



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH6123 / CPH6223 — PNP / NPN Epitaxial Planar Silicon Transistors High-Current Switching Applications

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

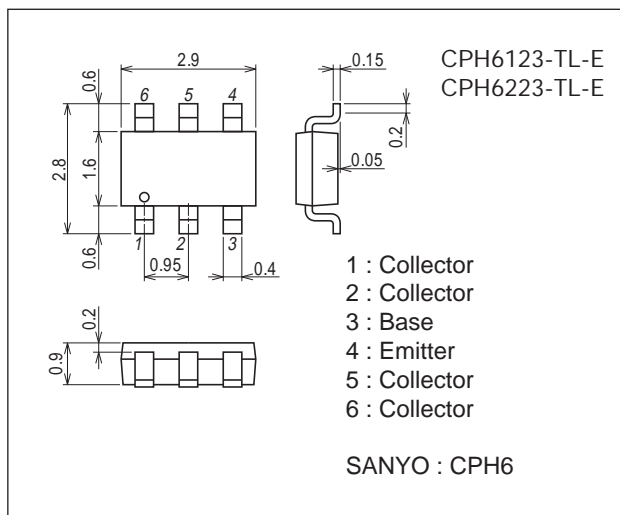
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-50)100	V
Collector-to-Emitter Voltage	V _{CES}		(-50)100	V
Collector-to-Emitter Voltage	V _{CEO}		(-50)	V
Emitter-to-Base Voltage	V _{EBO}		(-6)	V
Collector Current	I _C		(-3)	A
Collector Current (Pulse)	I _{CP}		(-6)	A
Base Current	I _B		(-600)	mA
Collector Dissipation	P _C	When mounted on ceramic substrate (600mm ² ×0.8mm)	1.3	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

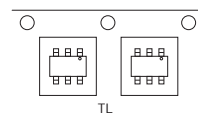
7018A-002



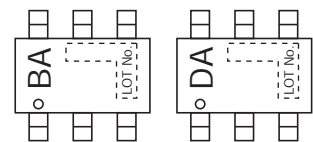
Product & Package Information

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

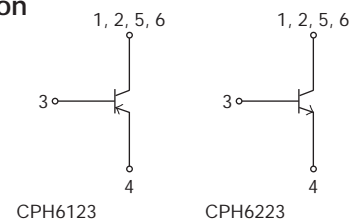
Packing Type: TL



Marking



Electrical Connection

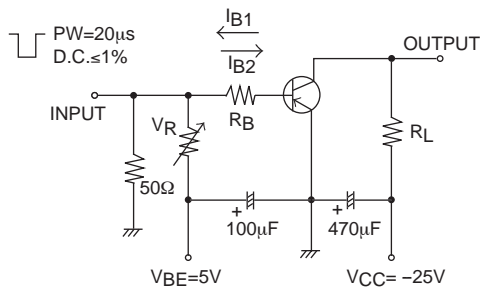


CPH6123 / CPH6223

Electrical Characteristics at Ta=25°C

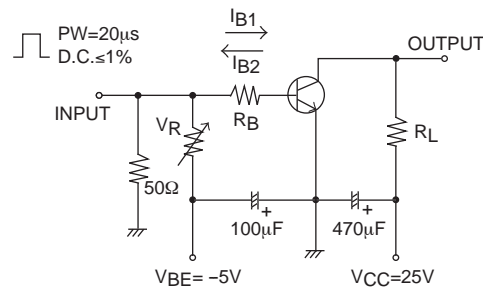
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)40V, I_E = 0A$			(-) 1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0A$			(-) 1	μA
DC Current Gain	h_{FE}	$V_{CE} = (-)2V, I_C = (-)100mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10V, I_C = (-)500mA$		(390)380		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1MHz$		(24)13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = (-)1A, I_B = (-)50mA$		(-115)90	(-230)130	mV
	$V_{CE(sat)2}$	$I_C = (-)2A, I_B = (-)100mA$		(-240)160	(-650)240	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)2A, I_B = (-)100mA$		(-) 0.88	(-) 1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0A$	(-) 50	100		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = (-)100\mu A, R_{BE} = 0\Omega$	(-) 50	100		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-) 50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0A$	(-) 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



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

CPH6123

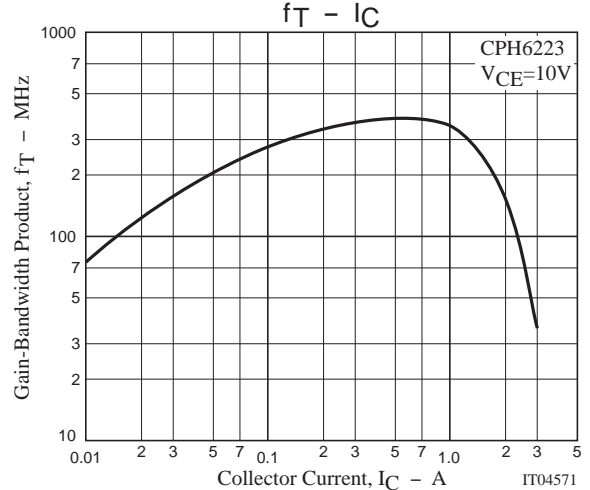
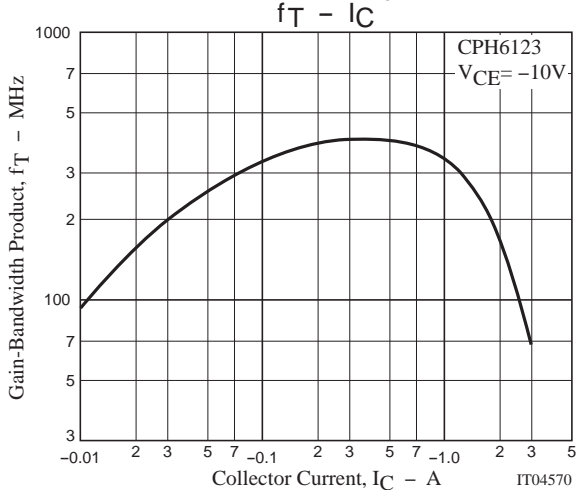
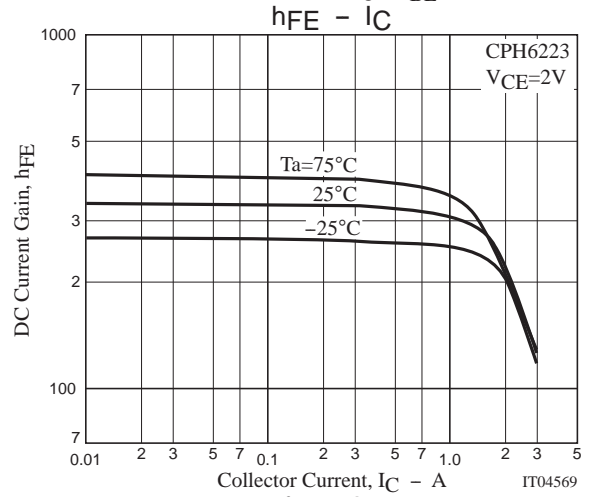
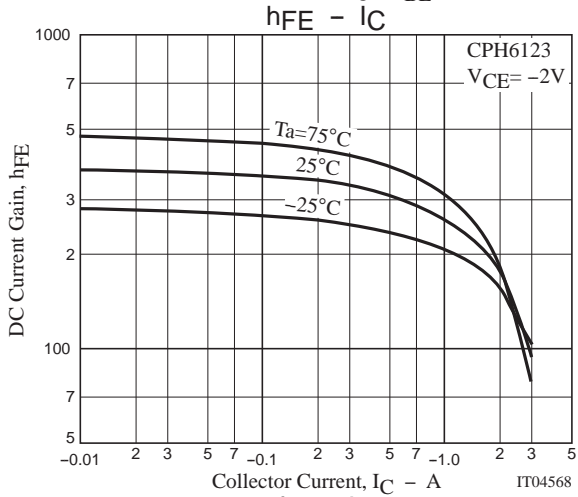
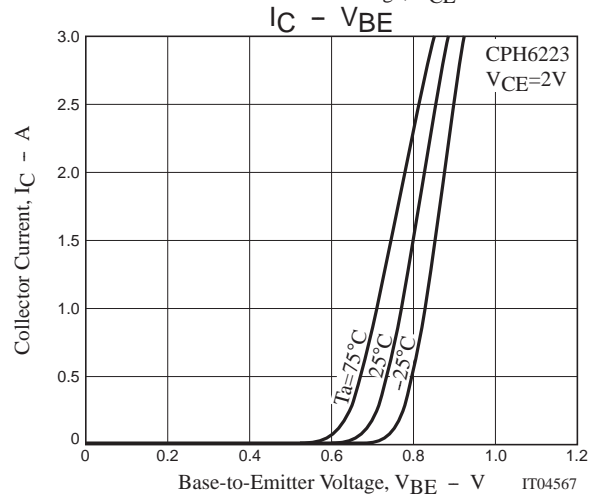
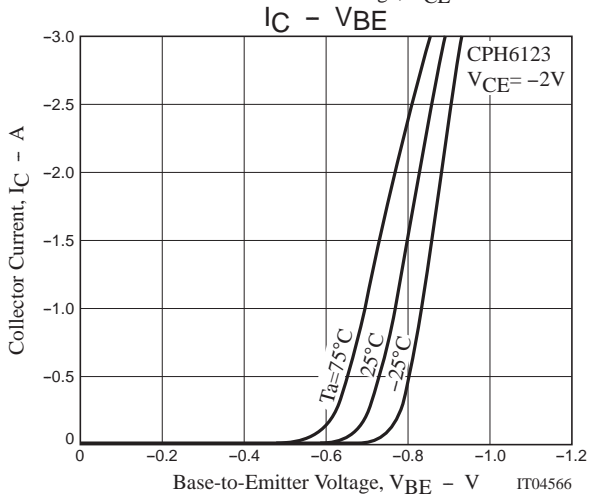
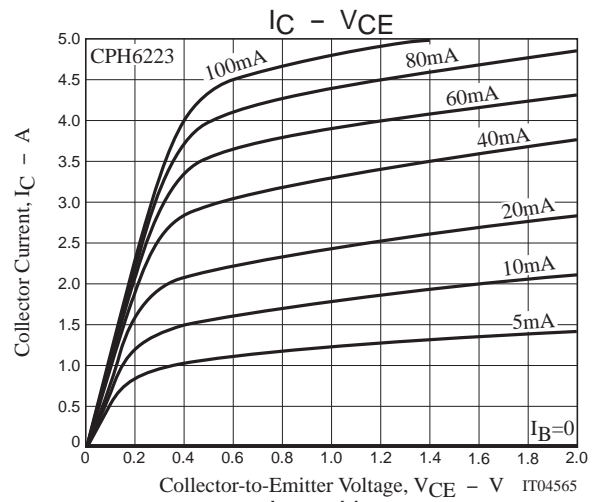
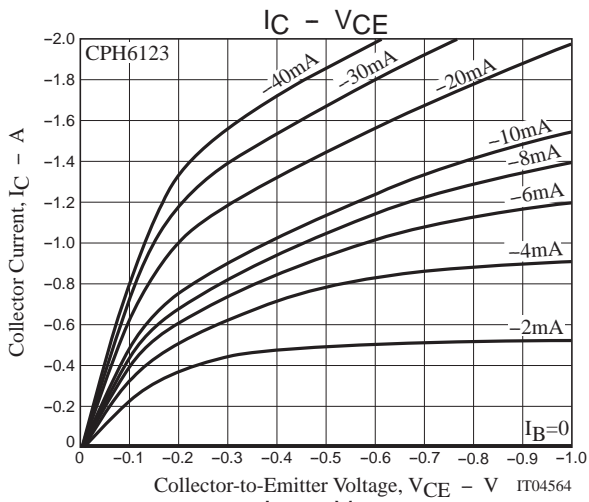


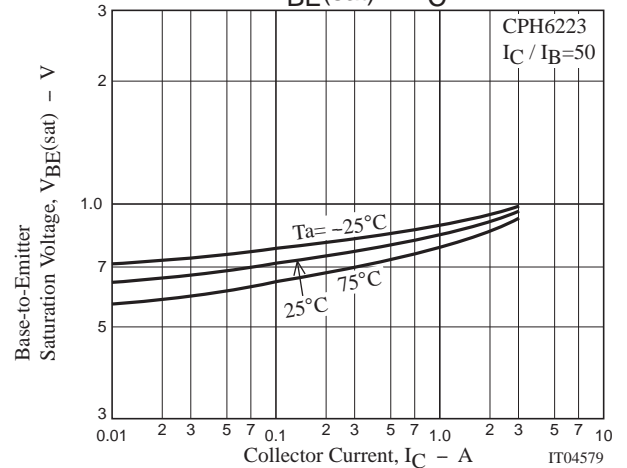
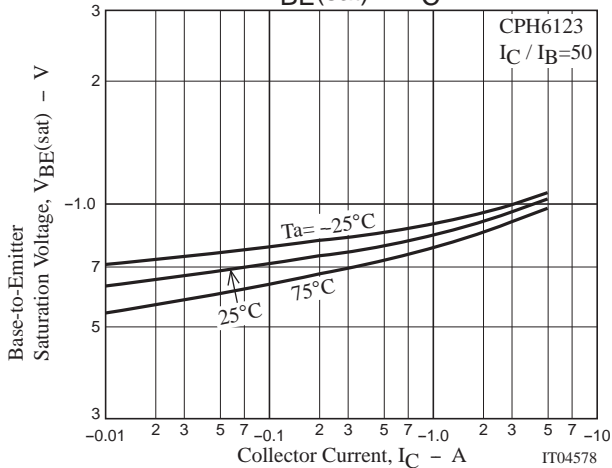
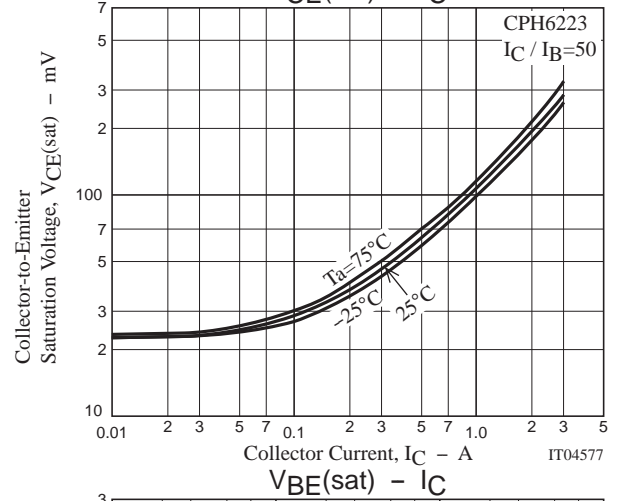
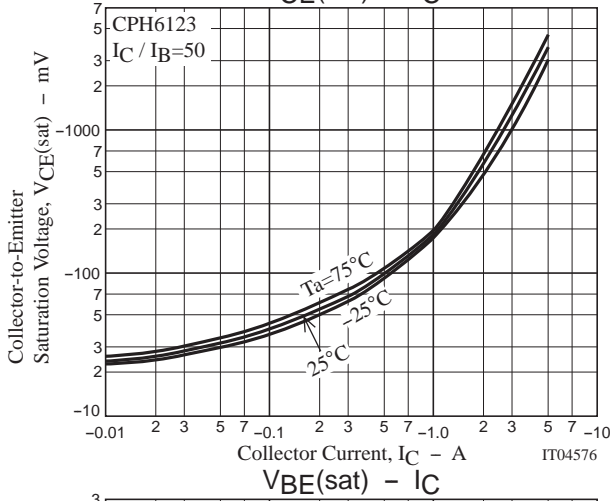
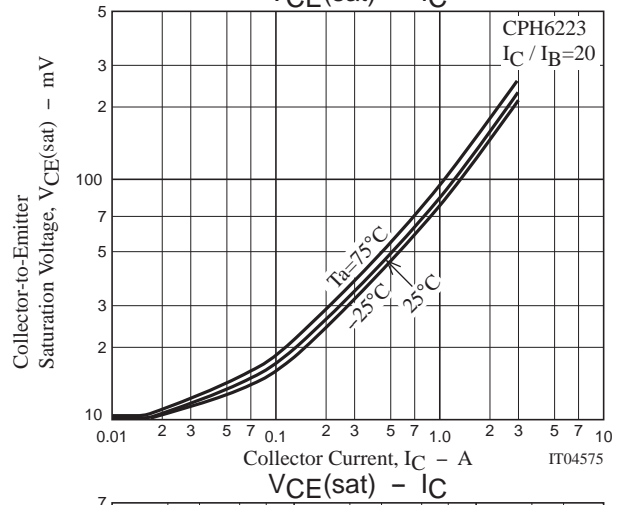
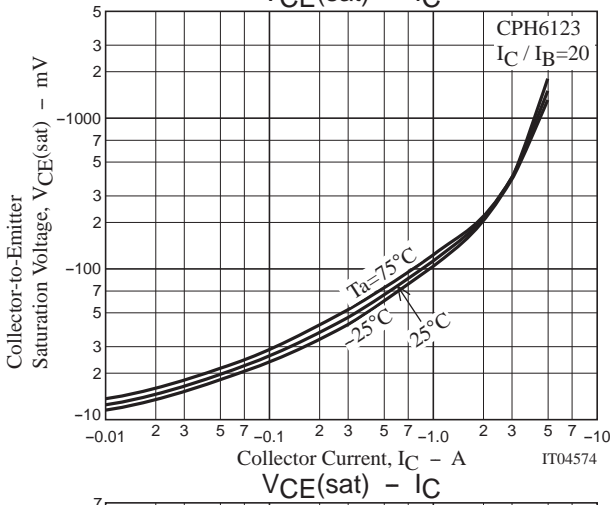
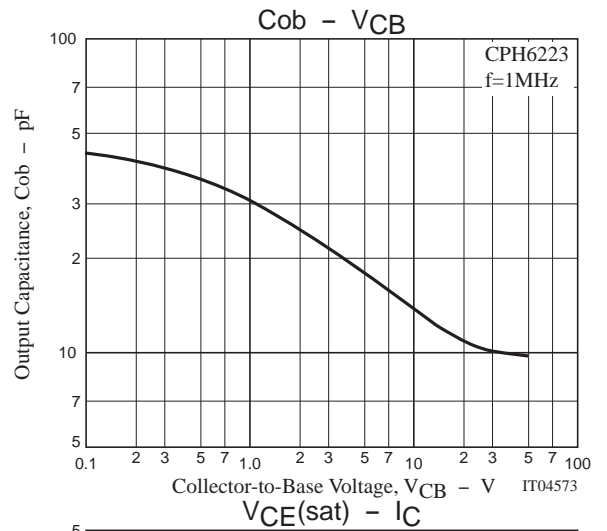
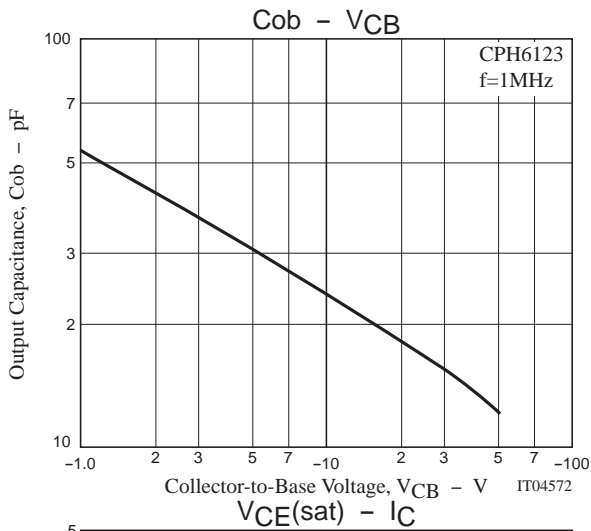
$$I_C = 10I_{B1} = -10I_{B2} = 1A$$

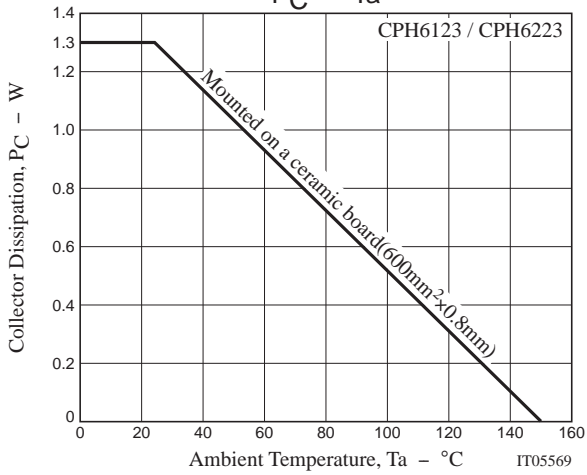
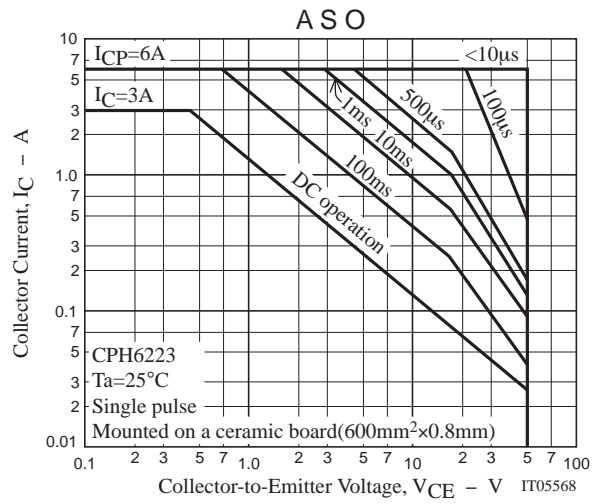
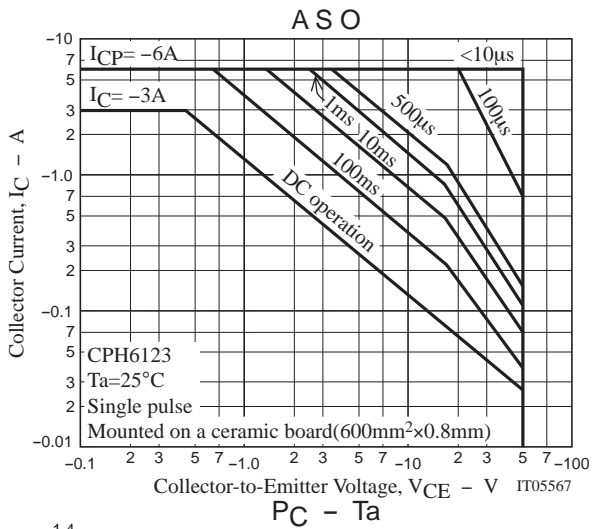
CPH6223

Ordering Information

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





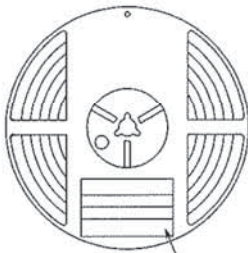


Embossed Taping Specification
CPH6123-TL-E, CPH6223-TL-E

1. Packing Format

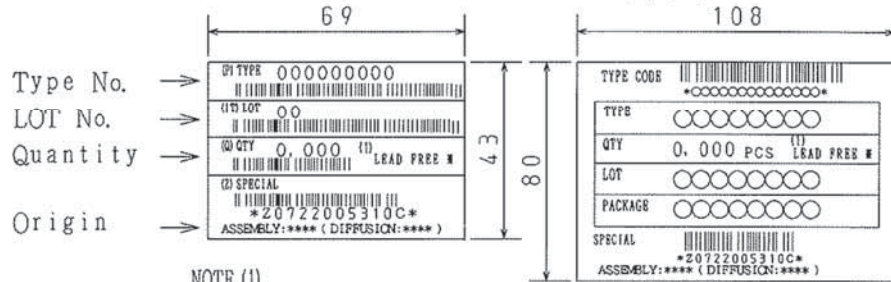
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH6	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

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.



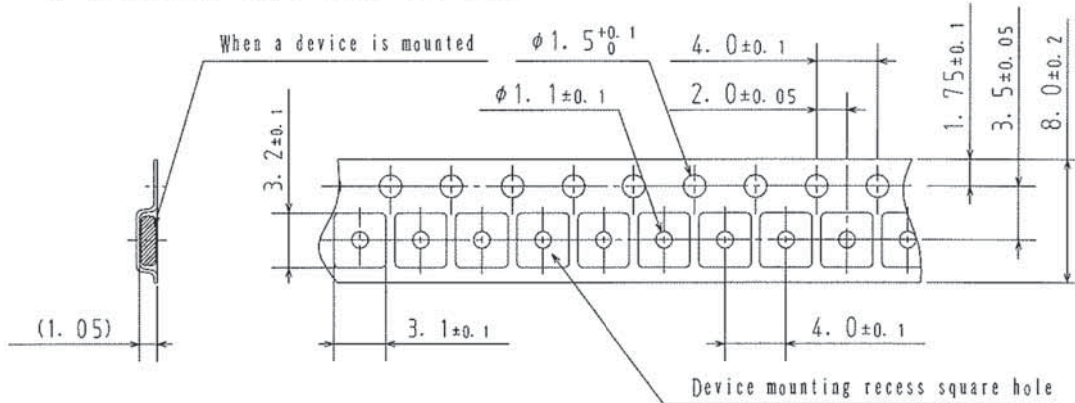
NOTE (1)

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

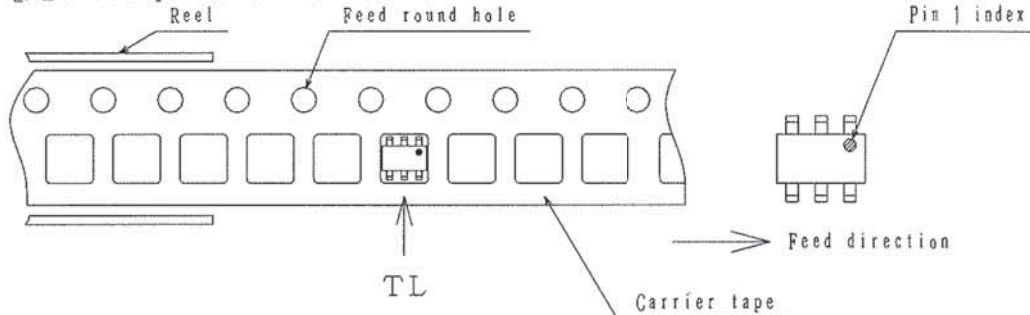
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



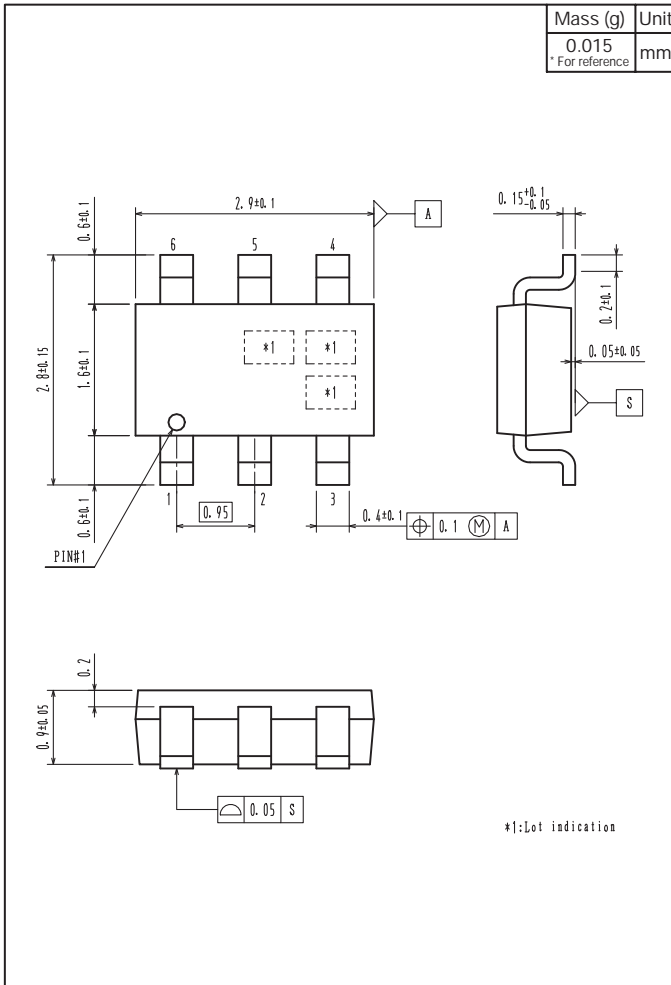
2-2. Device placement direction



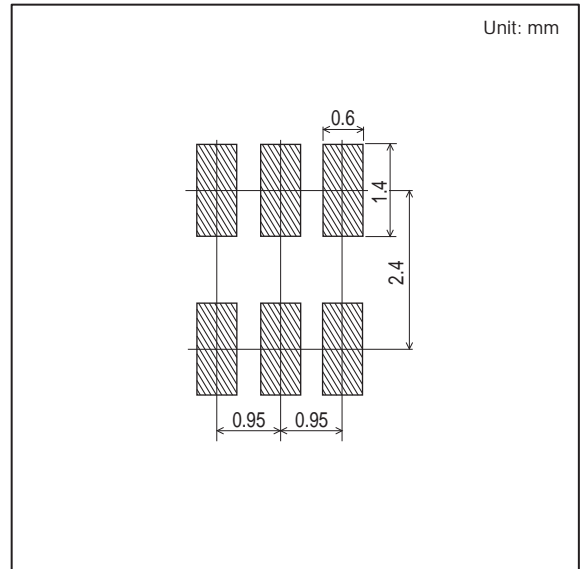
Those with pin 1 index on the feed hole side.....TL

Outline Drawing

CPH6123-TL-E, CPH6223-TL-E



Land Pattern Example



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