



# MCH6123

## Bipolar Transistor -50V, -3A, Low VCE(sat), PNP Single MCPH6

ON Semiconductor®

<http://onsemi.com>

### Applications

- DC-DC converter, relay drivers, lamp drivers, motor drivers

### Features

- Adoption of MBIT process
- Low collector-to-emitter saturation voltage
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.85mm)
- High allowable power dissipation
- Large current capacity
- High speed switching

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

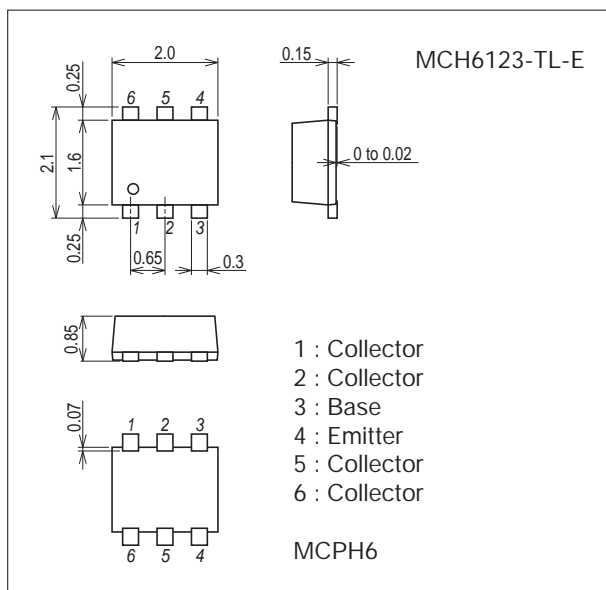
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		-50	V
Collector-to-Emitter Voltage	VCES		-50	V
Collector-to-Emitter Voltage	VCEO		-50	V
Emitter-to-Base Voltage	VEBO		-6	V
Collector Current	IC		-3	A
Collector Current (Pulse)	ICP		-6	A
Base Current	IB		-600	mA
Collector Dissipation	PC	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	1	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.

### Package Dimensions

unit : mm (typ)

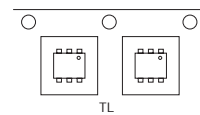
7022A-007



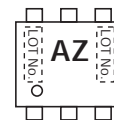
### Product & Package Information

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

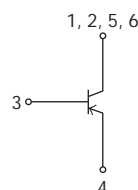
### Packing Type : TL



### Marking



### Electrical Connection

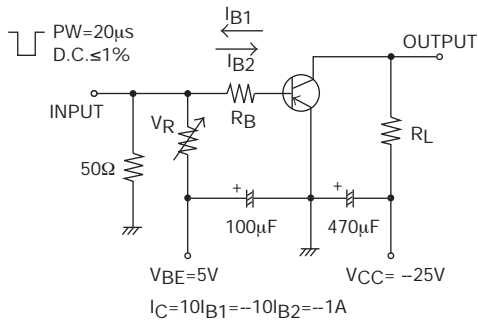


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## Electrical Characteristics at $T_a=25^\circ\text{C}$

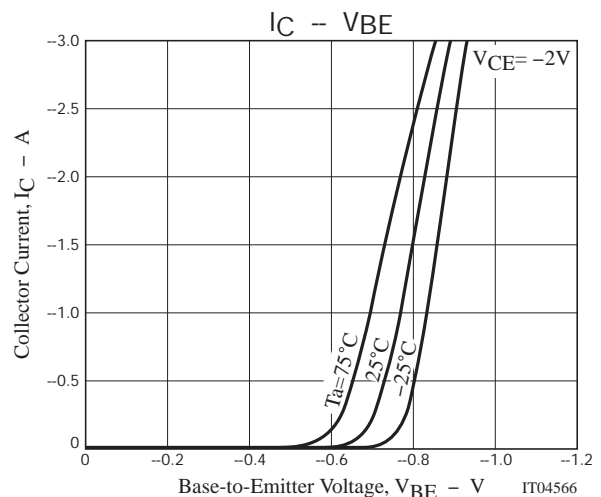
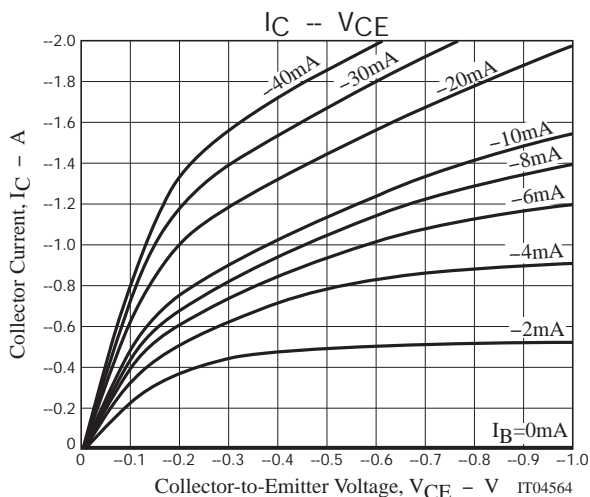
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -40\text{V}, I_E = 0\text{A}$			-1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0\text{A}$			-1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -100\text{mA}$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE} = -10\text{V}, I_C = -500\text{mA}$		390		MHz
Output Capacitance	Cob	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		24		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = -1\text{A}, I_B = -50\text{mA}$		-115	-230	mV
	$V_{CE(sat)2}$	$I_C = -2\text{A}, I_B = -100\text{mA}$		-240	-650	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -2\text{A}, I_B = -100\text{mA}$		-0.88	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0\text{A}$	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = -100\mu\text{A}, R_{BE} = 0\Omega$	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0\text{A}$	-6			V
Turn-On Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$			230		ns
Fall Time	$t_f$			18		ns

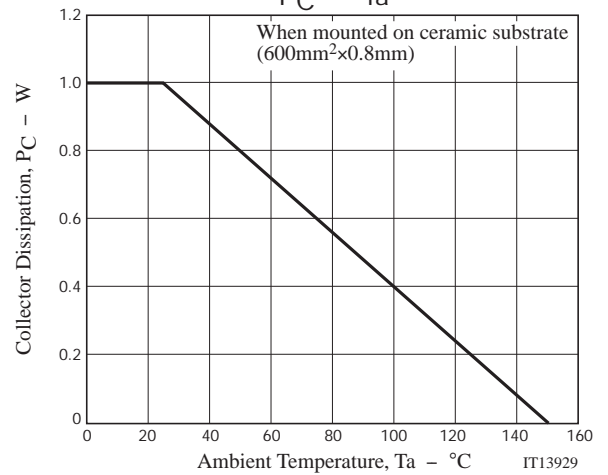
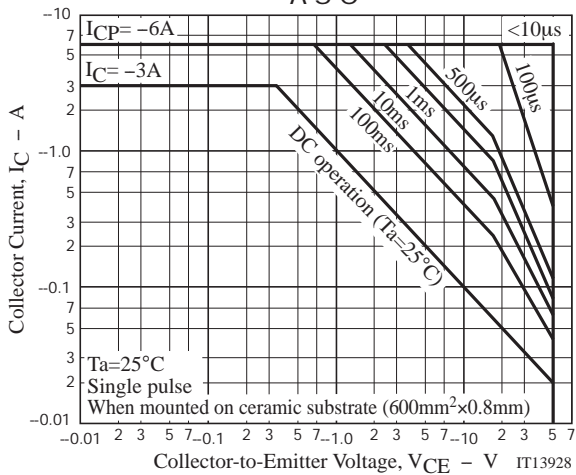
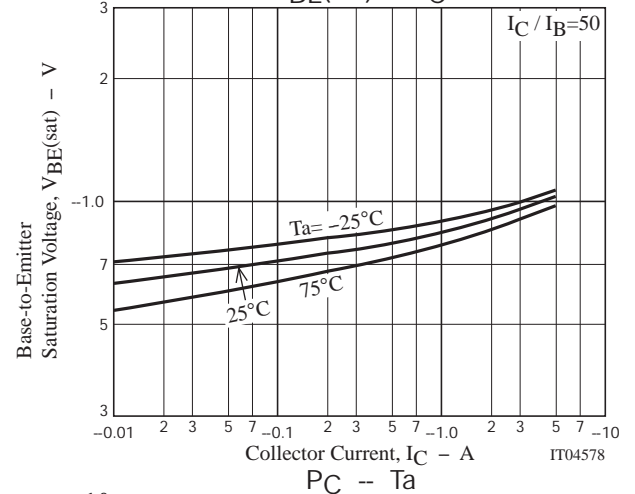
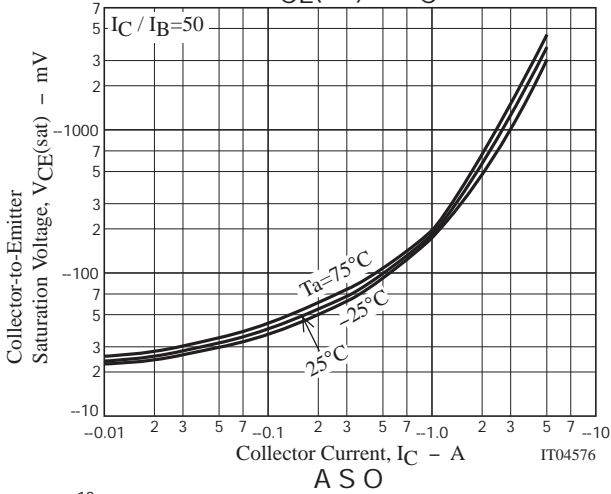
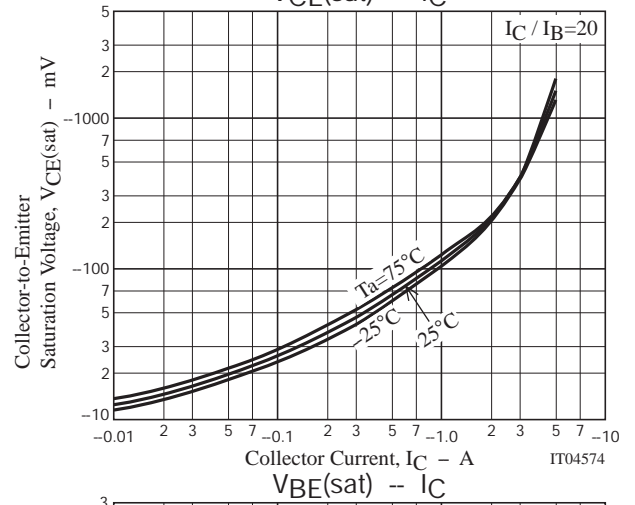
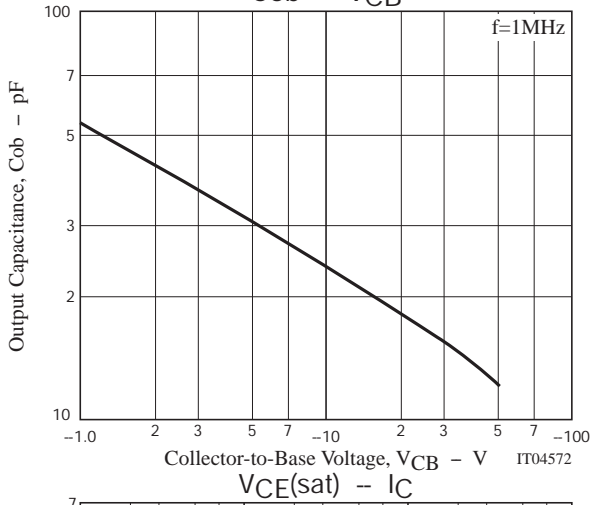
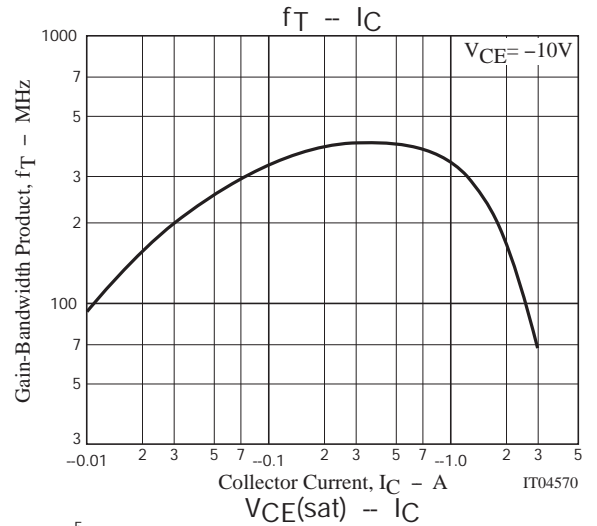
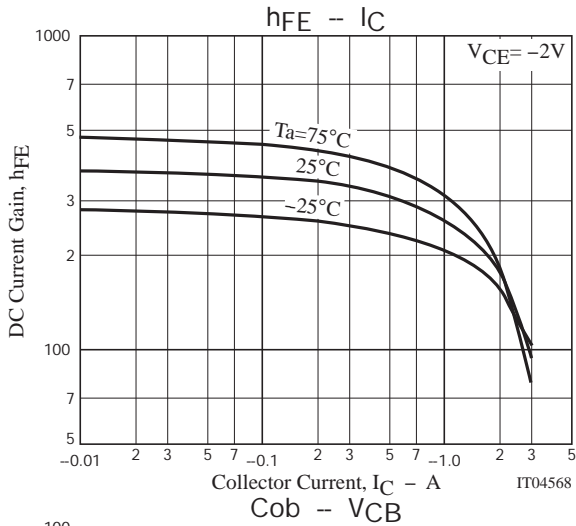
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
MCH6123-TL-E	MCPH6	3,000pcs./reel	Pb Free





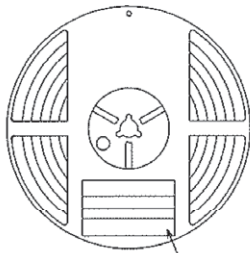
Embossed Taping Specification

MCH6123-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

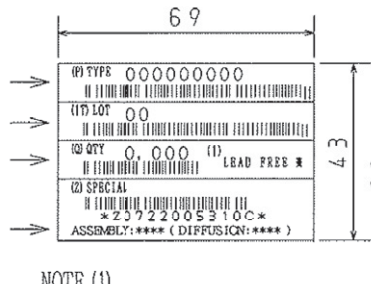
Packing method



Type No.  
LOT No.  
Quantity  
Origin

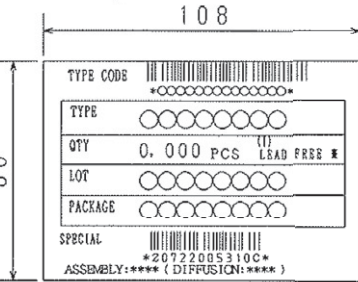
Reel label

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.



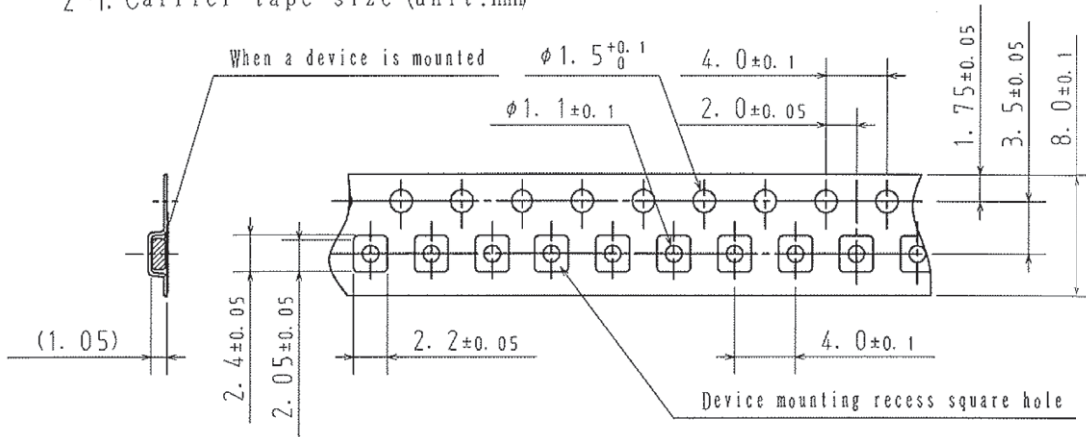
NOTE (1)

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

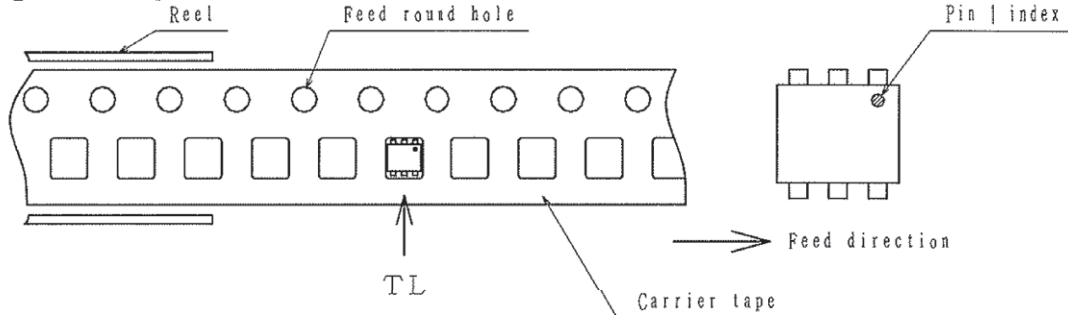
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



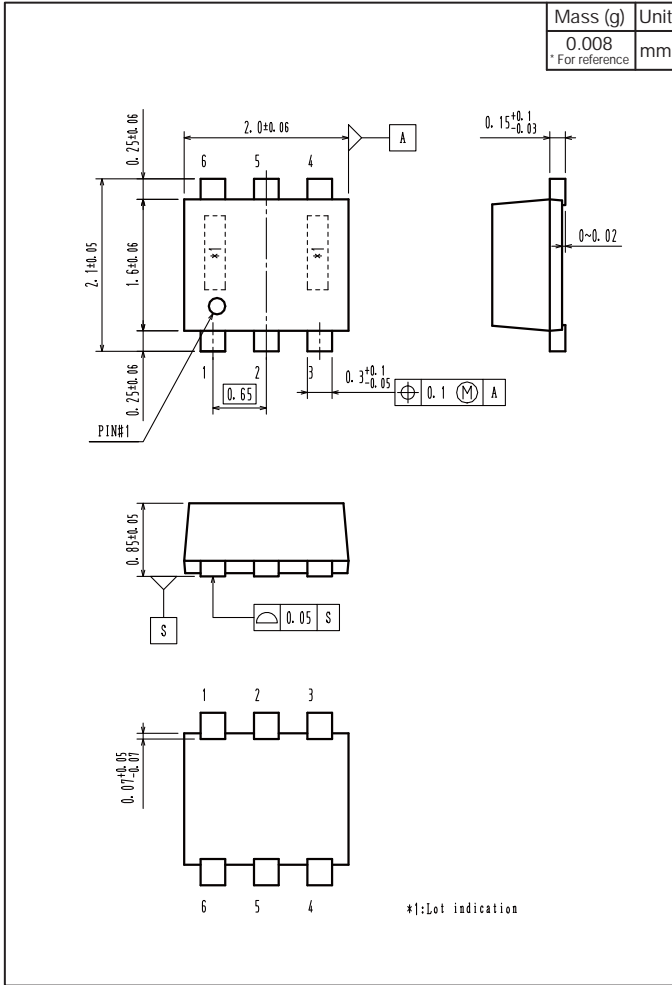
2-2. Device placement direction



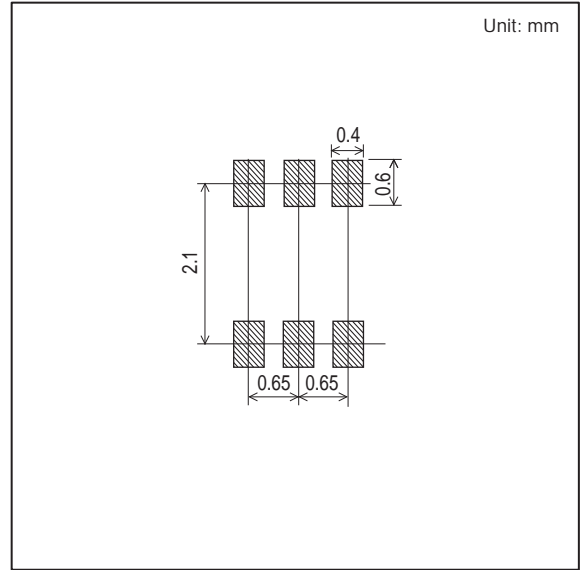
Those with pin | index on the feed hole side.....TL

# MCH6123

## Outline Drawing MCH6123-TL-E



## Land Pattern Example



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