MCH6102-TL-E Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	MCH6102-TL-E-DG
Manufacturer	onsemi
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

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MCH6102-TL-E	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
PNP	1.5 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
30 V	375mV @ 15mA, 750mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA (ICBO)	200 @ 100mA, 2V
Power - Max:	Frequency - Transition:
1 W	450MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
6-SMD, Flat Leads	6-MCPH
Base Product Number:	
MCH6102	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0075	

Ordering number : EN6480C

MCH6102/MCH6202

Bipolar Transistor
(−)30V, (−)1.5A, Low V_{CE}(sat), (PNP)NPN Single MCPH6

ON Semiconductor®
http://onsemi.com

Applicaitons
- Relay drivers, lamp drivers, motor drivers, flash

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

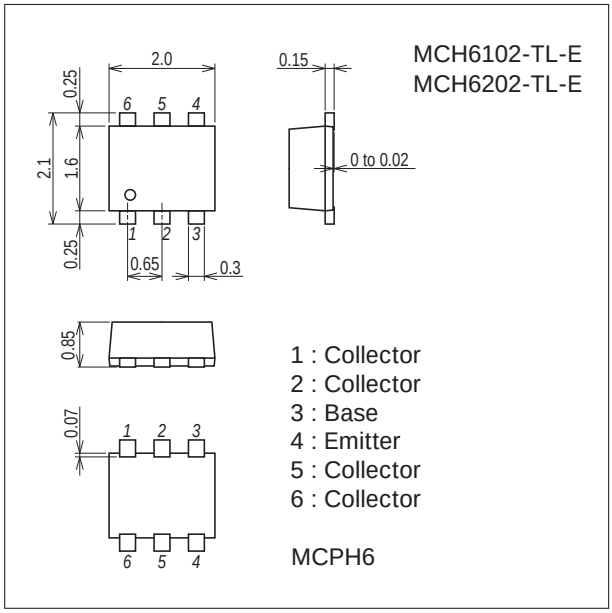
Specifications ( ) : MCH6102

Absolute Maximum Ratings at Ta=25°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

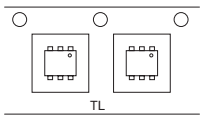
Continued on next page.

Package Dimensions
unit : mm (typ)
7022A-007

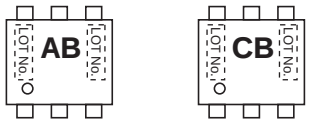


Product & Package Information
- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

Packing Type: TL

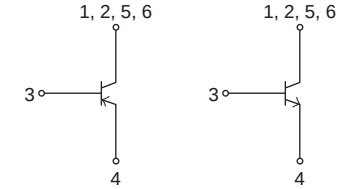


Marking



MCH6102 MCH6202

Electrical Connection



MCH6102 MCH6202

MCH6102/MCH6202

Continued from preceding page.

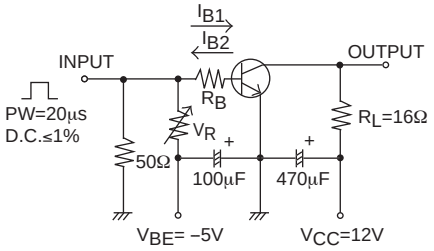
Parameter	Symbol	Conditions	Ratings	Unit
Collector Current	I_C		(–)1.5	A
Collector Current (Pulse)	I_{CP}		(–)3	A
Base Current	I_B		(–)300	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm^2×0.8mm)	1.0	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

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.

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)30V, 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=(–)100mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)300mA		(450)500		MHz
Output Capacitance	Cob	V_{CB}=(–)10V, f=1MHz		(9)8		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(–)750mA, I_B=(–)15mA		(–250)150	(–375)225	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(–)750mA, I_B=(–)15mA		(–)0.85	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0A	(–30)40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0A	(–)5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(37)35		ns
Storage Time	t_{stg}			(115)205		ns
Fall Time	t_f			(26)32		ns

Switching Time Test Circuit

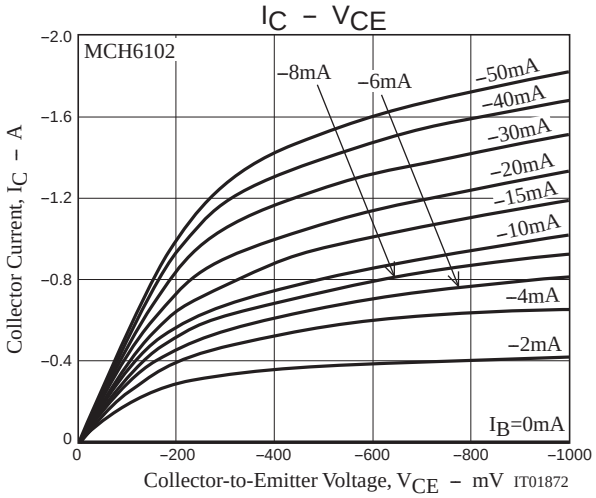


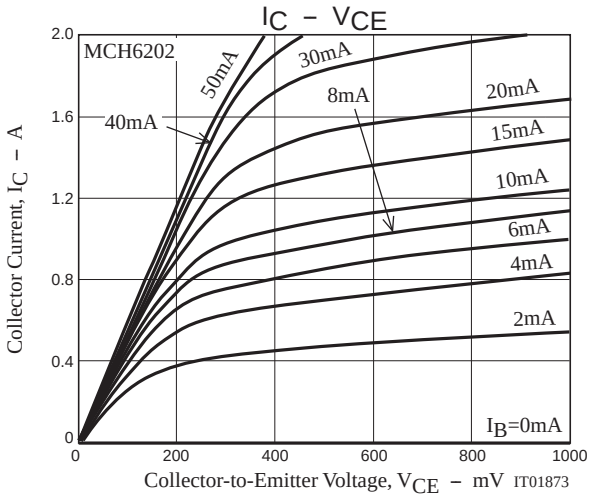
I_C=20I_{B1}= –20I_{B2}=750mA

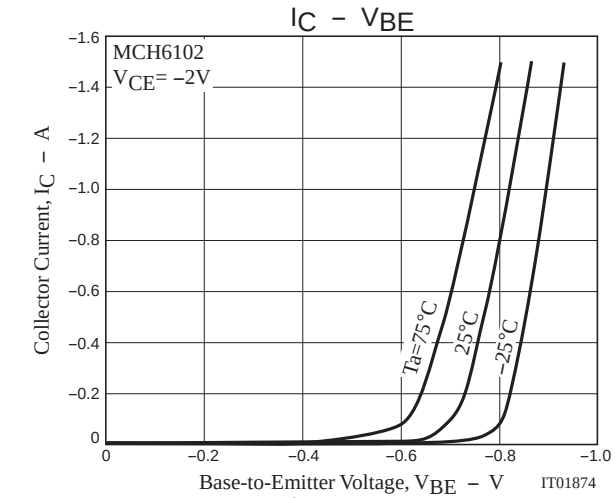
For PNP, the polarity is reversed.

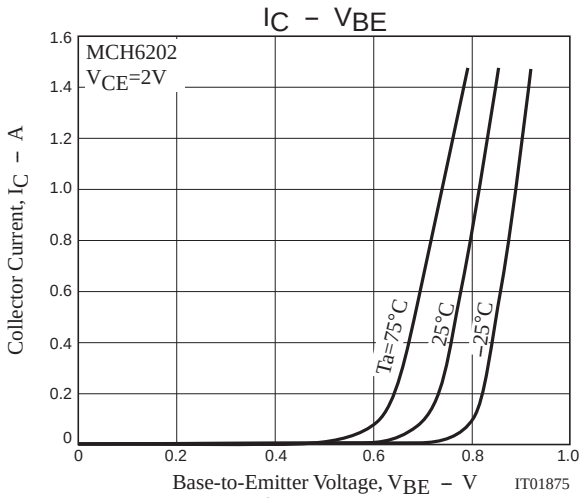
Ordering Information

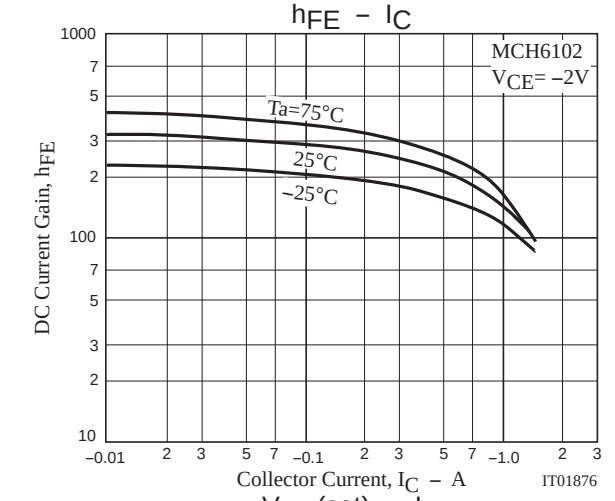
Device	Package	Shipping	memo
MCH6102-TL-E	MCPH6	3,000pcs./reel	Pb Free
MCH6202-TL-E	MCPH6	3,000pcs./reel	

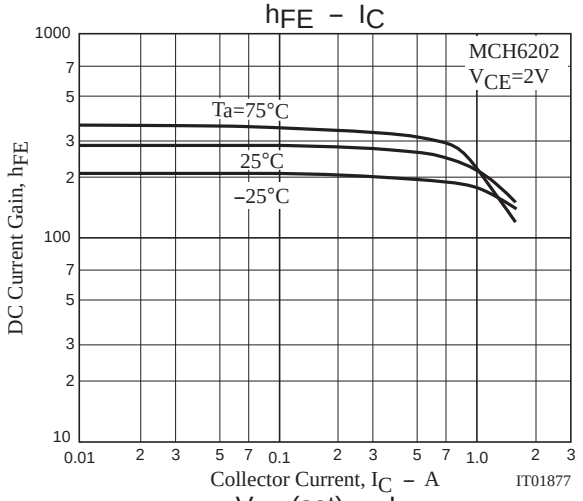


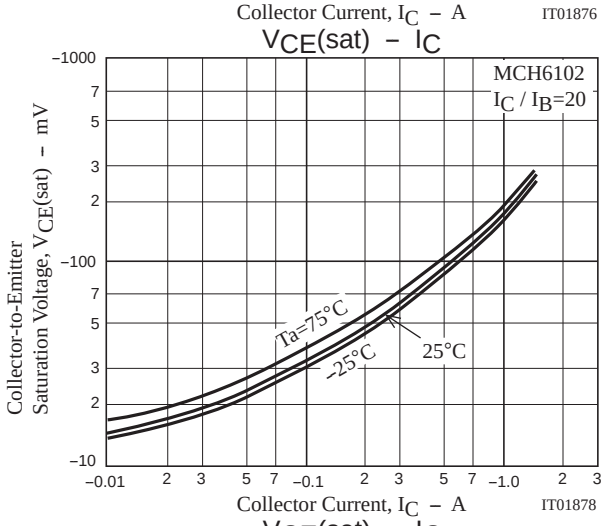


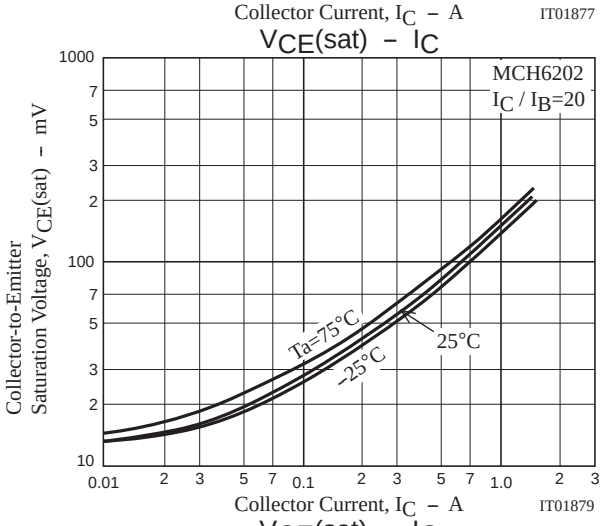

IC – VBE
MCH6102
VCE= –2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT01874

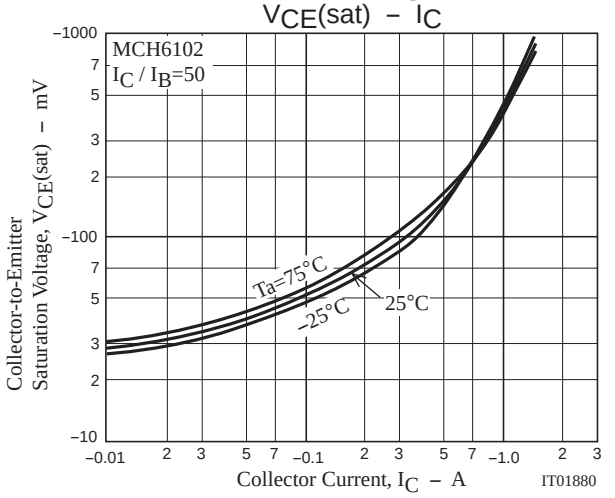

IC – VBE
MCH6202
VCE=2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT01875

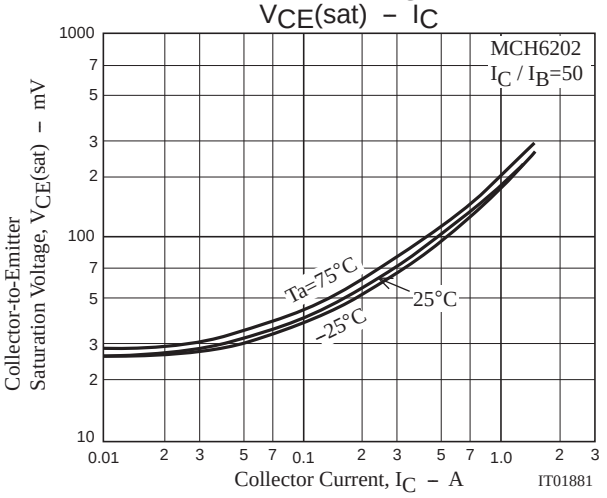

hFE – IC
MCH6102
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT01876

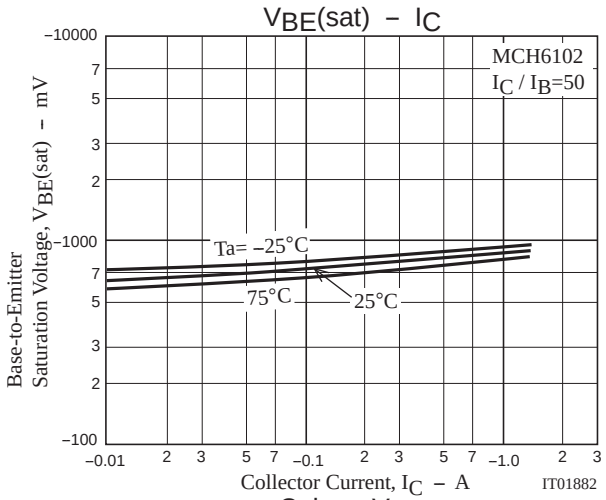

hFE – IC
MCH6202
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT01877

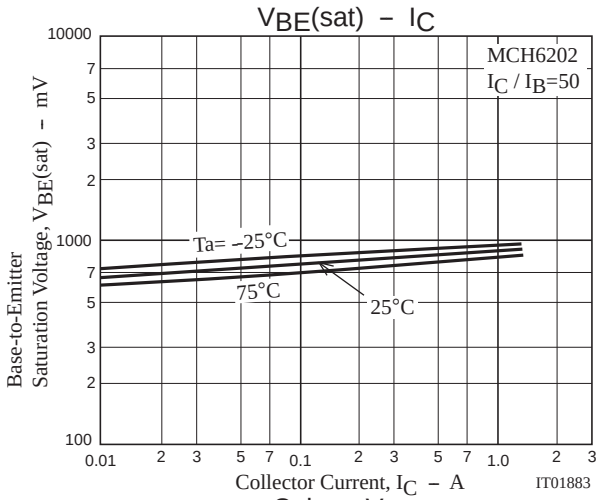

VCE(sat) – IC
MCH6102
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT01878

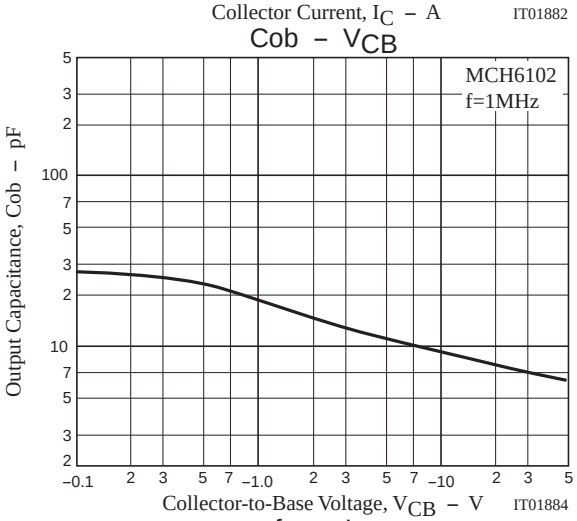

VCE(sat) – IC
MCH6202
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT01879

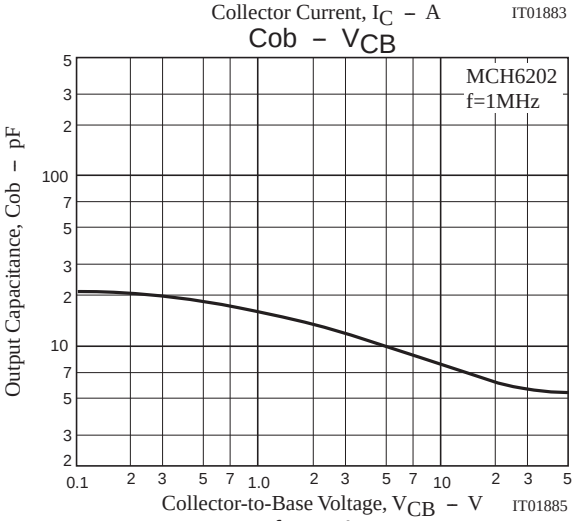

VCE(sat) – IC
MCH6102
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT01880

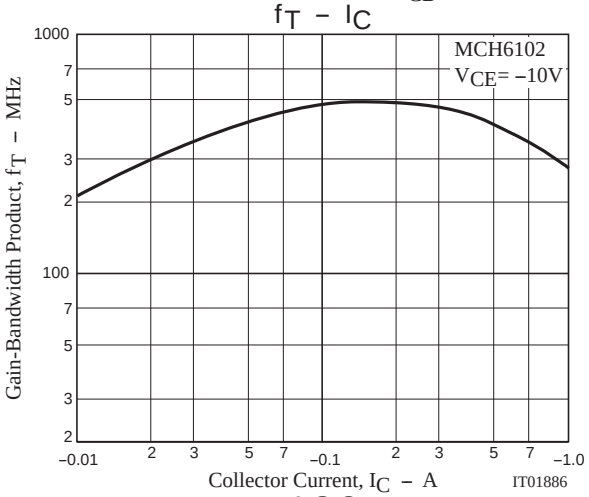

VCE(sat) – IC
MCH6202
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT01881

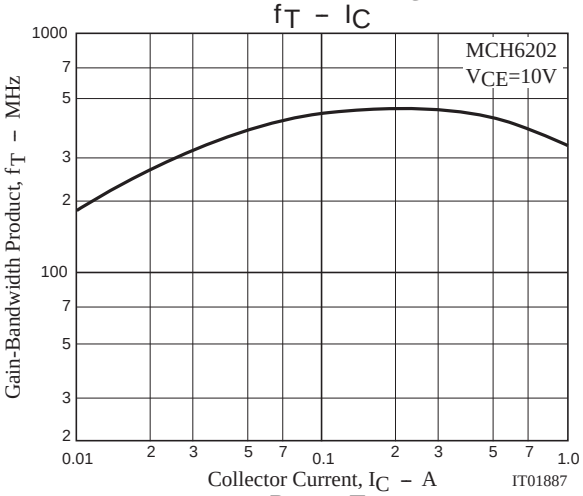

VBE(sat) – IC
MCH6102
IC / IB=50
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – mV
Collector Current, IC – A
IT01882

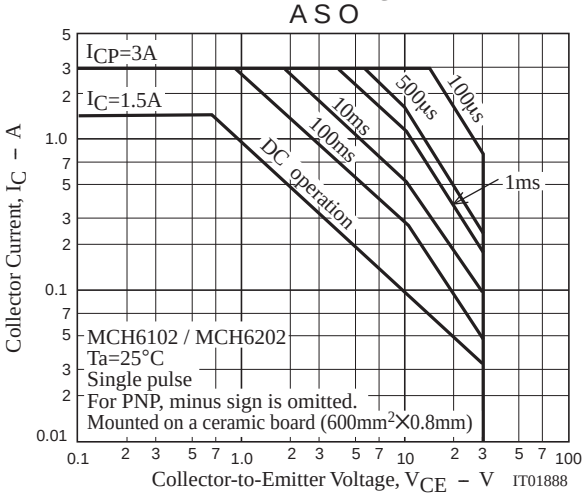

VBE(sat) – IC
MCH6202
IC / IB=50
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – mV
Collector Current, IC – A
IT01883

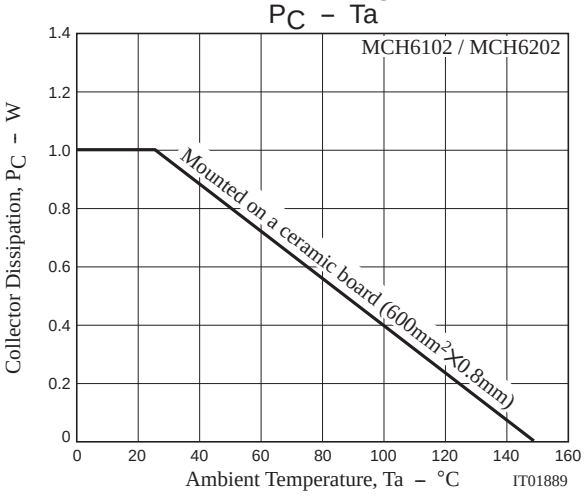

Cob – VCB
MCH6102
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT01884


Cob – VCB
MCH6202
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT01885


fT – IC
MCH6102
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT01886


fT – IC
MCH6202
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT01887


ASO
ICP=3A
IC=1.5A
100µs
500µs
10ms
100ms
DC operation
1ms
MCH6102 / MCH6202
Ta=25°C
Single pulse
For PNP, minus sign is omitted.
Mounted on a ceramic board (600mm2×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT01888


PC – Ta
MCH6102 / MCH6202
Mounted on a ceramic board (600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT01889

MCH6102/MCH6202

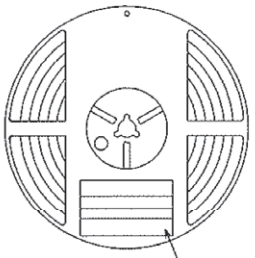
Embossed Taping Specification

MCH6102-TL-E, MCH6202-TL-E

1. Packing Format

Package Name	Carrier Tape Type	Maximun 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

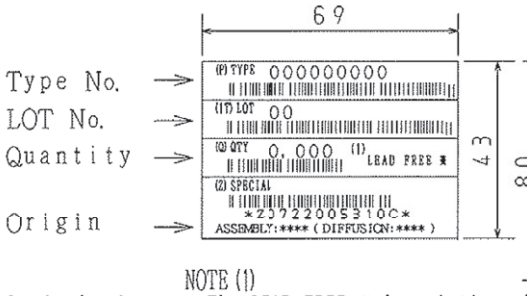
Packing method



Reel label

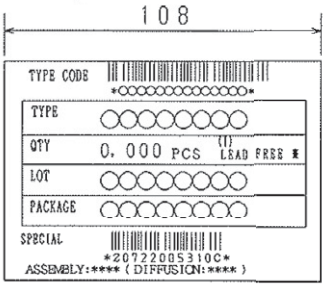
Reel label, Inner box label

(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.

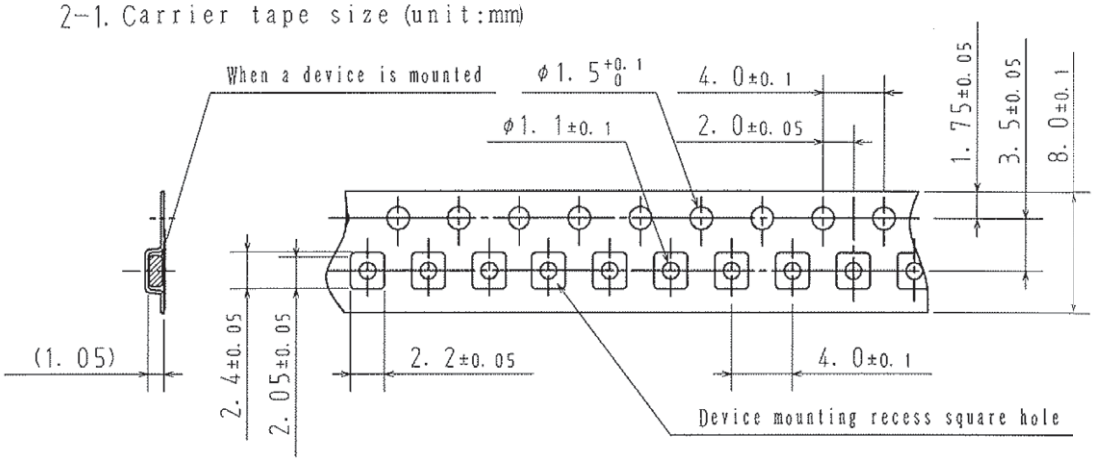


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

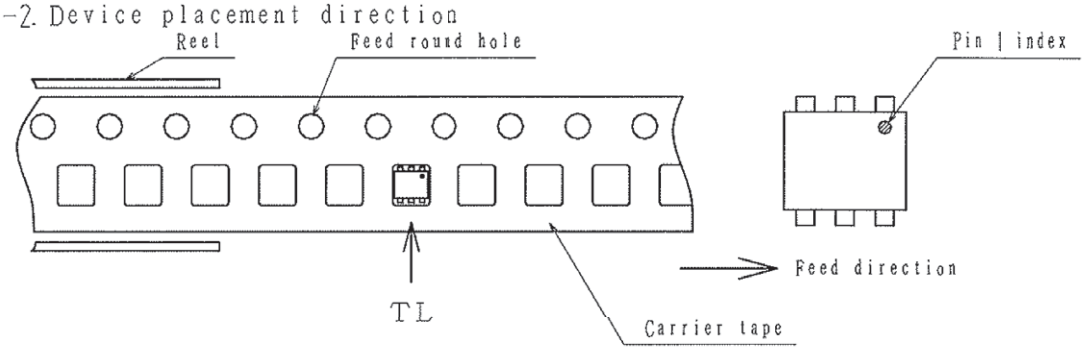
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

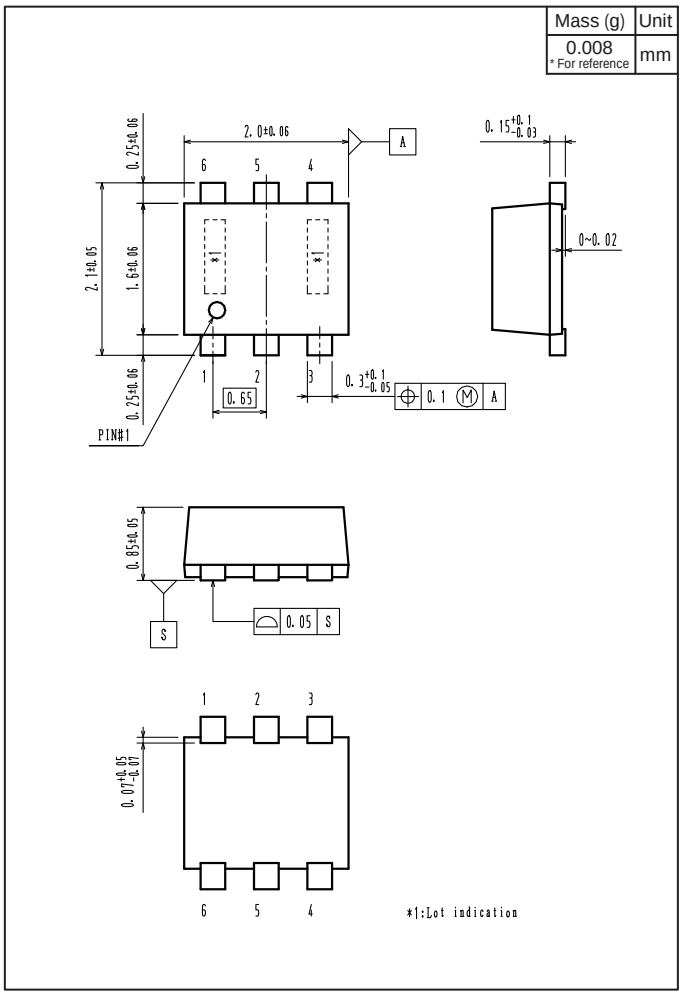


Those with pin 1 index on the feed hole side·····TL

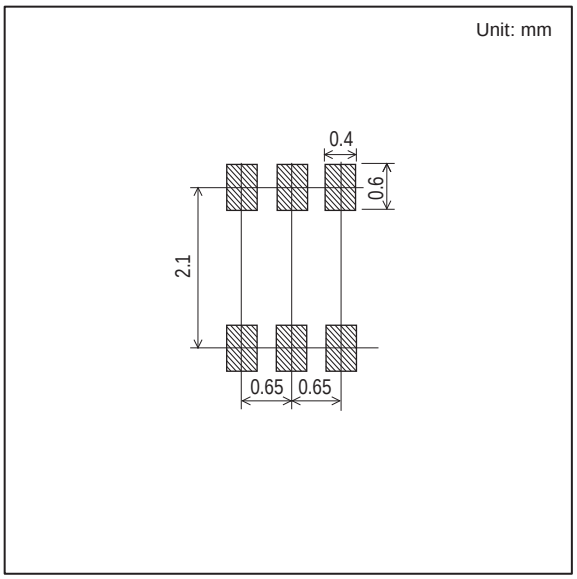
MCH6102/MCH6202

Outline Drawing

MCH6102-TL-E, MCH6202-TL-E



Land Pattern Example



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