



MCH6536

Bipolar Transistor (-12V)15V, (-1A)1.4A, Low $V_{CE(sat)}$ Complementary Dual MCPH6

ON Semiconductor®

<http://onsemi.com>

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 (R_{on})

Specifications () : PNP

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

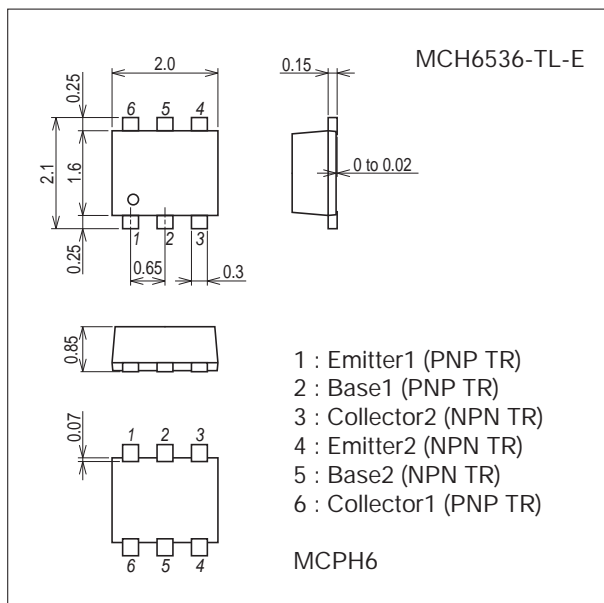
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-15)20	V
Collector-to-Emitter Voltage	V_{CEO}		(-12)15	V
Emitter-to-Base Voltage	V_{EBO}		(-)-5	V
Collector Current	I_C		(-500)700	mA
Collector Current (Pulse)	I_{CP}		(-1.0)1.4	A
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.5	W
Total Power Dissipation	P_T	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.55	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.

Package Dimensions

unit : mm (typ)

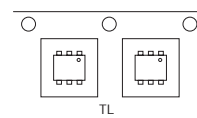
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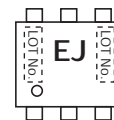
Product & Package Information

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

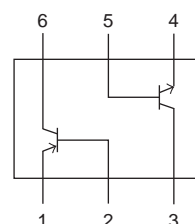
Packing Type : TL



Marking



Electrical Connection



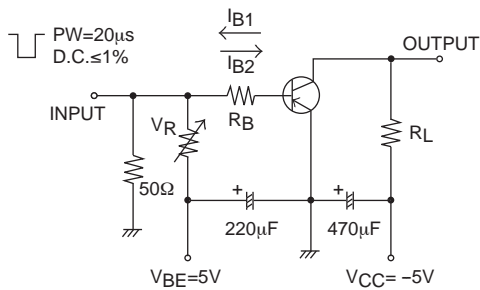
MCH6536

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

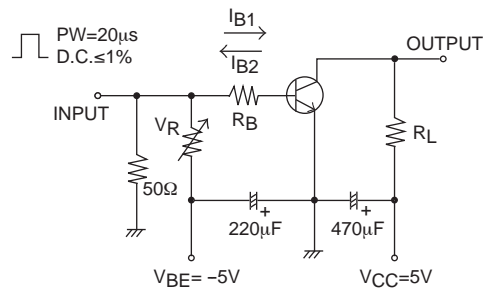
Switching Time Test Circuit

[PNP]



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

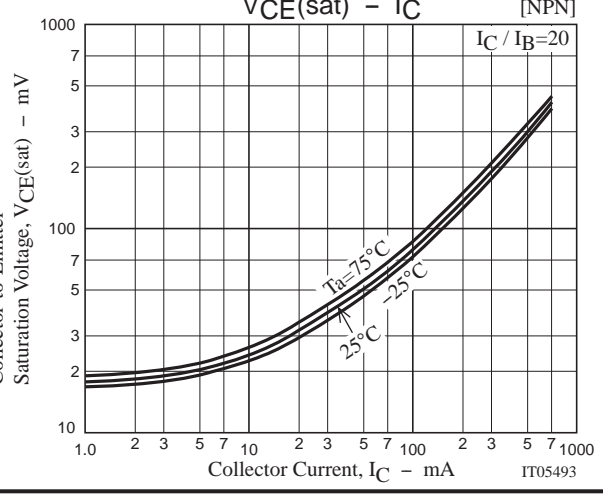
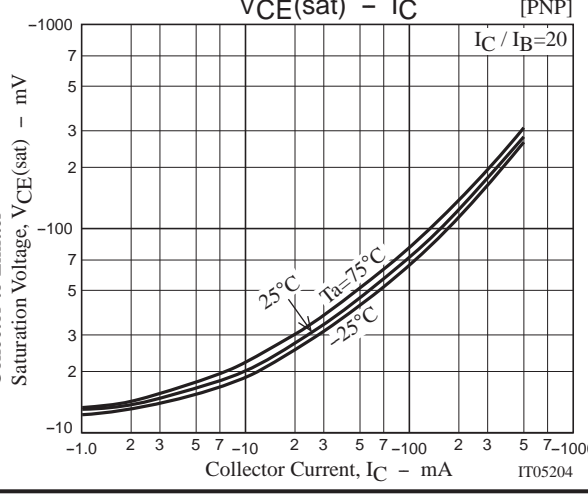
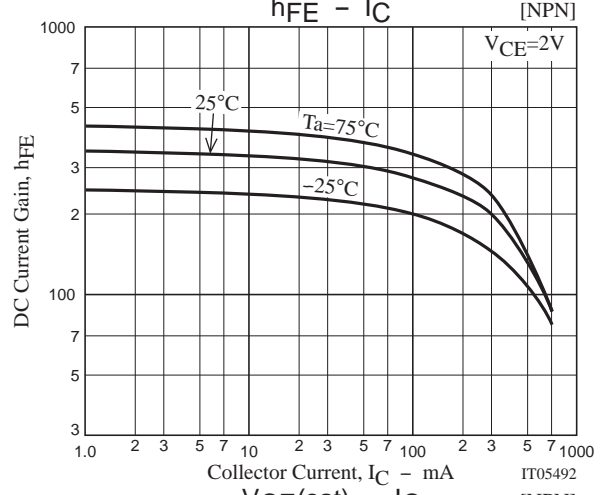
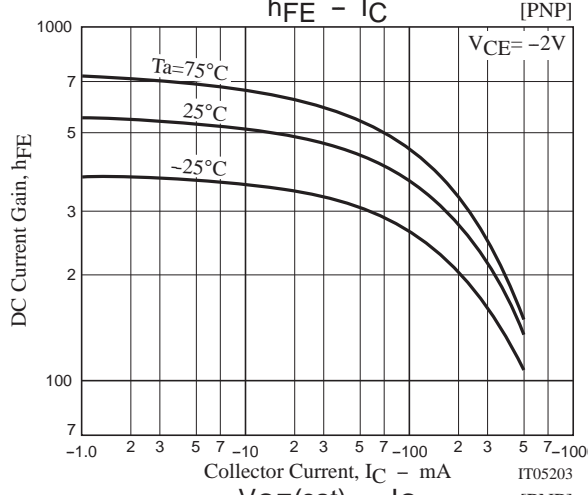
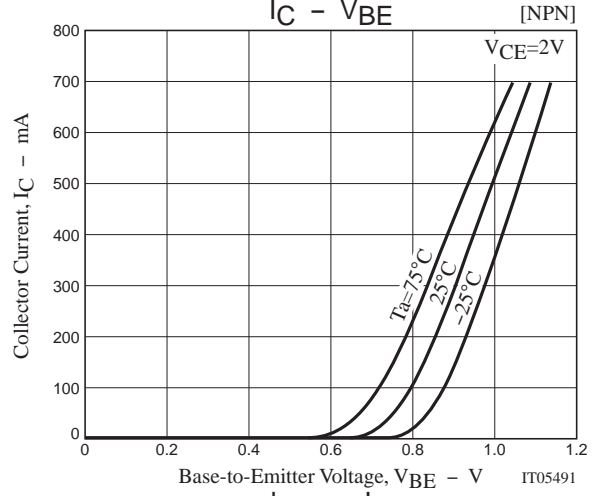
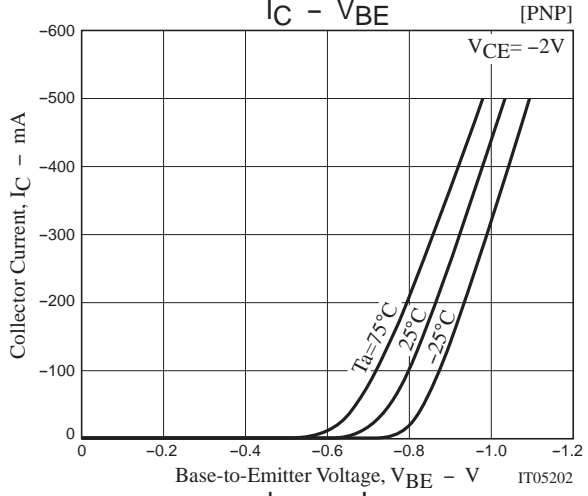
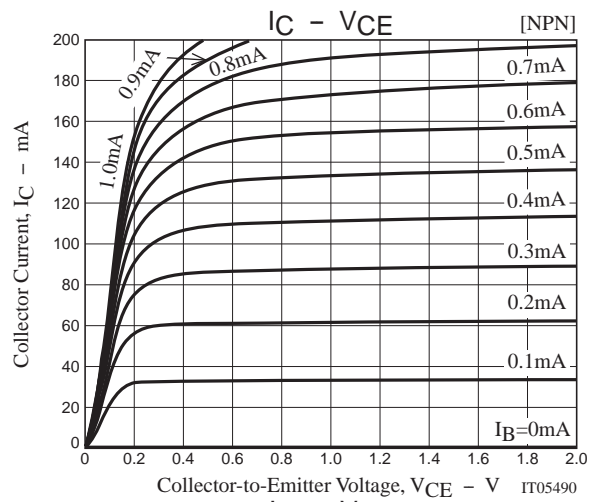
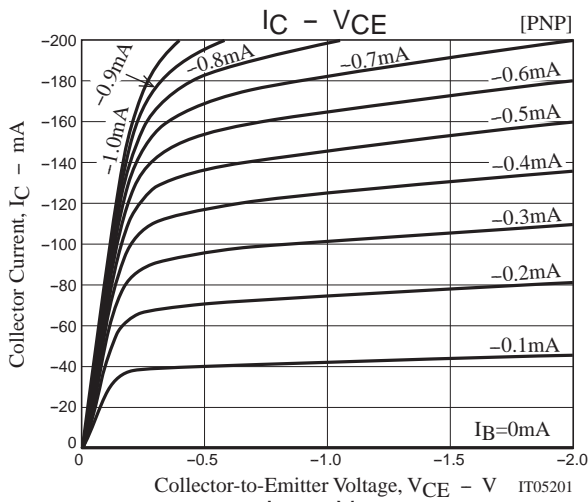
[NPN]

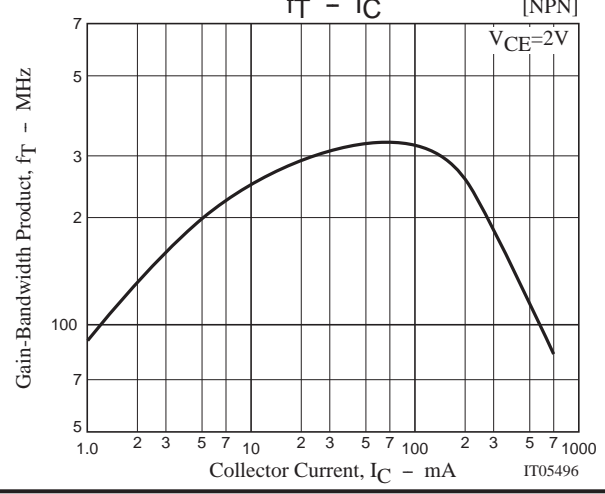
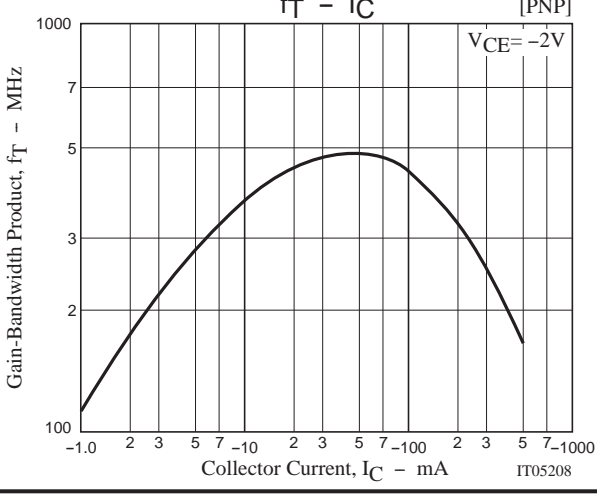
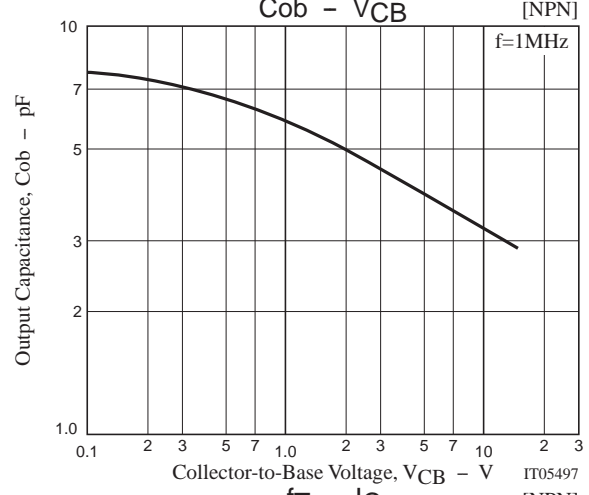
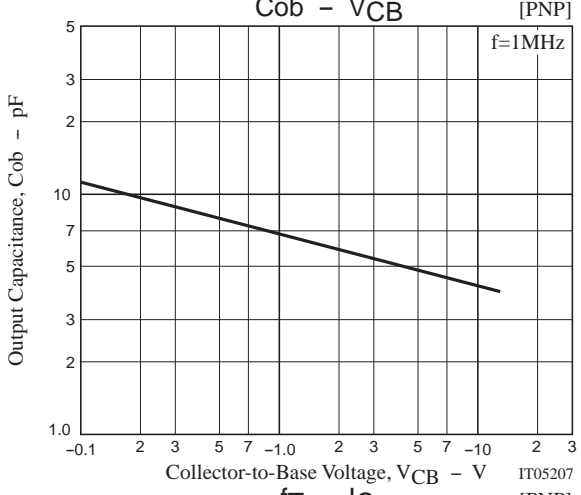
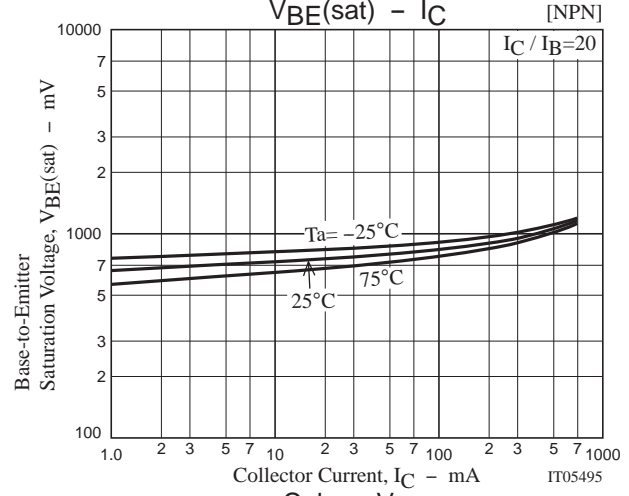
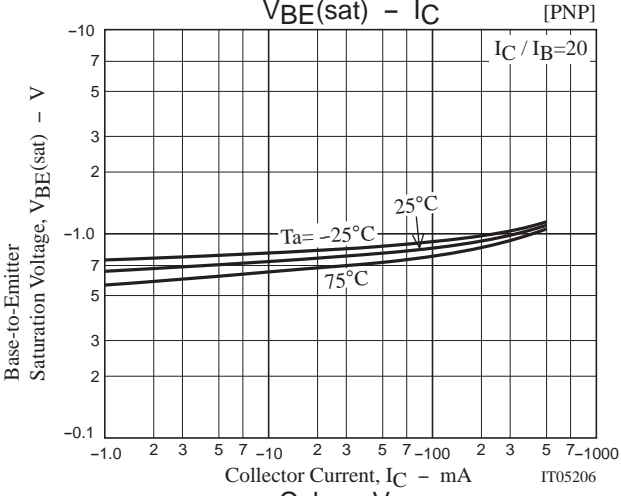
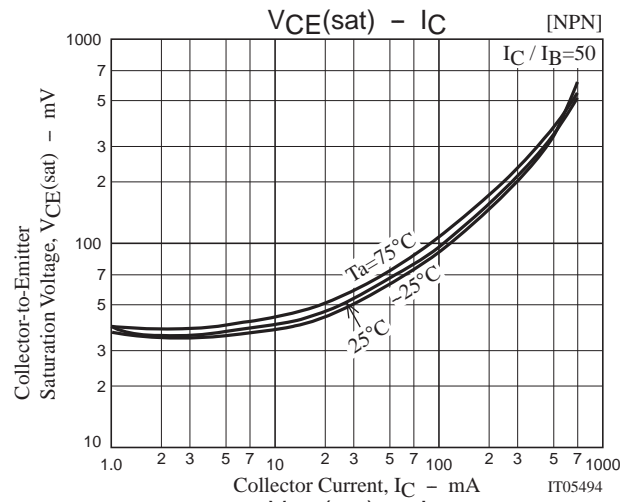
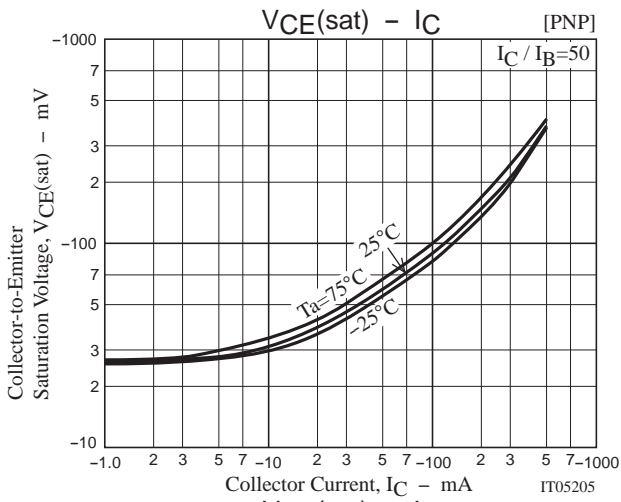


$$I_C = 20I_{B1} = -20I_{B2} = 500mA$$

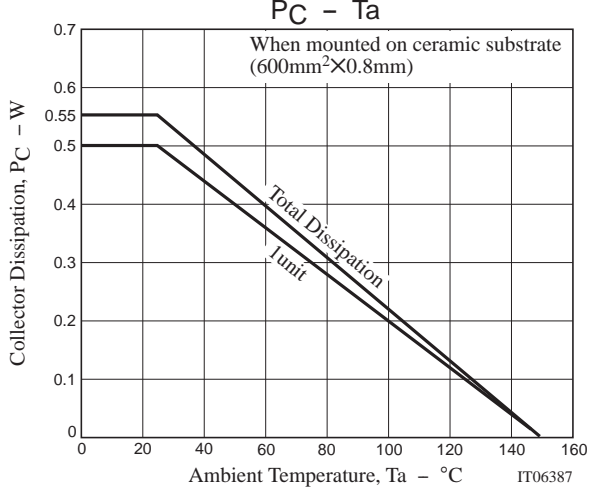
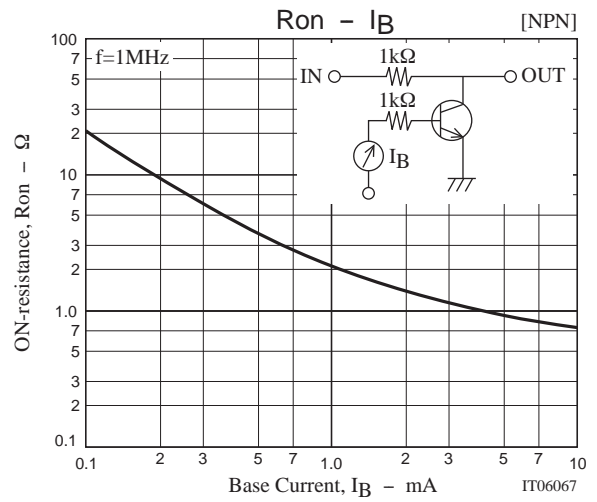
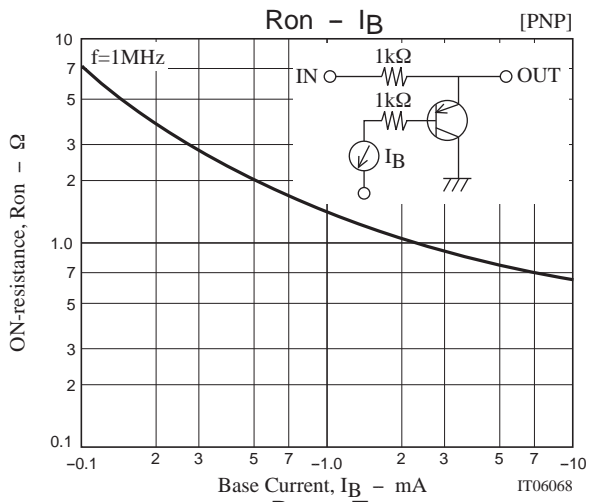
Ordering Information

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





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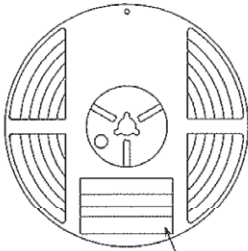
Embossed Taping Specification

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

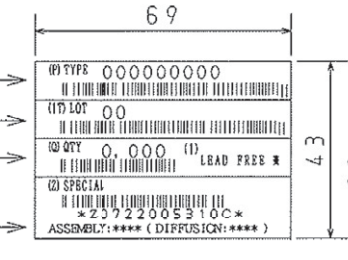
Packing method



Type No.
LOT No.
Quantity
Origin

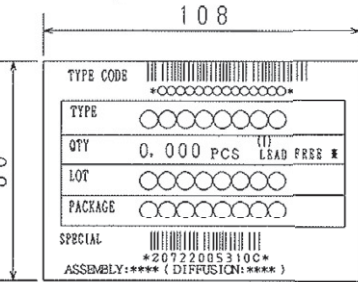
Reel label

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.



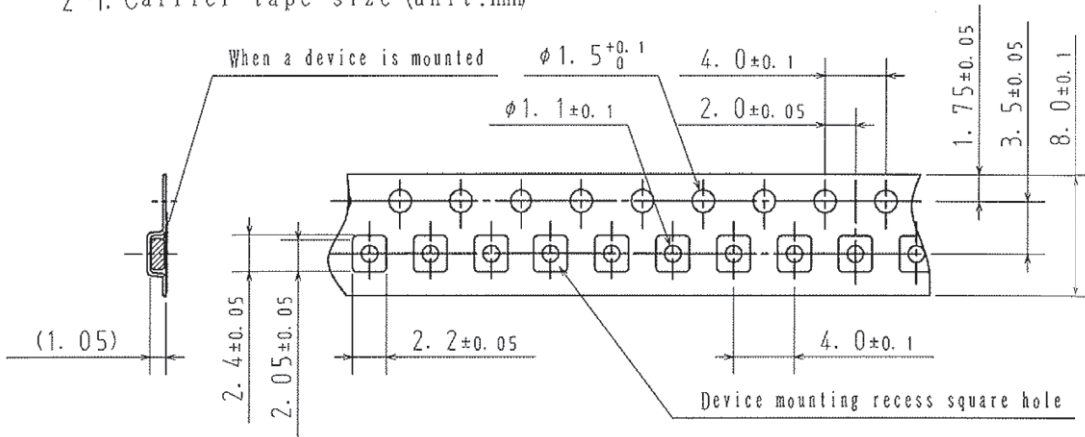
NOTE (1)

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

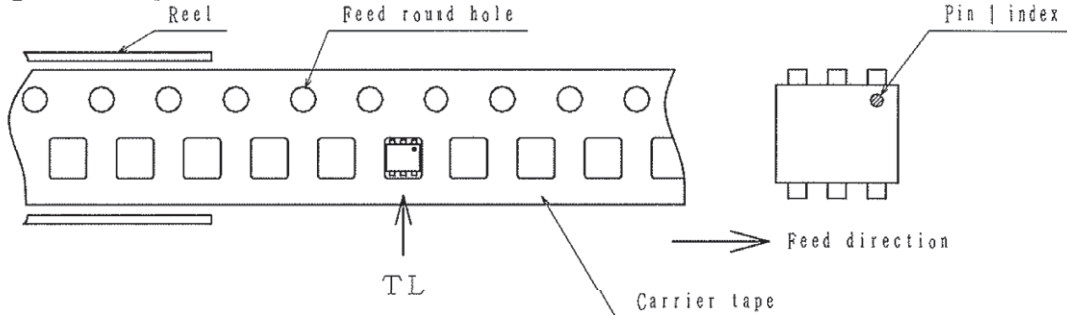
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



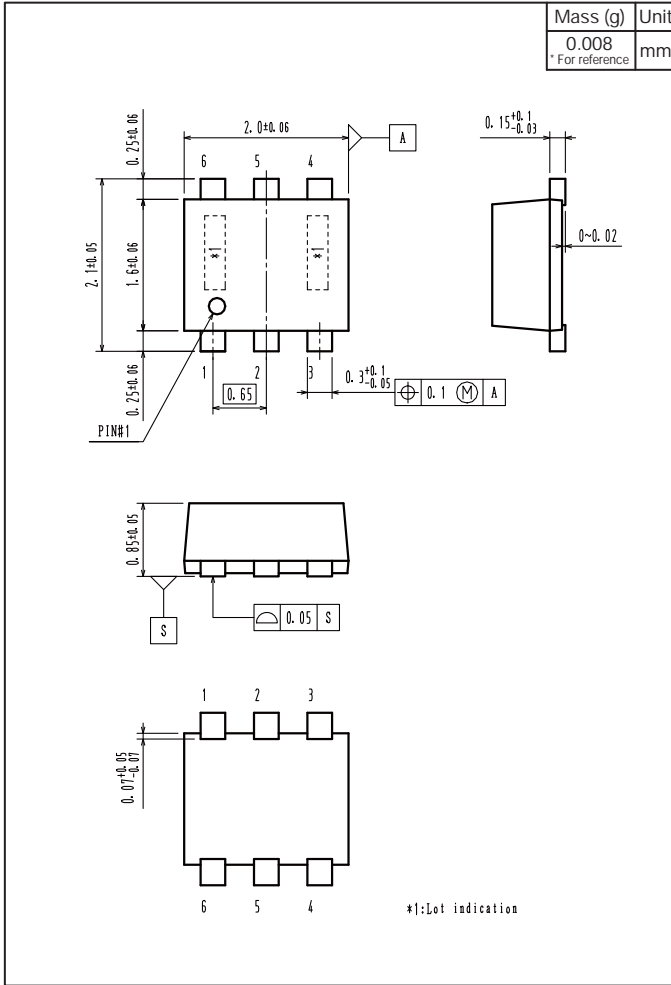
2-2. Device placement direction



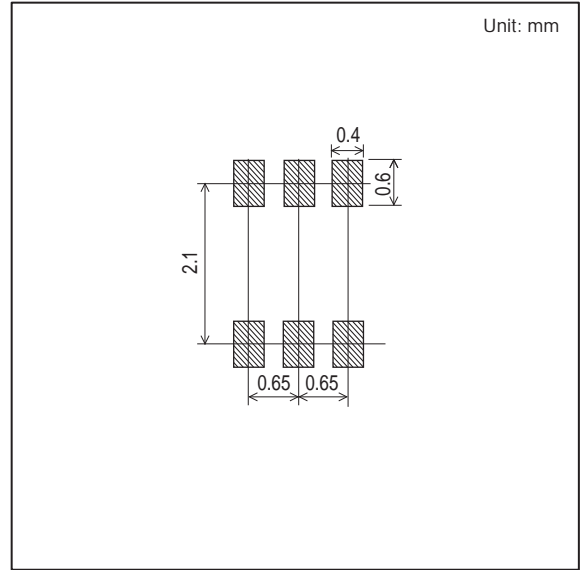
Those with pin | index on the feed hole side.....TL

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Outline Drawing MCH6536-TL-E



Land Pattern Example



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