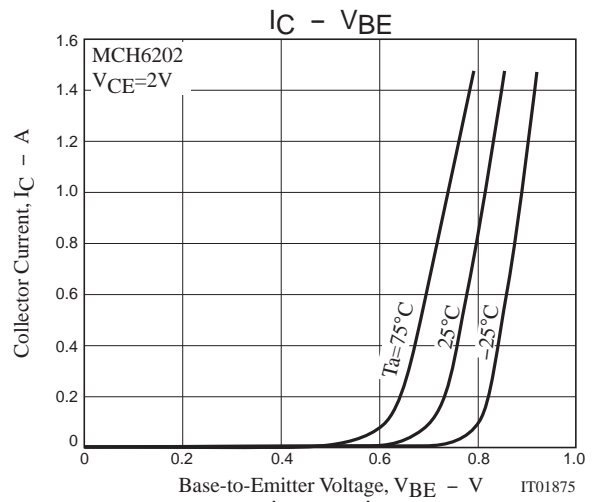
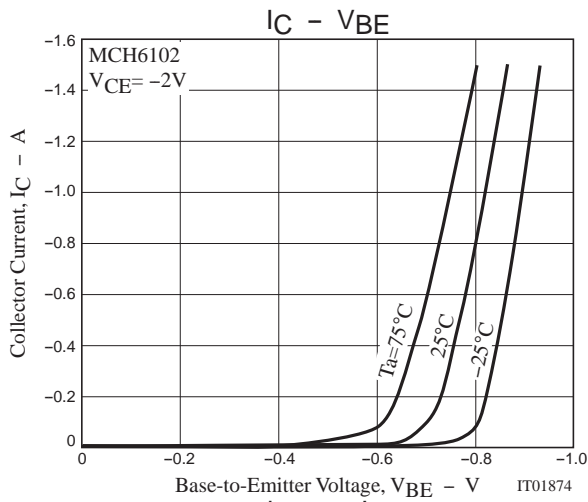
$I_C=20I_{B1}=-20I_{B2}=750\text{mA}$   
For PNP, the polarity is reversed.

### Ordering Information

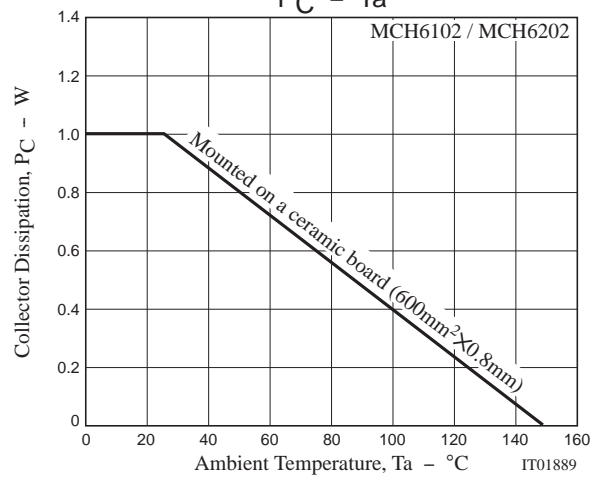
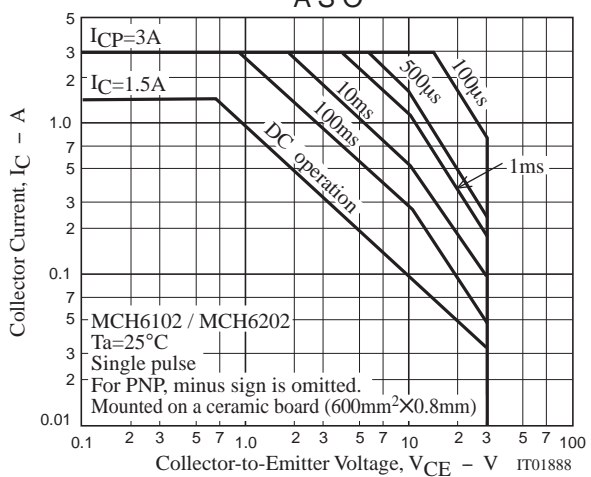
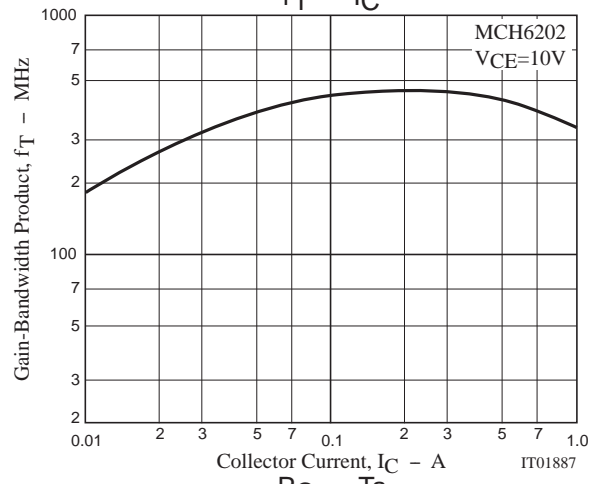
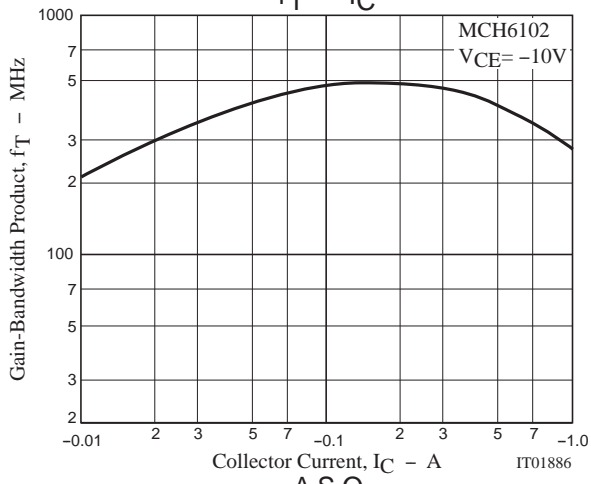
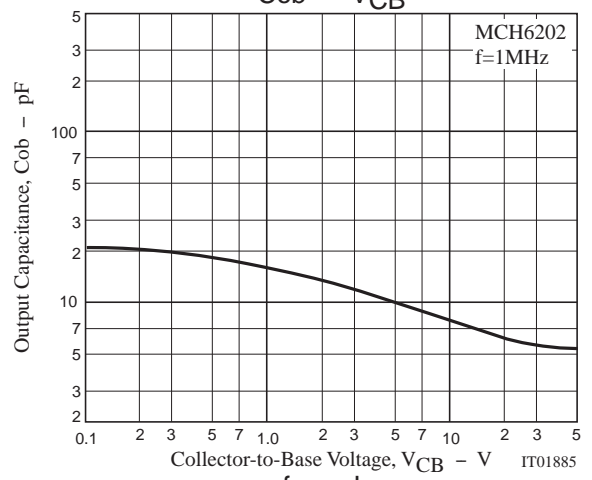
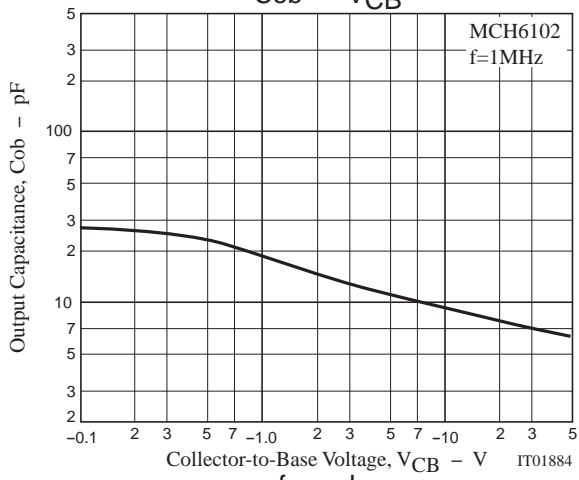
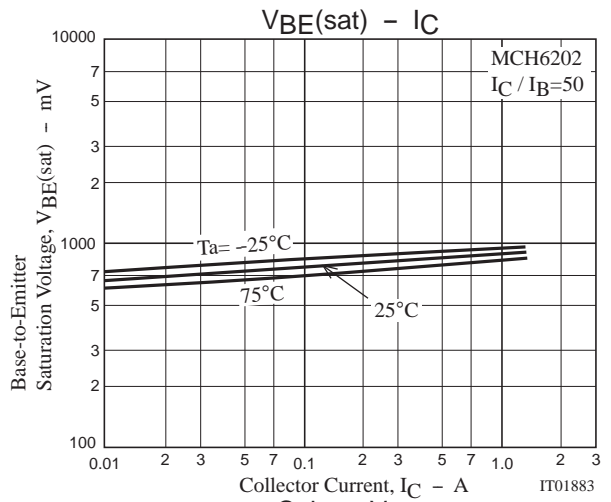
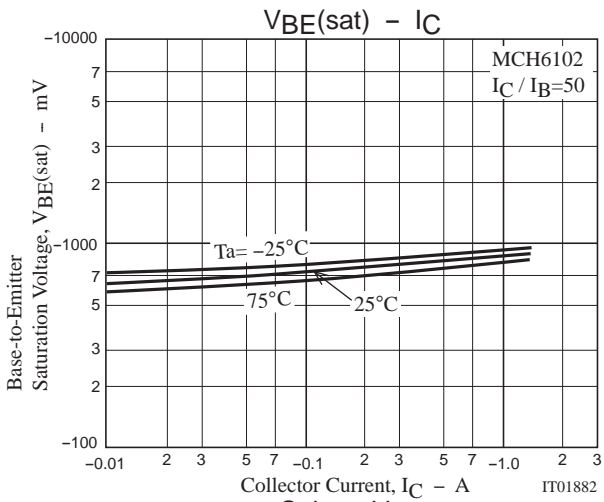
Device	Package	Shipping	memo
MCH6102-TL-E	MCPH6	3,000pcs./reel	Pb Free
MCH6202-TL-E	MCPH6	3,000pcs./reel	



MCH6102/MCH6202



### MCH6102/MCH6202





MCH6102/MCH6202

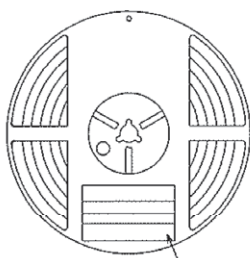
Embossed Taping Specification

MCH6102-TL-E, MCH6202-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

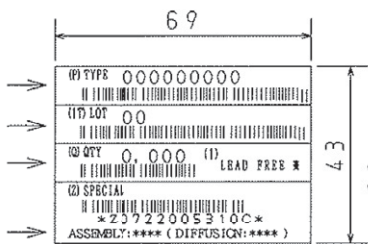
Packing method



Type No.  
LOT No.  
Quantity  
Origin

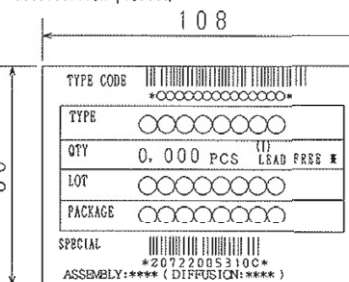
Reel label

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.



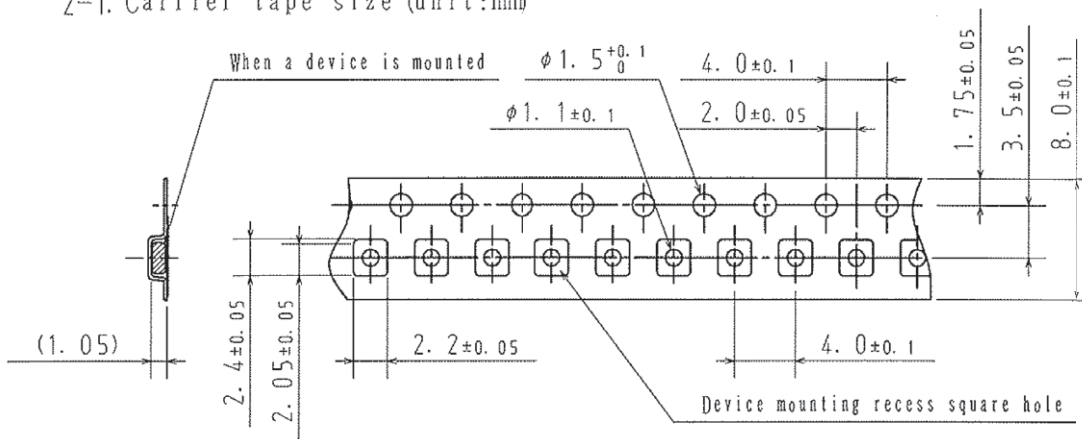
NOTE (1)

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

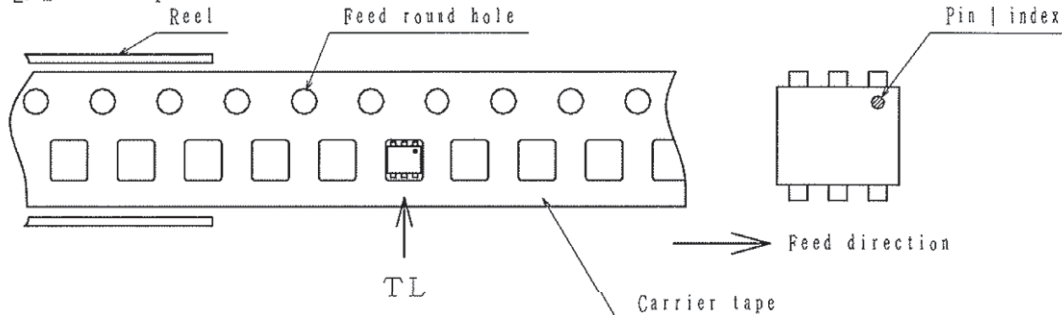
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

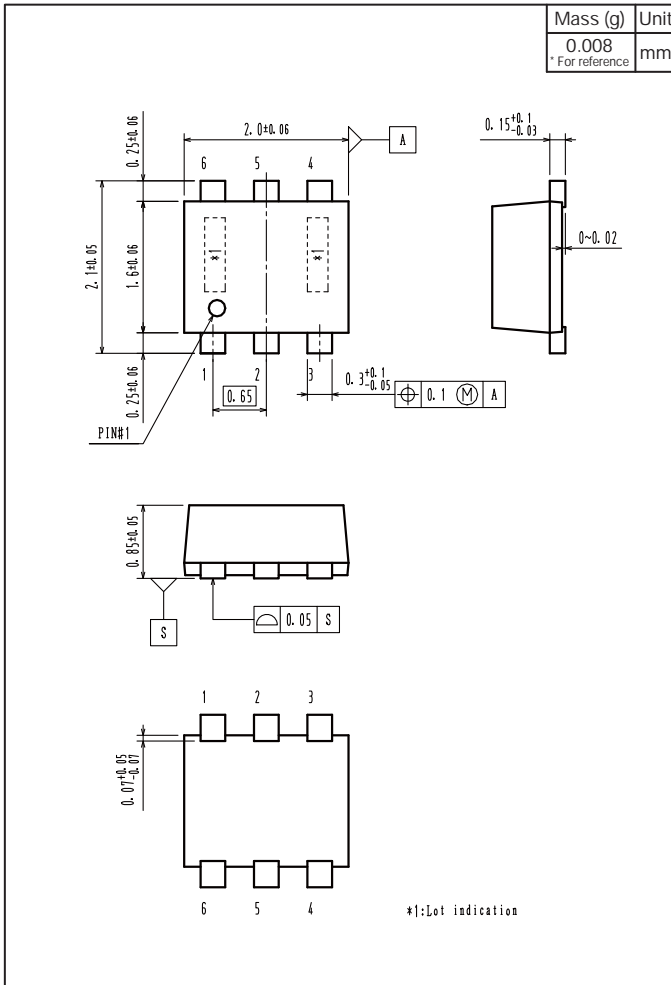


Those with pin | index on the feed hole side.....TL

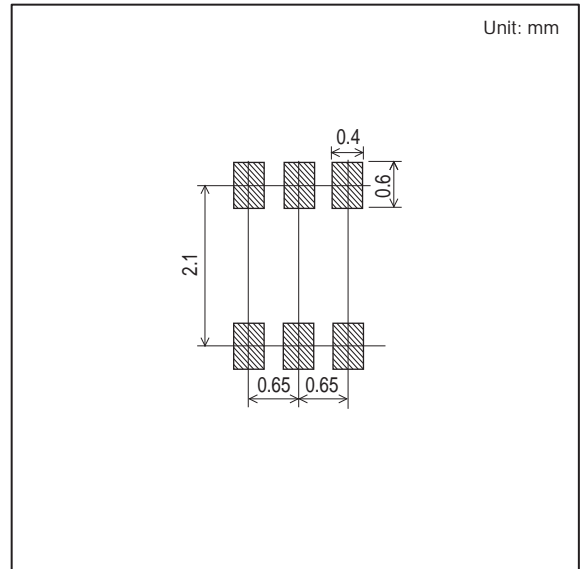
MCH6102/MCH6202

Outline Drawing

MCH6102-TL-E, MCH6202-TL-E



Land Pattern Example





MCH6102/MCH6202

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