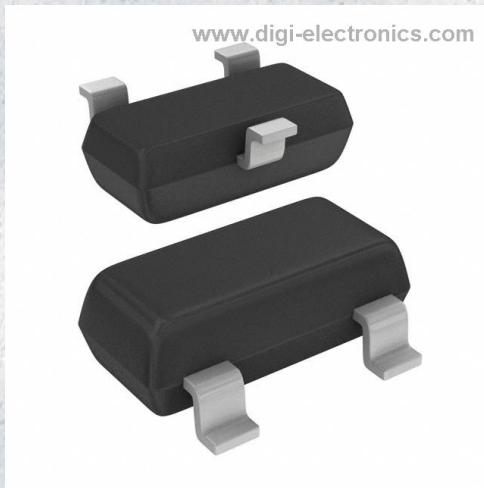


# CPH3223-TL-E Datasheet



[www.digi-electronics.com](http://www.digi-electronics.com)

<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	CPH3223-TL-E-DG
Manufacturer	<a href="#">onsemi</a>
Manufacturer Product Number	CPH3223-TL-E
Description	TRANS NPN 50V 3A 3CPH
Detailed Description	Bipolar (BJT) Transistor NPN 50 V 3 A 380MHz 900 mW Surface Mount 3-CPH



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

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## Purchase and inquiry

Manufacturer Product Number:

CPH3223-TL-E

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

50 V

Current - Collector Cutoff (Max):

1 $\mu$ A (ICBO)

Power - Max:

900 mW

Operating Temperature:

150°C (TJ)

Package / Case:

SC-96

Base Product Number:

CPH3223

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

3 A

Vce Saturation (Max) @ Ib, Ic:

240mV @ 100mA, 2A

DC Current Gain (hFE) (Min) @ Ic, Vce:

200 @ 100mA, 2V

Frequency - Transition:

380MHz

Mounting Type:

Surface Mount

Supplier Device Package:

3-CPH

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Ordering number : EN7221B



# CPH3123/CPH3223

## Bipolar Transistor (-50V, (-)3A, Low VCE(sat), (PNP)NPN Single CPH3

ON Semiconductor®

<http://onsemi.com>

### Applications

- DC-DC converters, 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 : 0.9mm)
- High allowable power dissipation

### Specifications ( ) : CPH3123

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

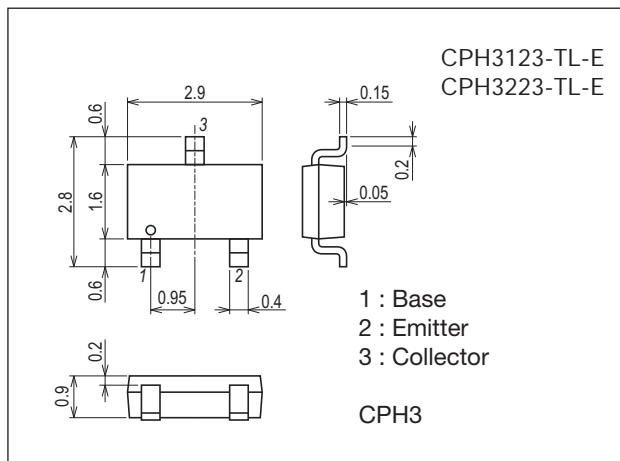
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-50)100	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		(-50)100	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-50)	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		(-6)	V
Collector Current	I <sub>C</sub>		(-3)	A
Collector Current (Pulse)	I <sub>CP</sub>		(-6)	A
Base Current	I <sub>B</sub>		(-600)	mA
Collector Dissipation	P <sub>C</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	0.9	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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)

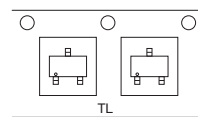
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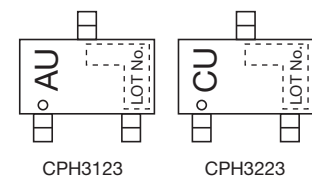
### Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

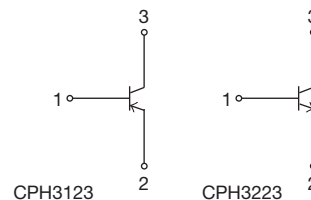
### Packing Type: TL



### Marking



### Electrical Connection

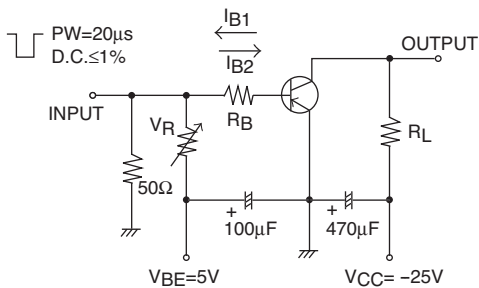


### CPH3123/CPH3223

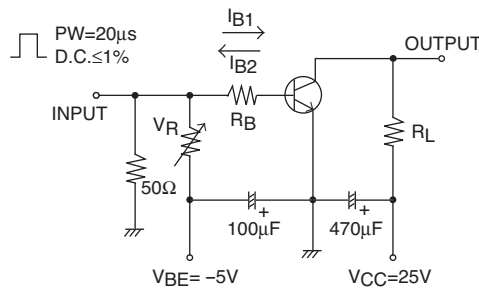
#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0A			(-1)	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0A			(-1)	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)100mA	200		560	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)500mA		(390)380		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(24)13		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)1</sub>	I <sub>C</sub> =(-)1A, I <sub>B</sub> =(-)50mA		(-115)90	(-230)130	mV
	V <sub>CE(sat)2</sub>	I <sub>C</sub> =(-)2A, I <sub>B</sub> =(-)100mA		(-240)160	(-650)240	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =(-)2A, I <sub>B</sub> =(-)100mA		(-0.88)	(-1.2)	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =(-)10μA, I <sub>E</sub> =0A	(-50)100			V
Collector-to-Base Breakdown Voltage	V(BR)CES	I <sub>C</sub> =(-)100μA, R <sub>BE</sub> =0Ω	(-50)100			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞	(-50)			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0A	(-6)			V
Turn-On Time	t <sub>on</sub>	See specified Test Circuit.		(30)35		ns
Storage Time	t <sub>stg</sub>			(230)300		ns
Fall Time	t <sub>f</sub>			(18)25		ns

#### Switching Time Test Circuit



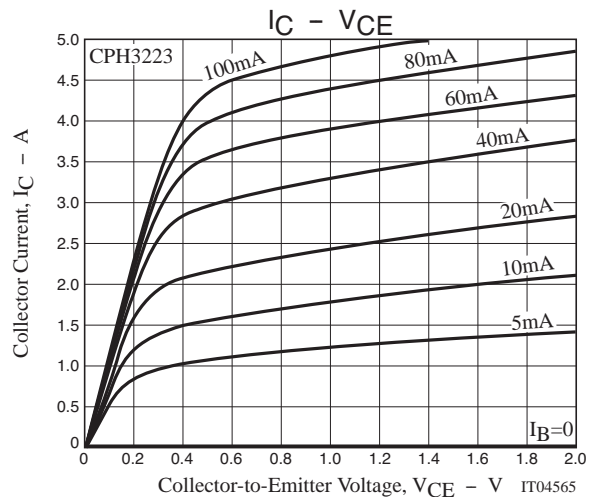
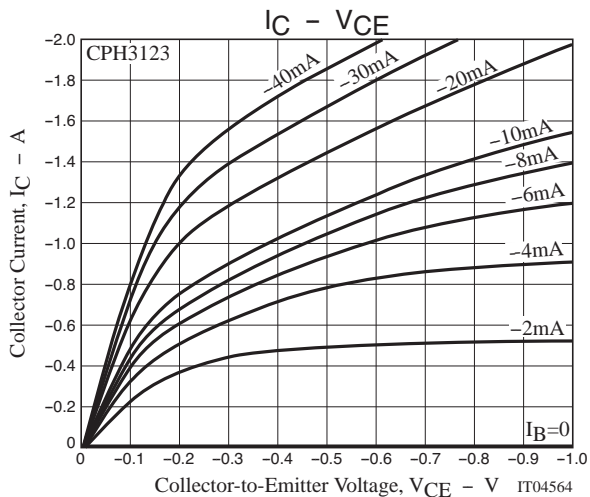
IC = -10IB1 = 10IB2 = -1A  
CPH3123



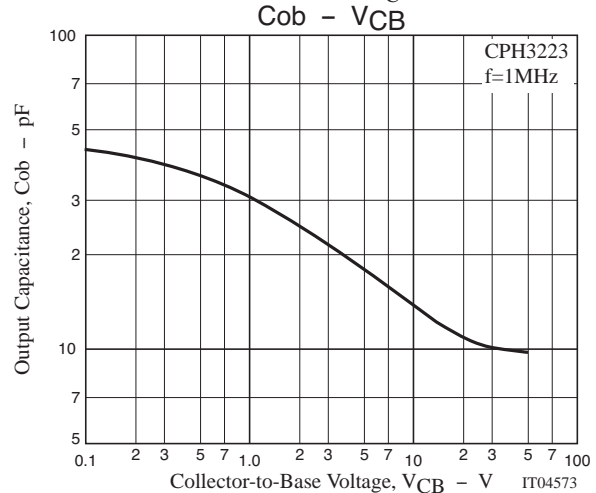
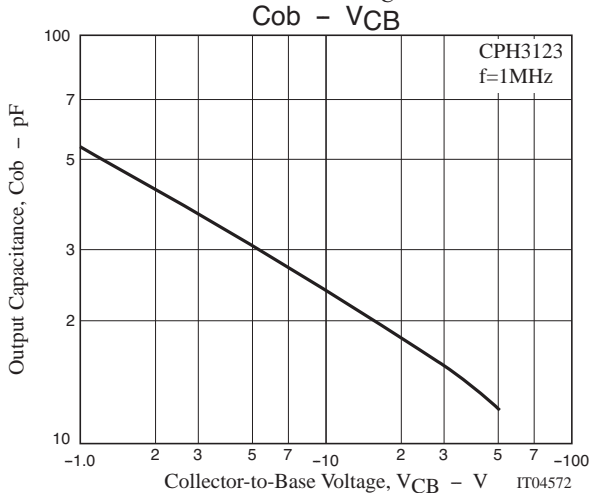
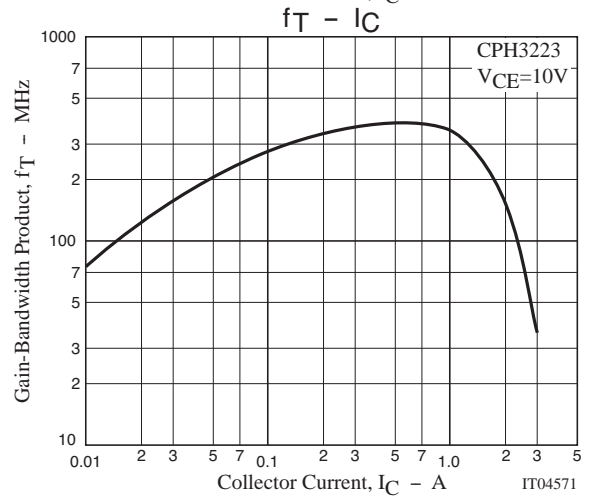
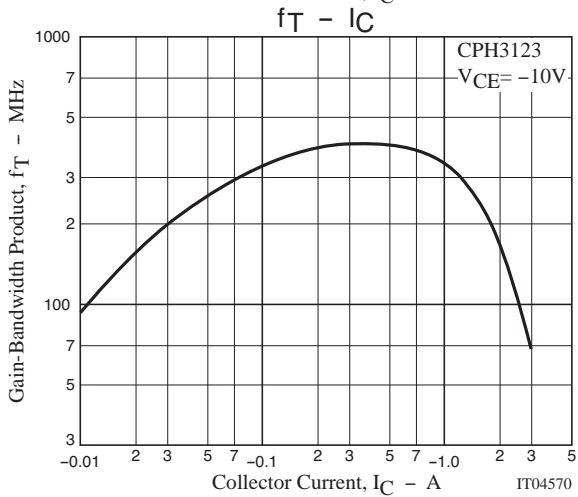
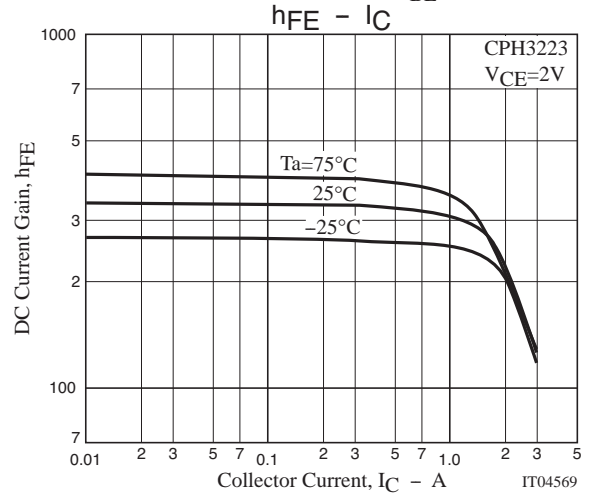
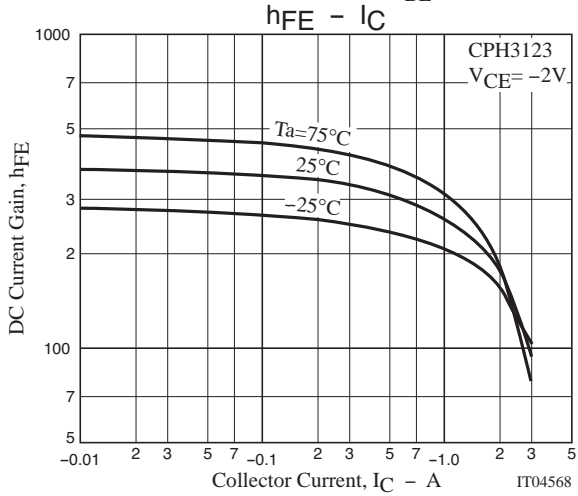
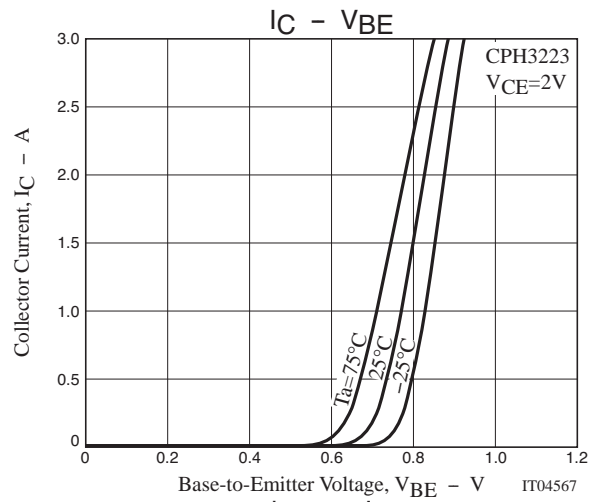
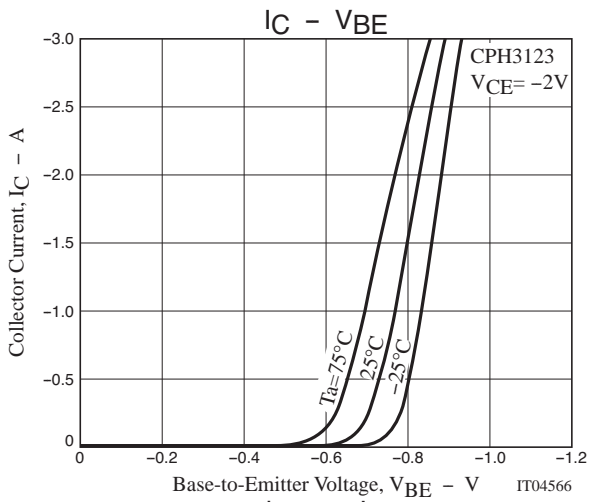
IC = 10IB1 = -10IB2 = 1A  
CPH3223

#### Ordering Information

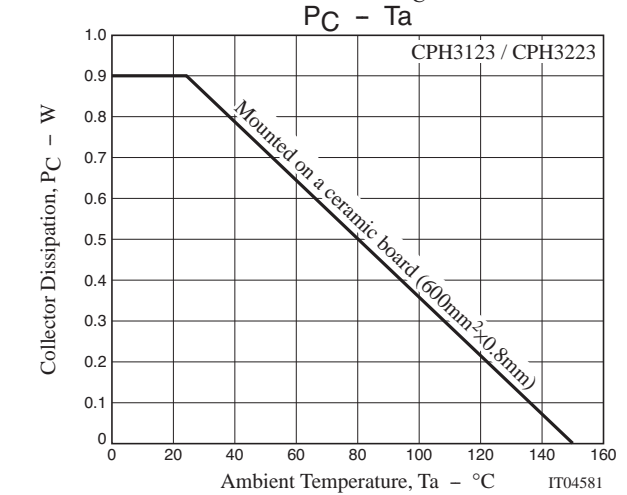
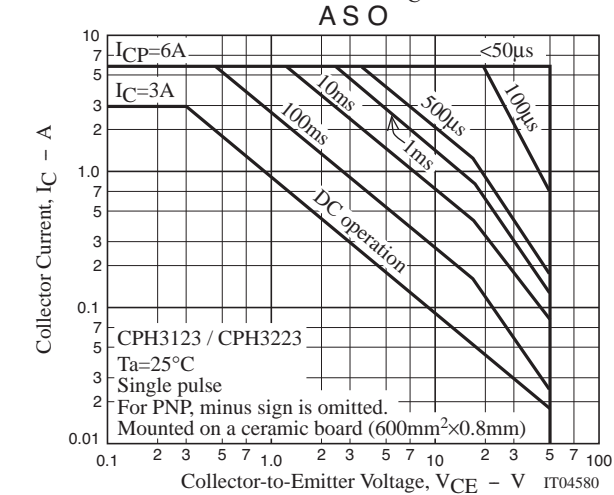
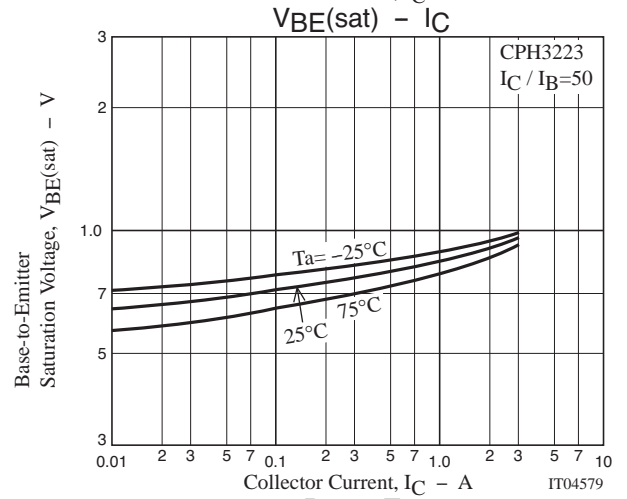
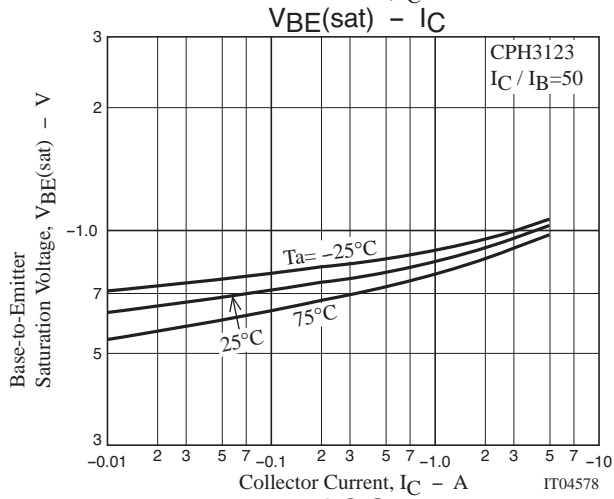
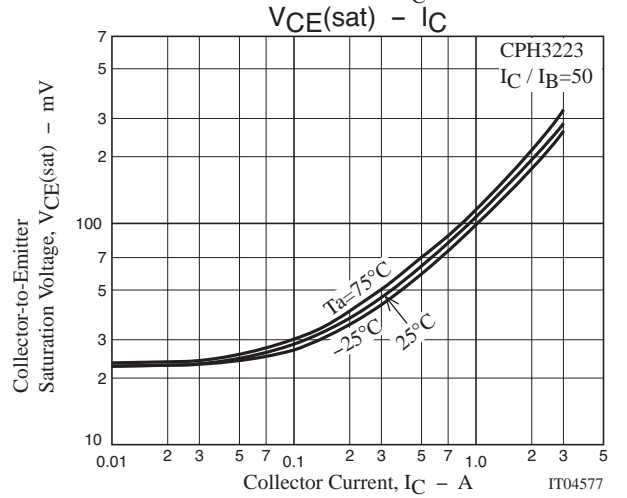
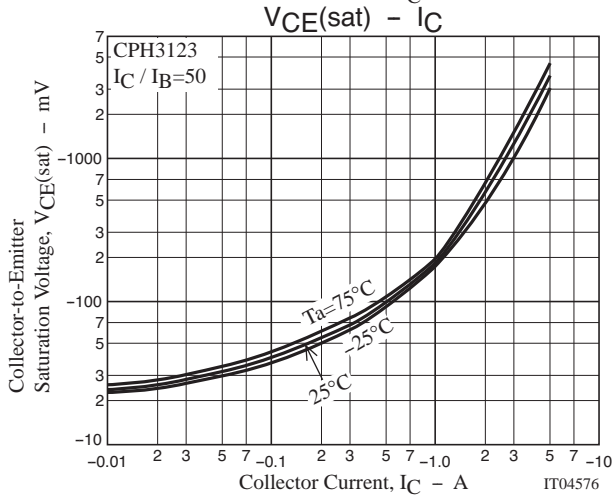
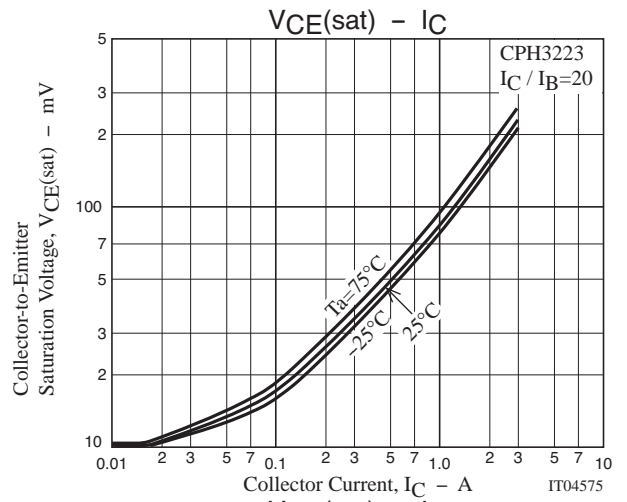
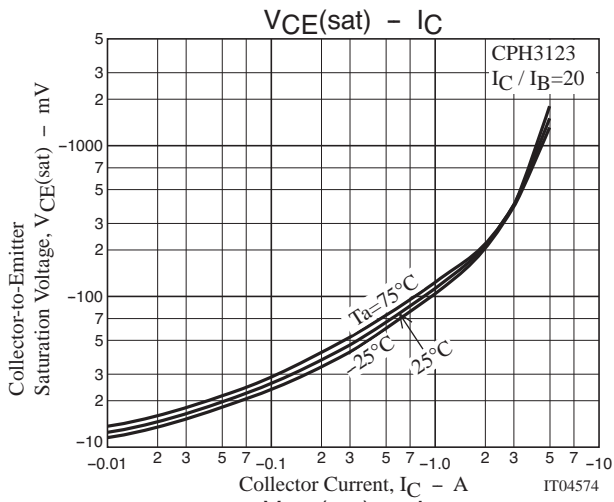
Device	Package	Shipping	memo
CPH3123-TL-E	CPH3	3,000pcs./reel	Pb Free
CPH3223-TL-E	CPH3	3,000pcs./reel	Pb Free



CPH3123/CPH3223



CPH3123/CPH3223





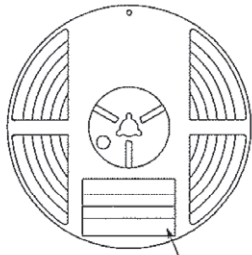
# CPH3123/CPH3223

## Embossed Taping Specification CPH3123-TL-E, CPH3223-TL-E

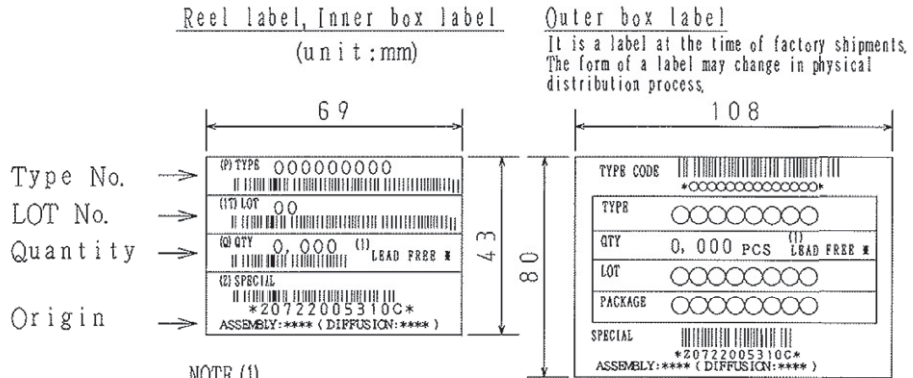
### 1. Packing Format

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)
CPH3	CPH3	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



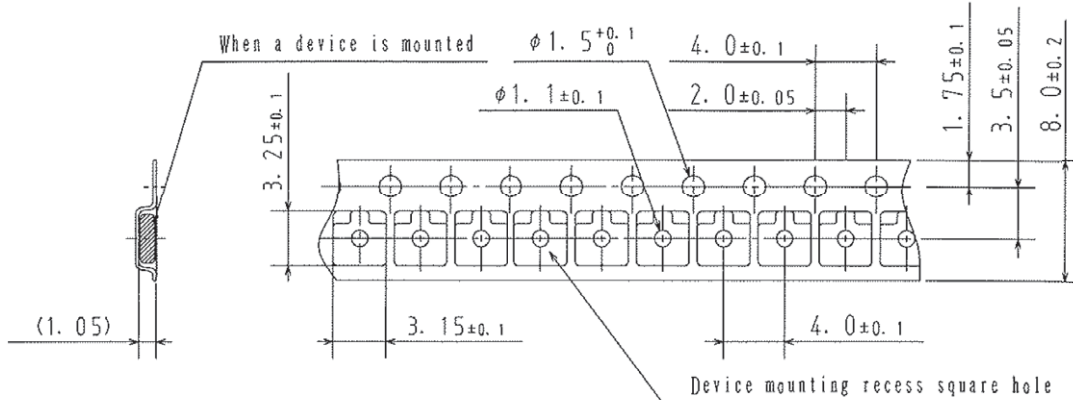
NOTE (1)

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

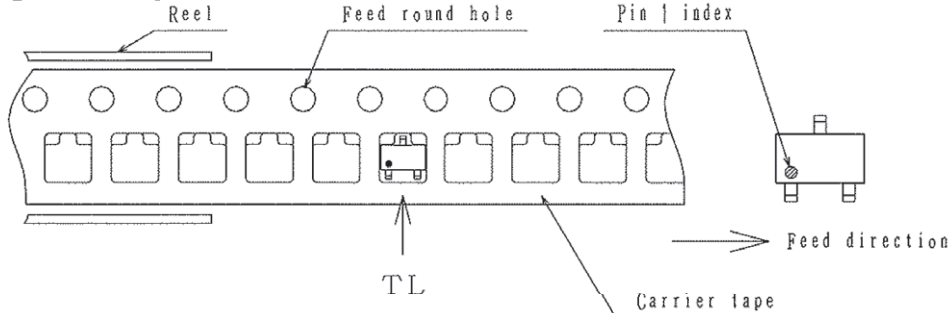
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

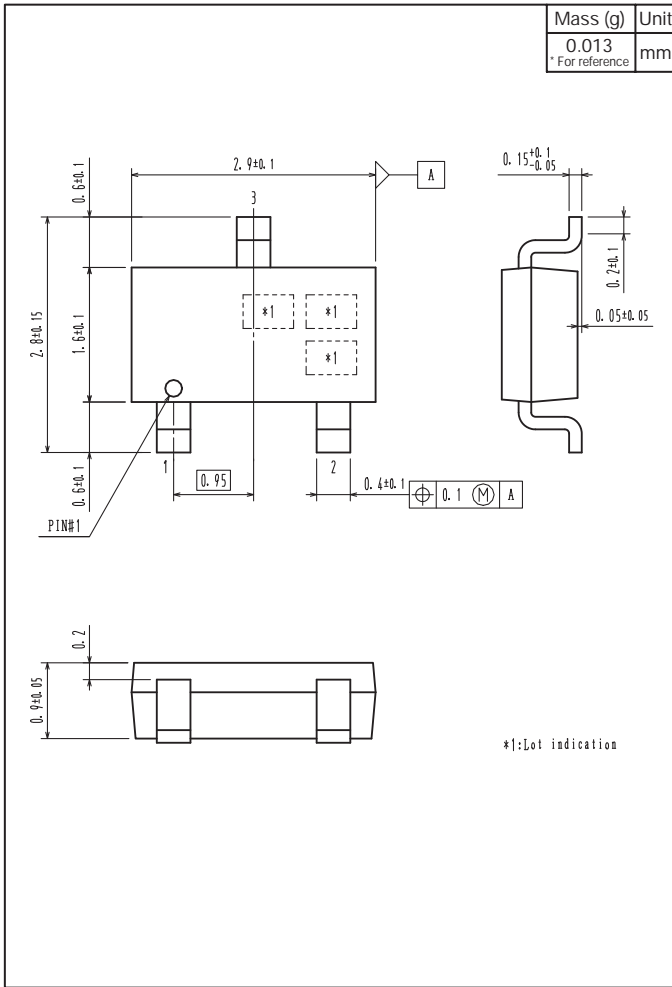


Those with one electrode terminal on the feed hole side.....TL

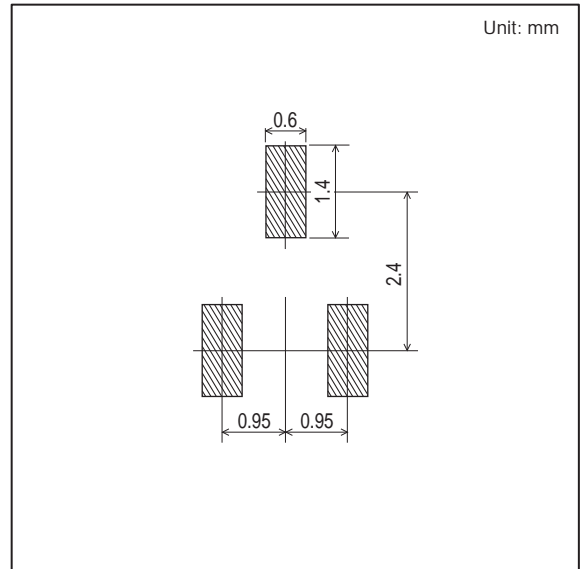
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Outline Drawing

CPH3123-TL-E, CPH3223-TL-E



Land Pattern Example





CPH3123/CPH3223

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