



CPH3140/CPH3240

Bipolar Transistor

(-)-100V, (-)-1A, Low $V_{CE(sat)}$, (PNP)NPN Single CPH3

ON Semiconductor®

<http://onsemi.com>

Features

- Adoption of FBIT, MBIT processes
- High breakdown voltage and large current capacity
- High-speed switching
- Ultrasmall size making it easy to provide high-density, small-sized hybrid ICs

Specifications () : CPH3140

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

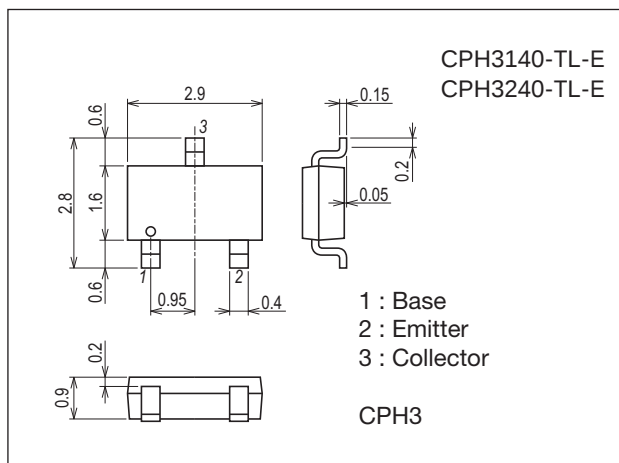
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)-120	V
Collector-to-Emitter Voltage	V_{CEO}		(-)-100	V
Emitter-to-Base Voltage	V_{EBO}		(-)-6	V
Collector Current	I_C		(-)-1	A
Collector Current (Pulse)	I_{CP}		(-)-2	A
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.9	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)

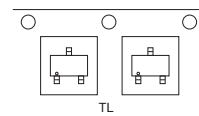
7015A-003



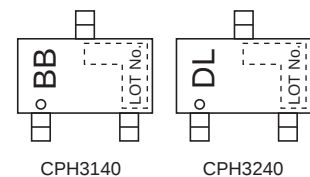
Product & Package Information

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

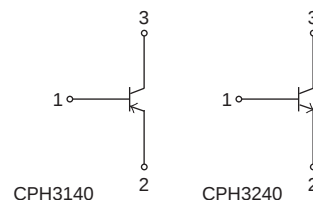
Packing Type: TL



Marking



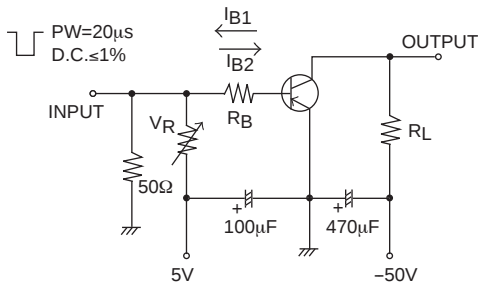
Electrical Connection



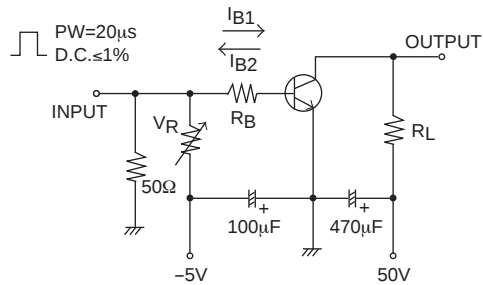
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)100V, I_E=0A$			$(-)\text{100}$	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0A$			$(-)\text{100}$	nA
DC Current Gain	h_{FE}	$V_{CE}=(-)10V, I_C=(-)100mA$	140		400	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)100mA$		120		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(13)8.5		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)400mA, I_B=(-)40mA$		$(-0.2)0.1$	$(-0.6)0.4$	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)400mA, I_B=(-)40mA$		$(-)0.85$	$(-)1.2$	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	$(-)\text{120}$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	$(-)\text{100}$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	$(-)\text{6}$			V
Turn-On Time	t_{on}	See specified Test Circuit.		(80)80		ns
Storage Time	t_{stg}			(700)850		ns
Fall Time	t_f			(40)50		ns

Switching Time Test Circuit



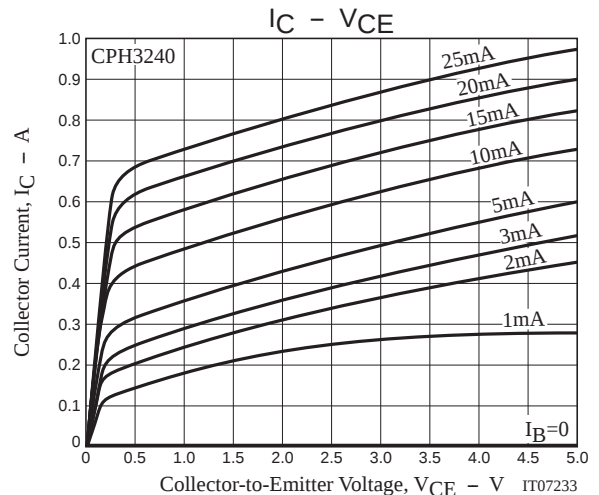
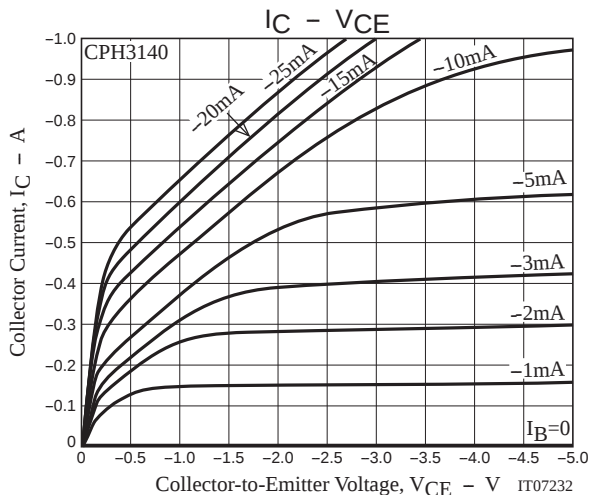
$I_C = -10I_{B1} = 10I_{B2} = -400mA$
CPH3140

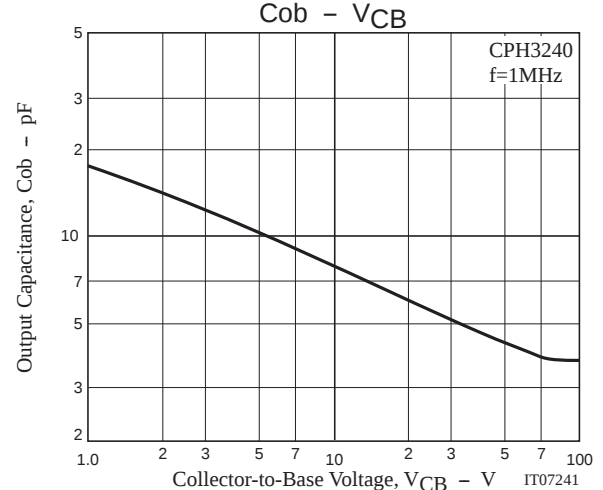
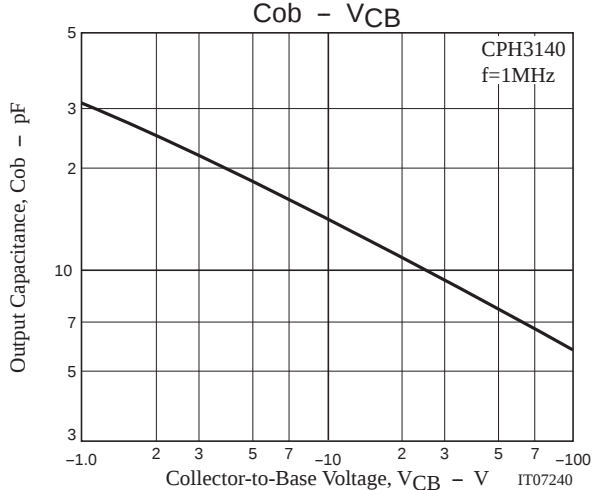
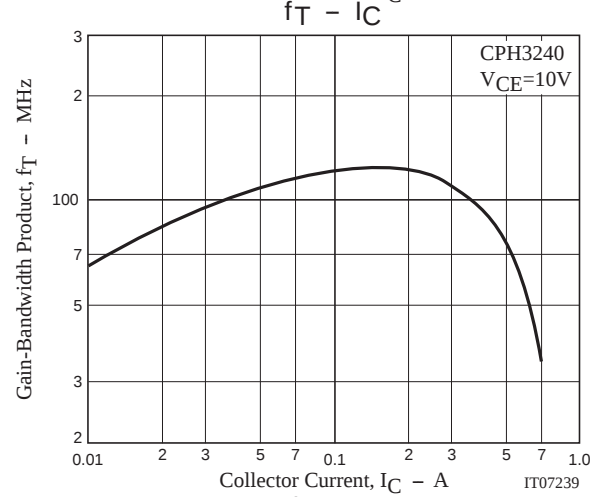
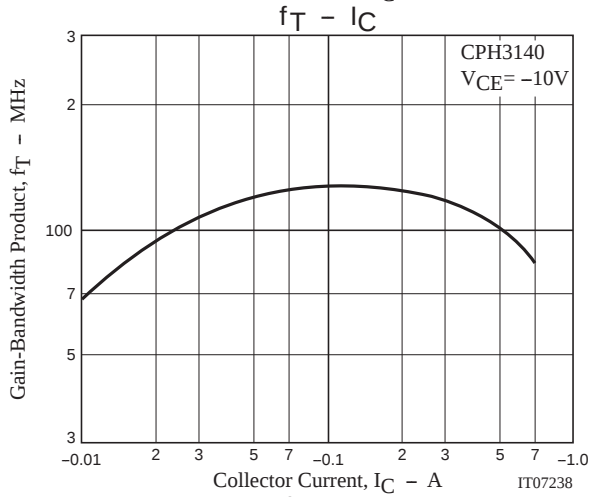
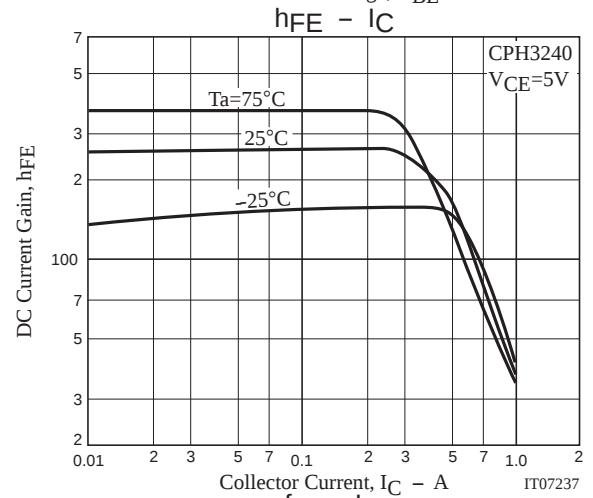
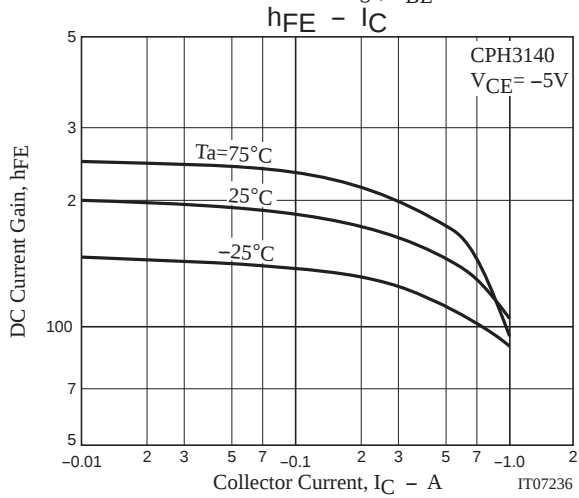
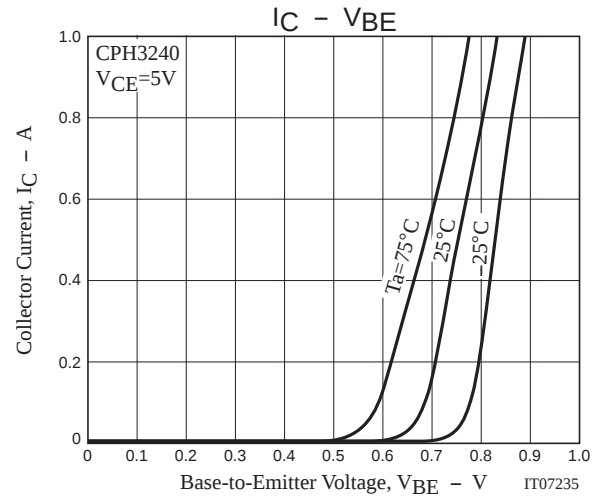
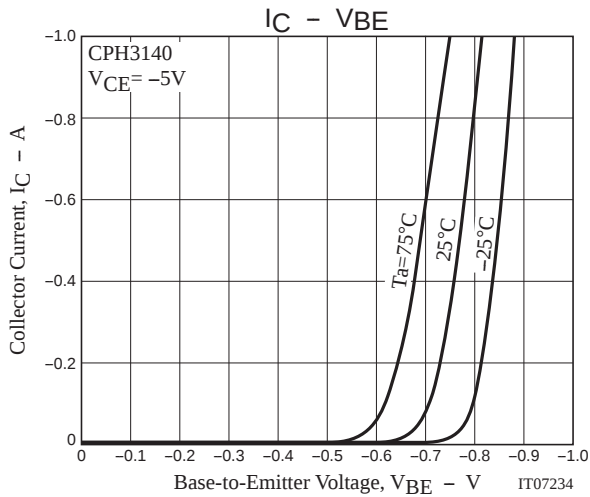


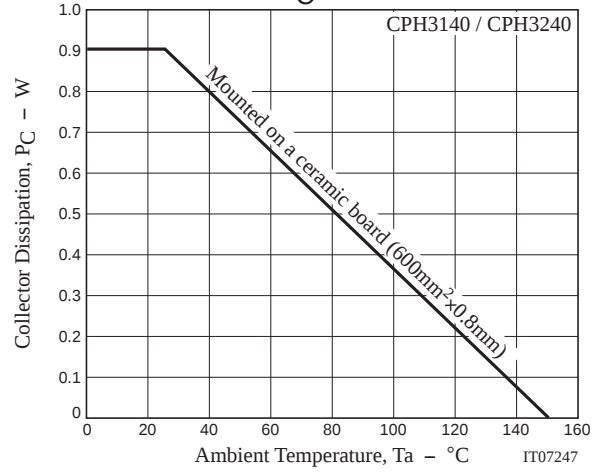
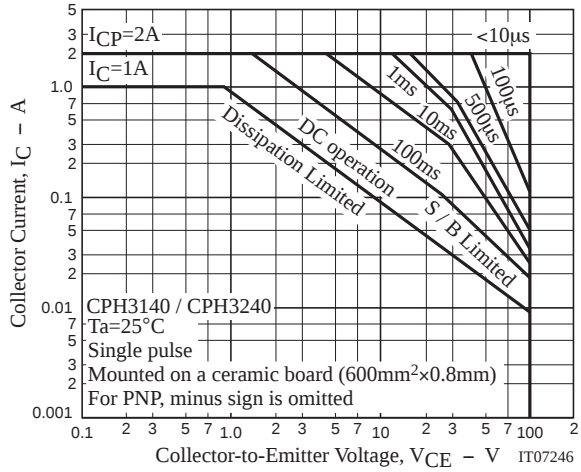
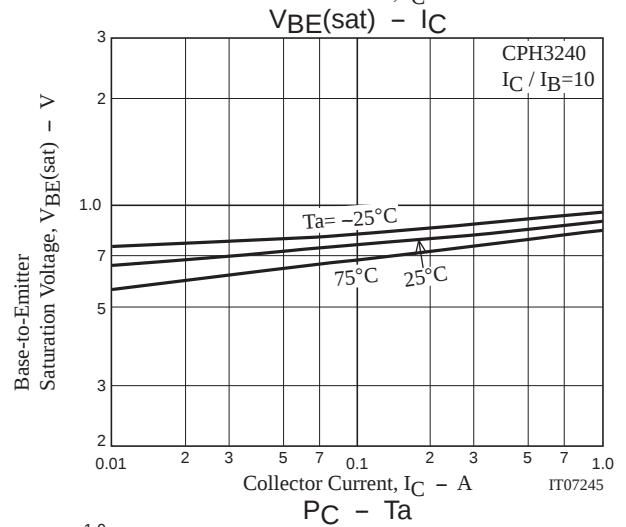
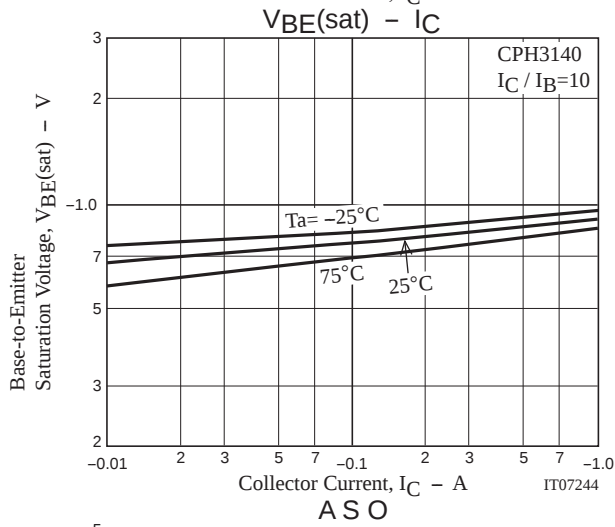
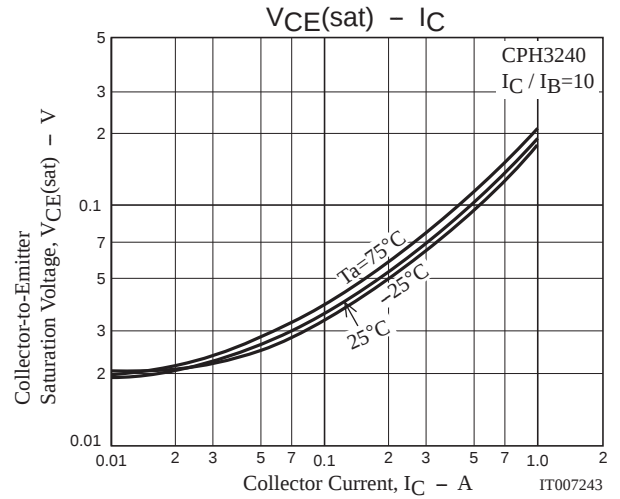
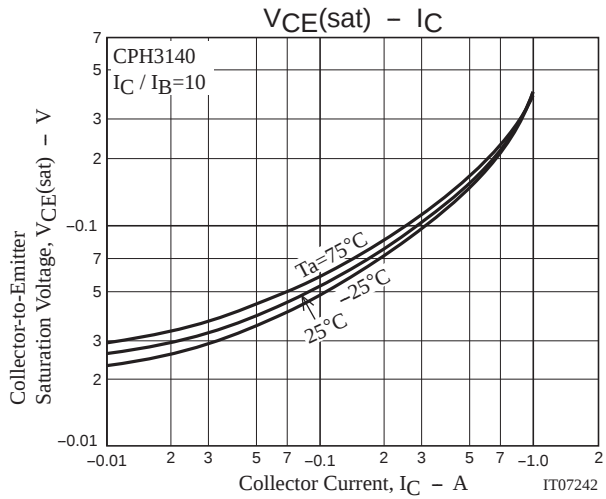
$I_C = 10I_{B1} = -10I_{B2} = 400mA$
CPH3240

Ordering Information

Device	Package	Shipping	memo
CPH3140-TL-E	CPH3	3,000pcs./reel	Pb Free
CPH3240-TL-E	CPH3	3,000pcs./reel	Pb Free







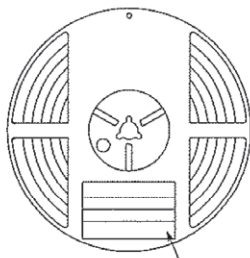
Embossed Taping Specification

CPH3140-TL-E, CPH3240-TL-E

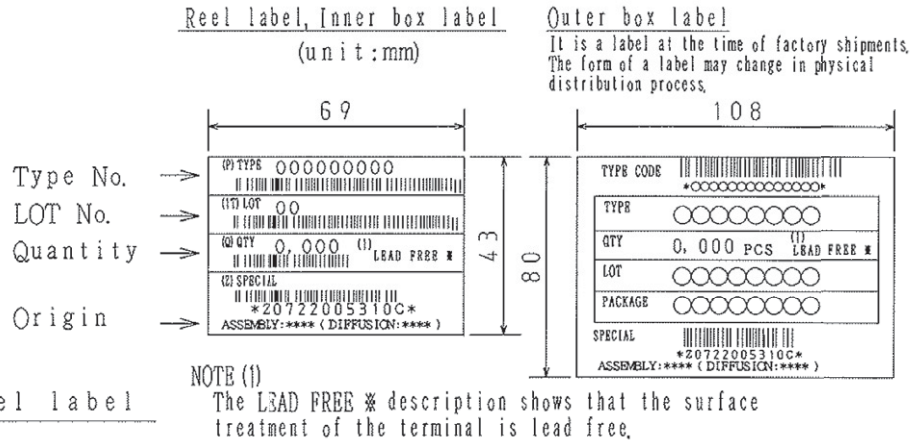
1. Packing Format

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



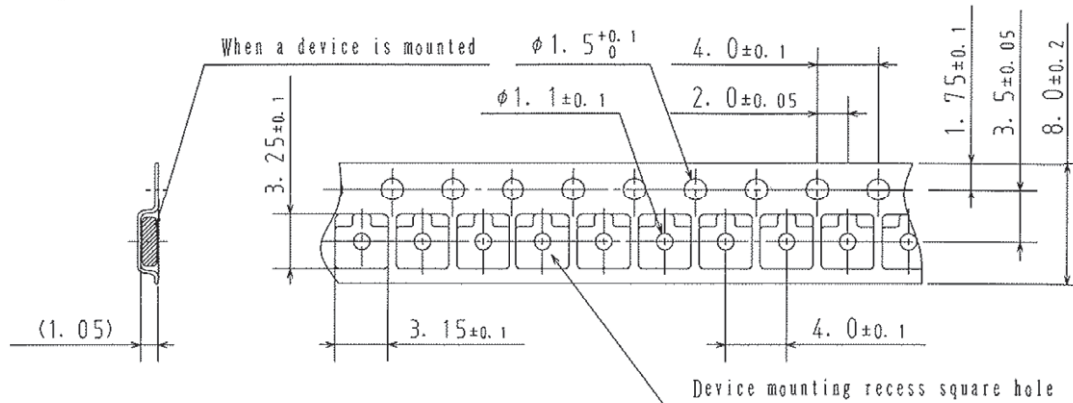
Reel label



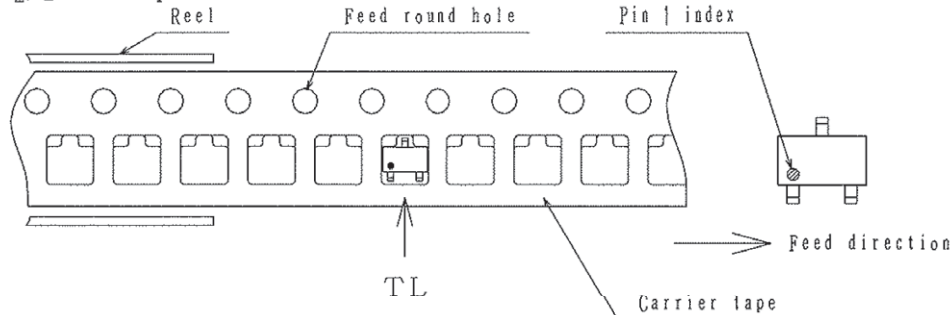
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



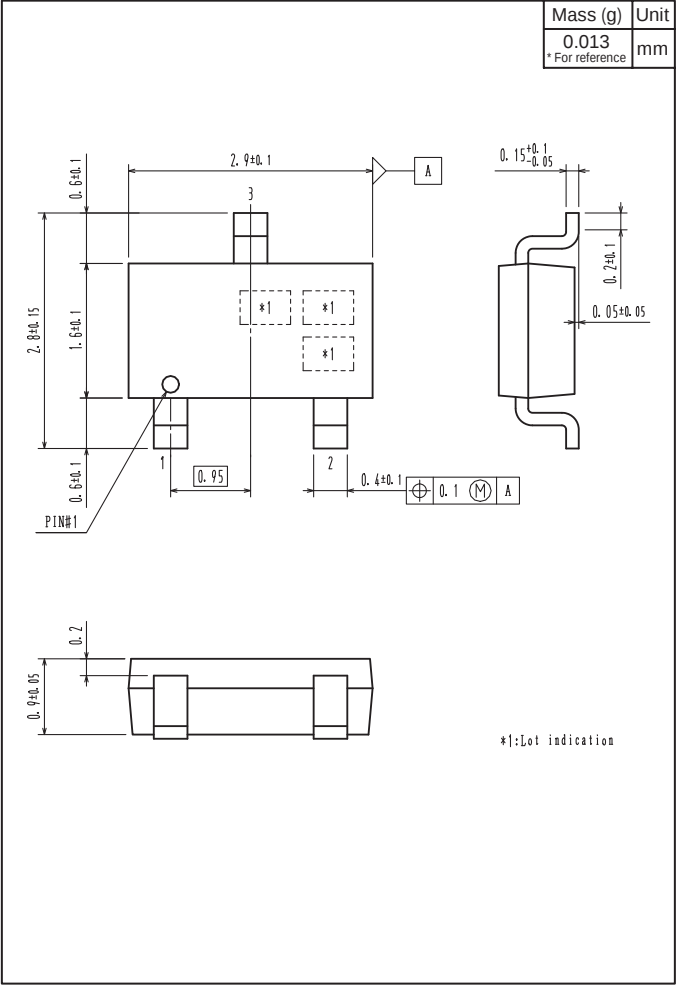
2-2. Device placement direction



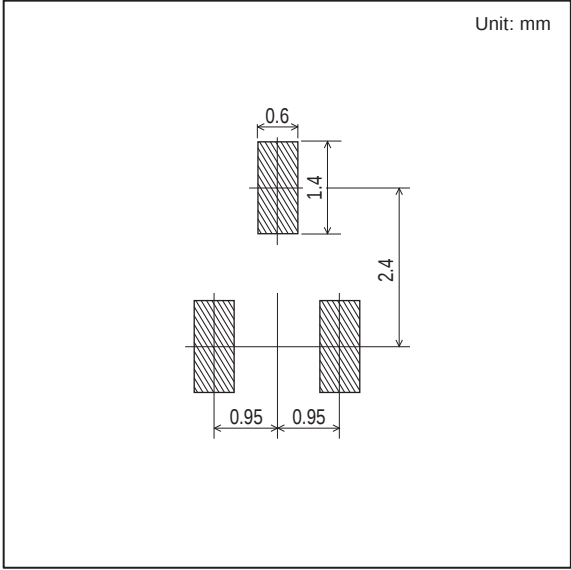
Those with one electrode terminal on the feed hole side.....TL

Outline Drawing

CPH3140-TL-E, CPH3240-TL-E



Land Pattern Example



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