



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH6123 / CPH6223 — High-Current Switching Applications

PNP / NPN Epitaxial Planar Silicon Transistors

Applications

- DC-DC converters, relay drivers, lamp drivers, motor drivers, strobe

Features

- Adoption of MBIT process
- Large current capacity
- Low collector-to-emitter saturation voltage
- High-speed switching
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm)
- High allowable power dissipation

Specifications () : CPH6123

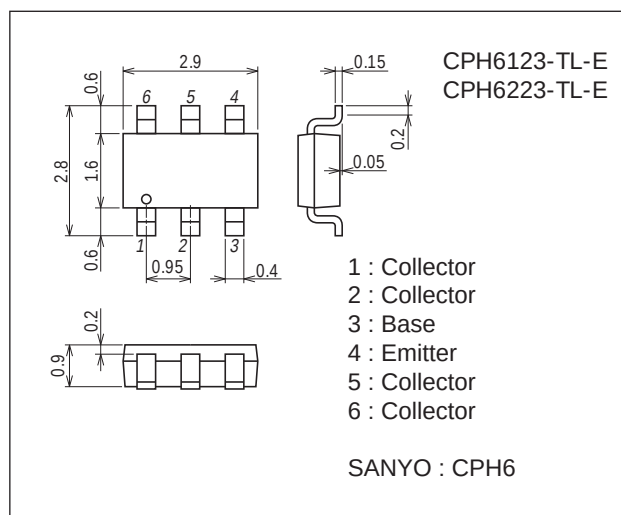
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-50)100	V
Collector-to-Emitter Voltage	VCES		(-50)100	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 ² ×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Package Dimensions

unit : mm (typ)

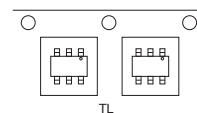
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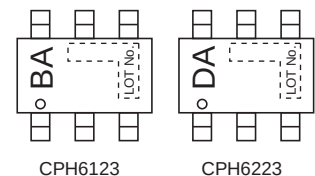
Product & Package Information

- Package : CPH6
- JEITA, JEDEC : SC-74, SOT-26, SOT-457
- Minimum Packing Quantity : 3,000 pcs./reel

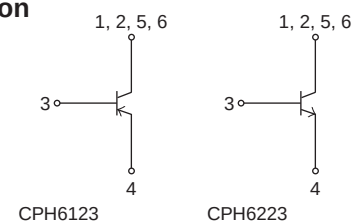
Packing Type: TL



Marking



Electrical Connection



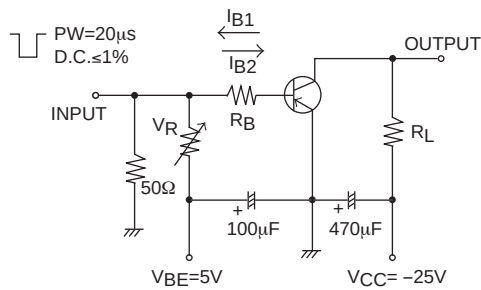
SANYO Semiconductor Co., Ltd.

<http://semicon.sanyo.com/en/network>

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

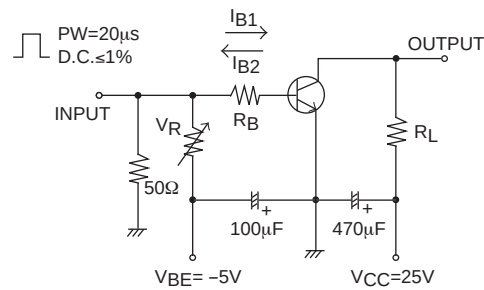
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40\text{V}$, $I_E=0\text{A}$			$(-)1$	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}$, $I_C=0\text{A}$			$(-)1$	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2\text{V}$, $I_C=(-)100\text{mA}$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}$, $I_C=(-)500\text{mA}$		(390)380		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}$, $f=1\text{MHz}$		(24)13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=(-)1\text{A}$, $I_B=(-)50\text{mA}$		$(-115)90$	$(-230)130$	mV
	$V_{CE(sat)2}$	$I_C=(-)2\text{A}$, $I_B=(-)100\text{mA}$		$(-240)160$	$(-650)240$	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	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}$, $I_E=0\text{A}$	$(-50)100$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=(-)100\mu\text{A}$, $R_{BE}=0\Omega$	$(-50)100$			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)35		ns
Storage Time	t_{stg}			(230)300		ns
Fall Time	t_f			(18)25		ns

Switching Time Test Circuit



$$I_C = -10I_{B1} = 10I_{B2} = -1\text{A}$$

CPH6123

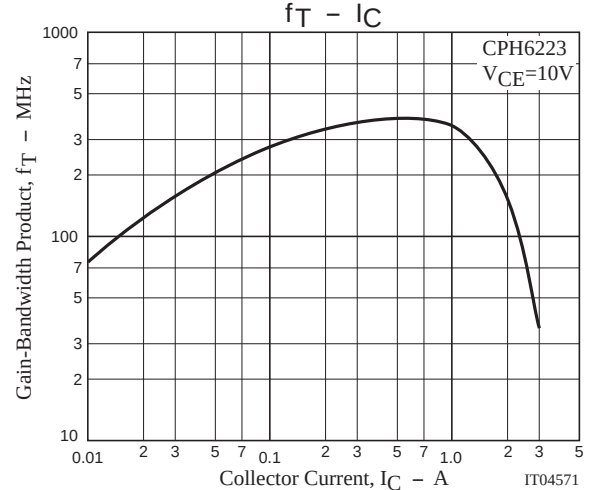
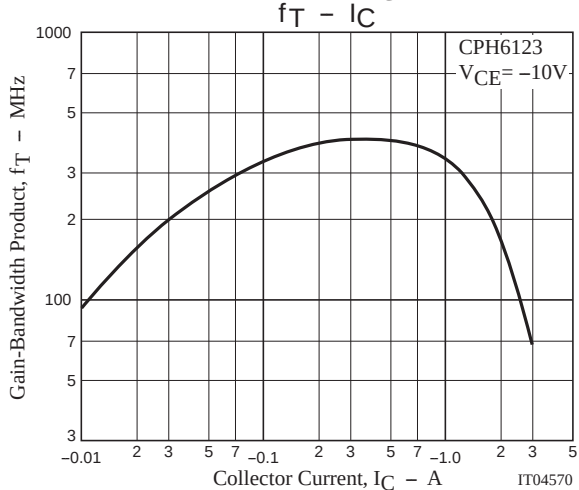
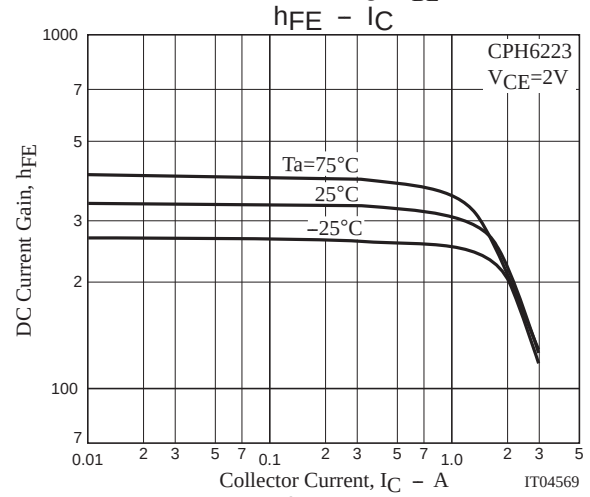
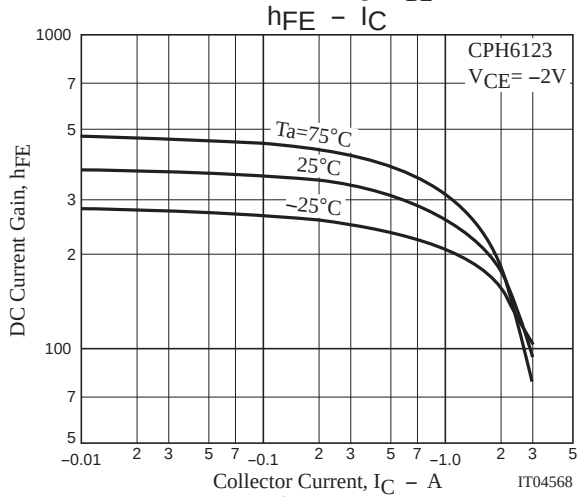
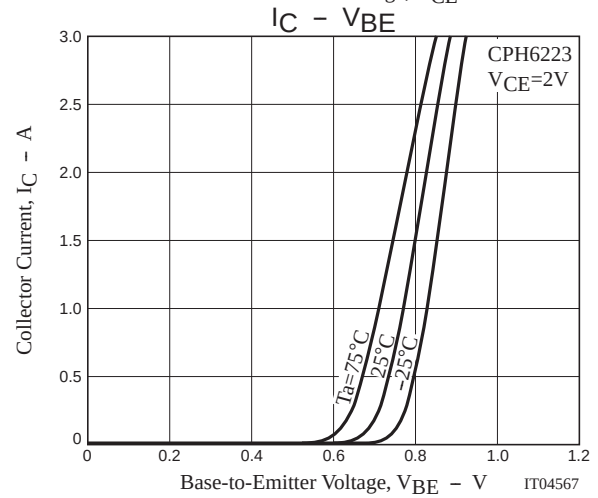
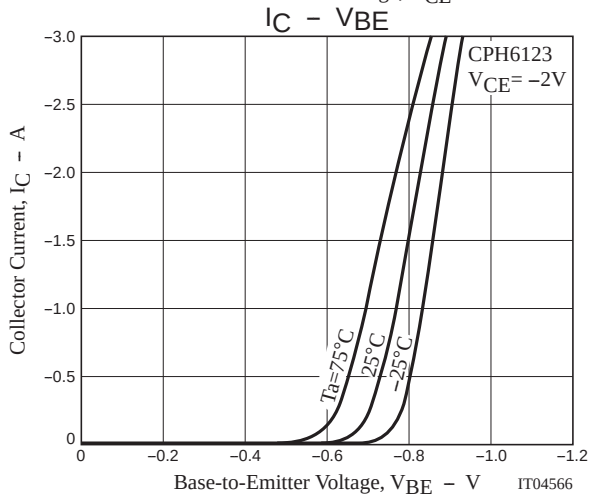
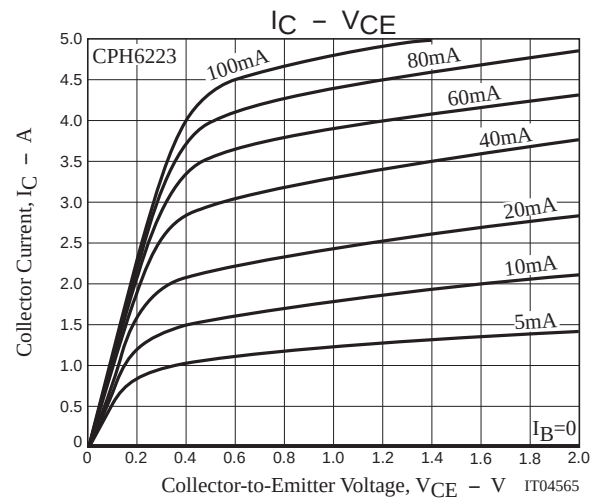
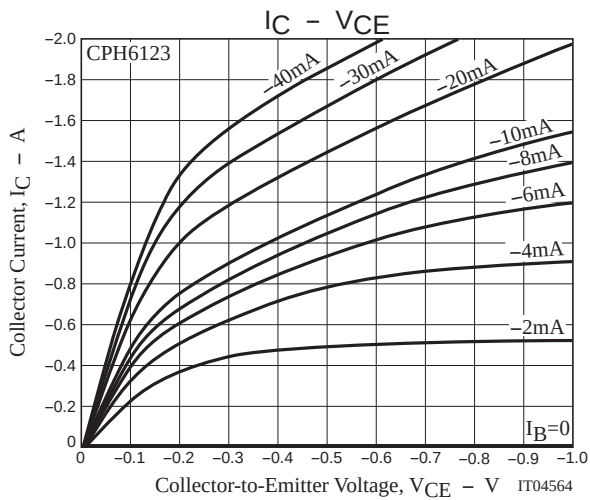


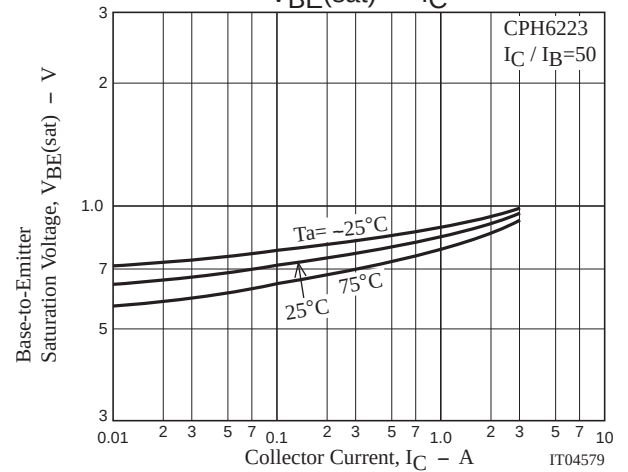
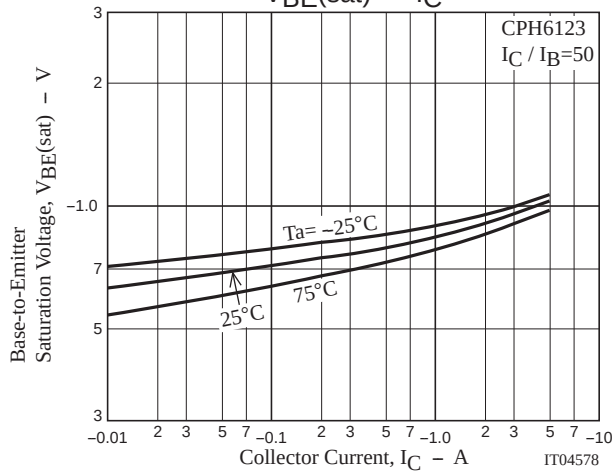
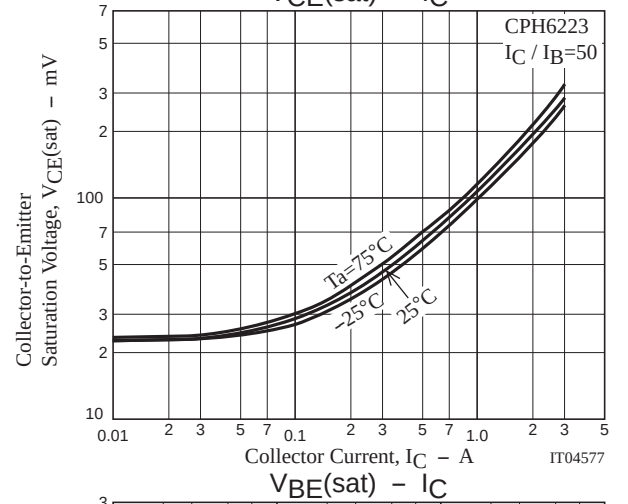
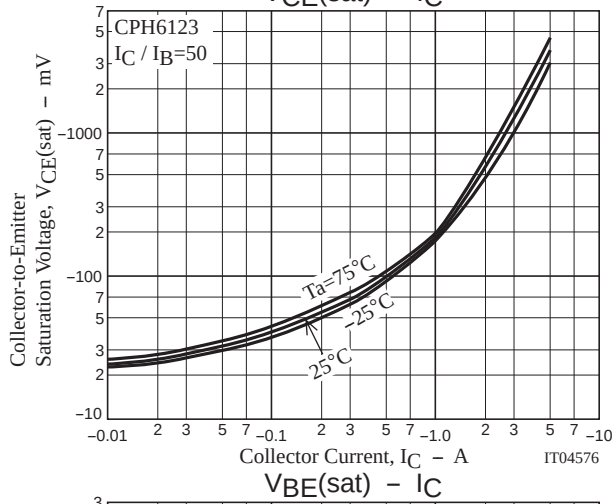
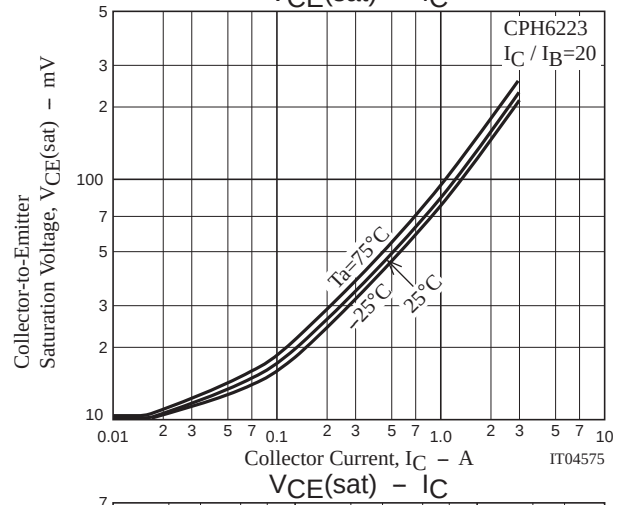
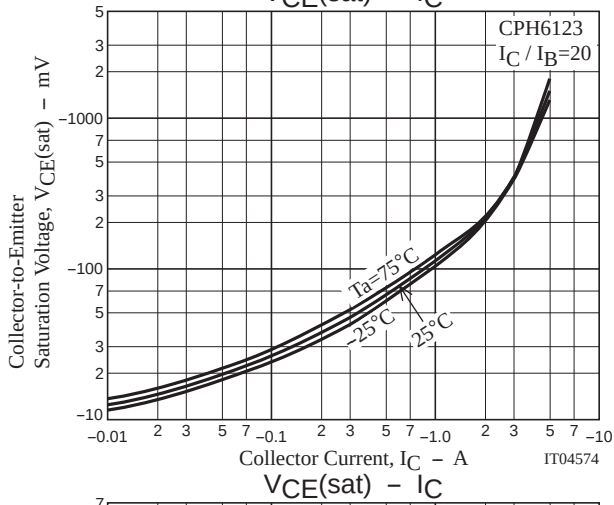
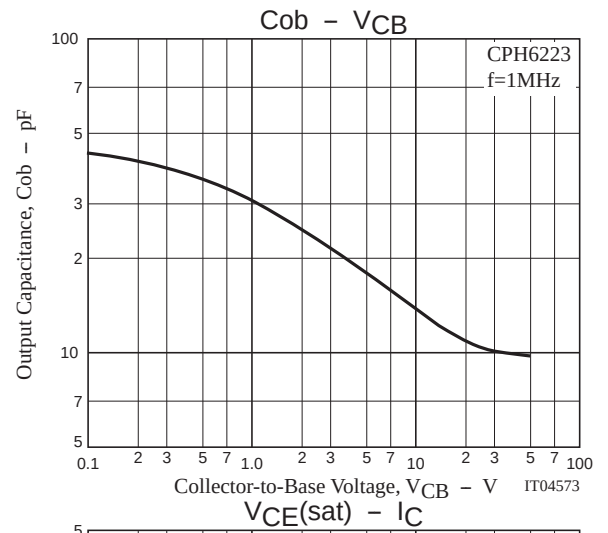
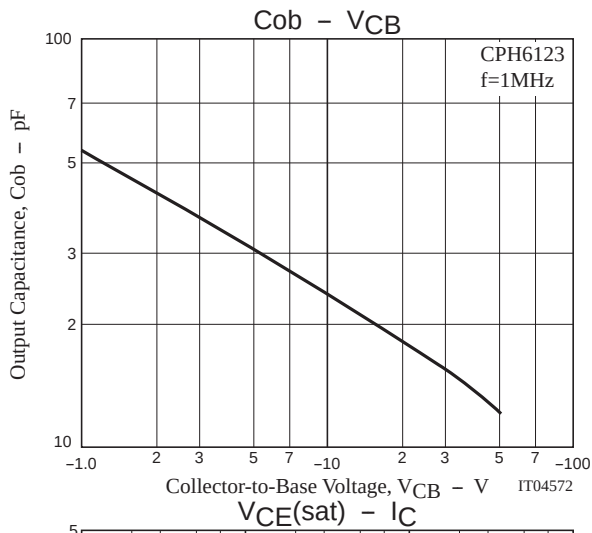
$$I_C = 10I_{B1} = -10I_{B2} = 1\text{A}$$

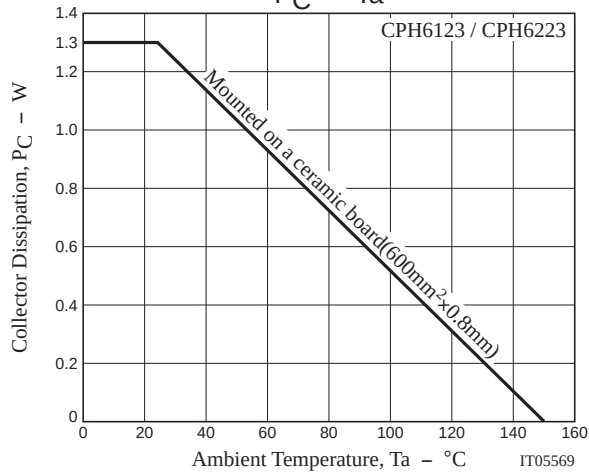
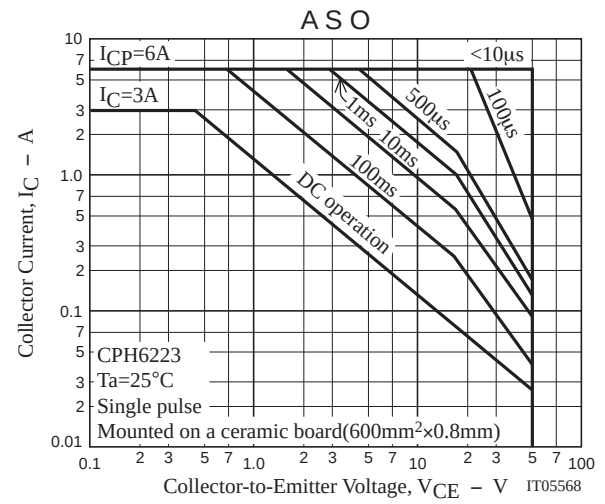
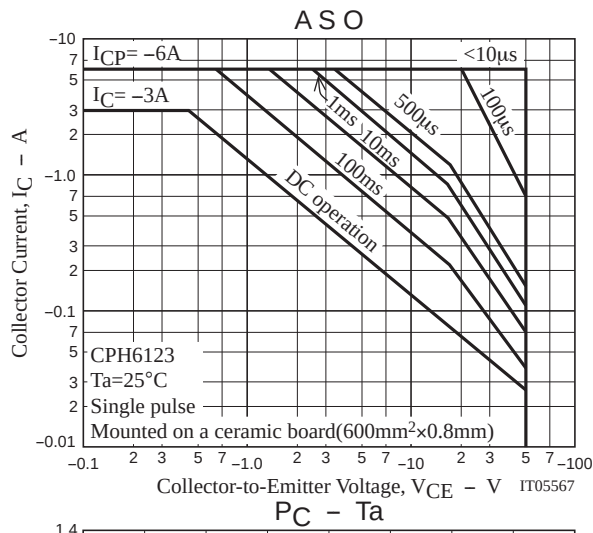
CPH6223

Ordering Information

Device	Package	Shipping	memo
CPH6123-TL-E	CPH6	3,000pcs./reel	Pb Free
CPH6223-TL-E	CPH6	3,000pcs./reel	Pb Free







Embossed Taping Specification

CPH6123-TL-E, CPH6223-TL-E

1. Packing Format

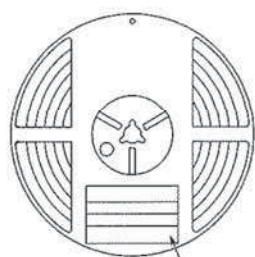
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH6	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

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.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin

TYPE	000000000
LOT	00
QTY	0,000 (1) LEAD FREE #
SPECIAL	*20722005310C*
ASSEMBLY	**** (DIFFUSION:****)

TYPE CODE	*****0*****
TYPE	00000000
QTY	0,000 PCS (1) LEAD FREE #
LOT	00000000
PACKAGE	00000000
SPECIAL	*20722005310C*
ASSEMBLY	**** (DIFFUSION:****)

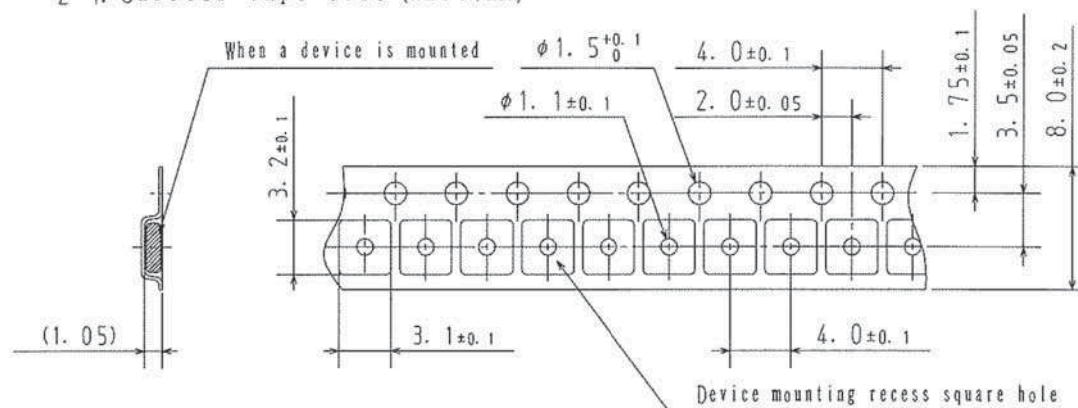
NOTE (1)

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

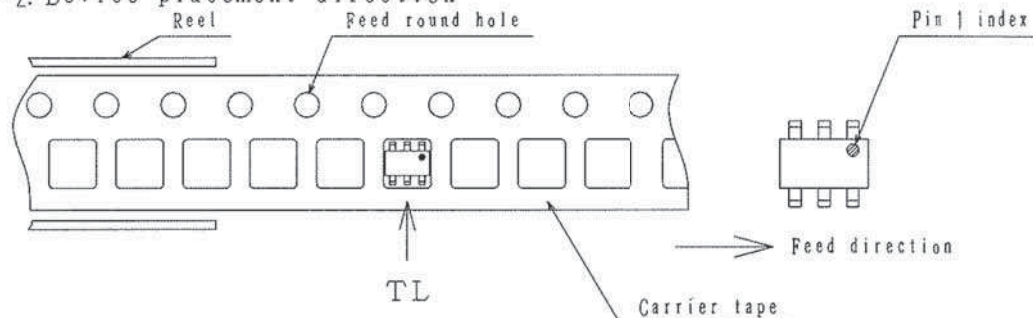
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

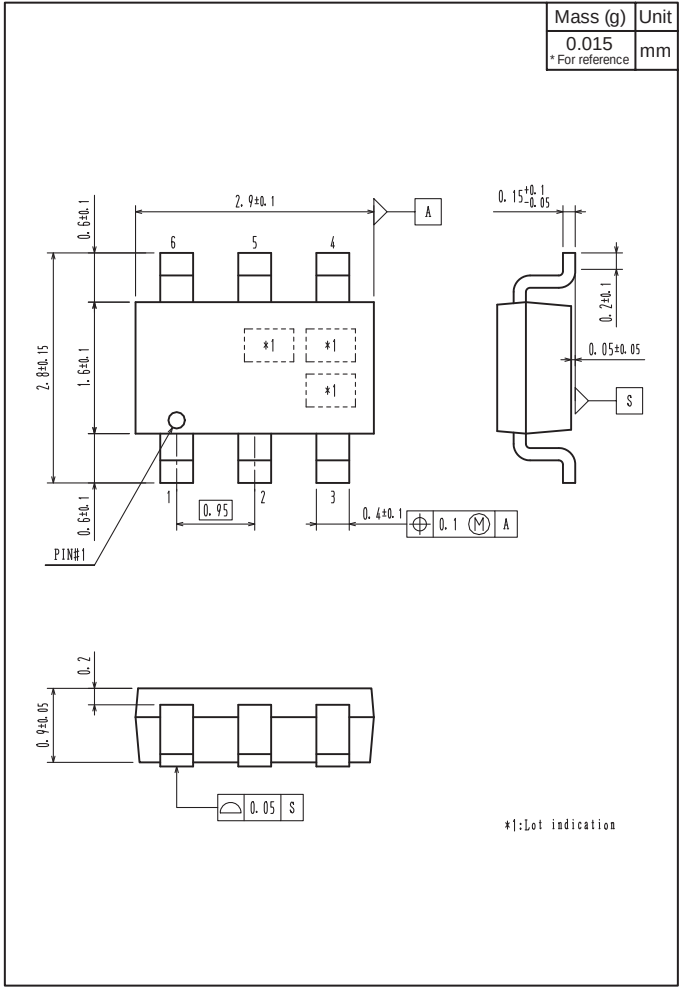


2-2. Device placement direction

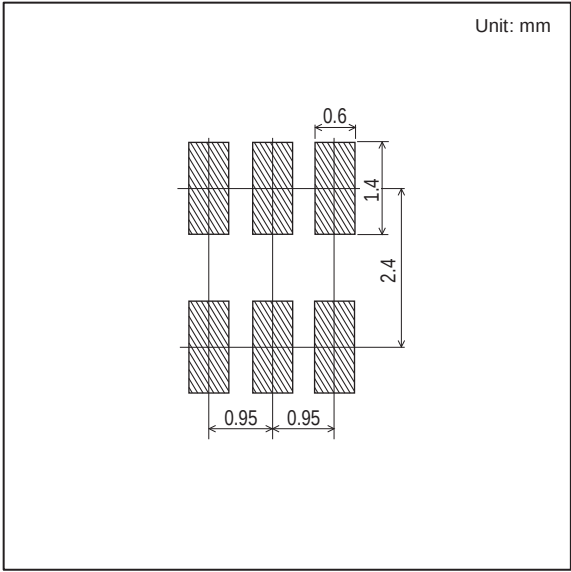


Outline Drawing

CPH6123-TL-E, CPH6223-TL-E



Land Pattern Example



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