



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH3115 / CPH3215 — PNP / NPN Epitaxial Planar Silicon Transistor DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, and strobes

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
- Halogen free compliance

Specifications () : CPH3115

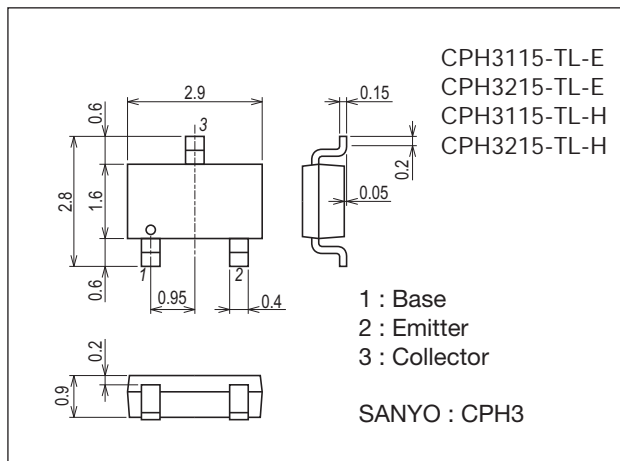
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-30)40	V
Collector-to-Emitter Voltage	V _{CEO}		(-)30	V
Emitter-to-Base Voltage	V _{EB0}		(-)5	V
Collector Current	I _C		(-)1.5	A
Collector Current (Pulse)	I _{CP}		(-)3	A
Base Current	I _B		(-)300	mA
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

Package Dimensions

unit : mm (typ)

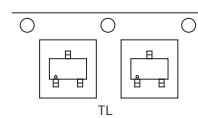
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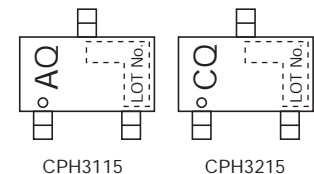
Product & Package Information

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

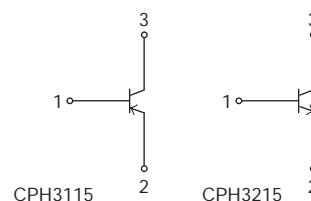
Packing Type: TL



Marking



Electrical Connection

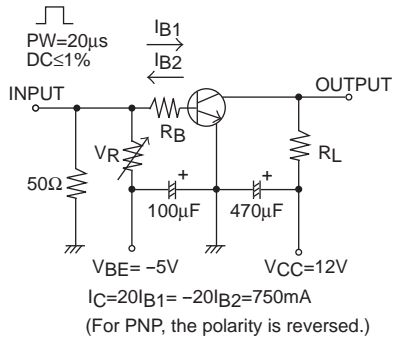


CPH3115 / CPH3215

Electrical Characteristics at Ta=25°C

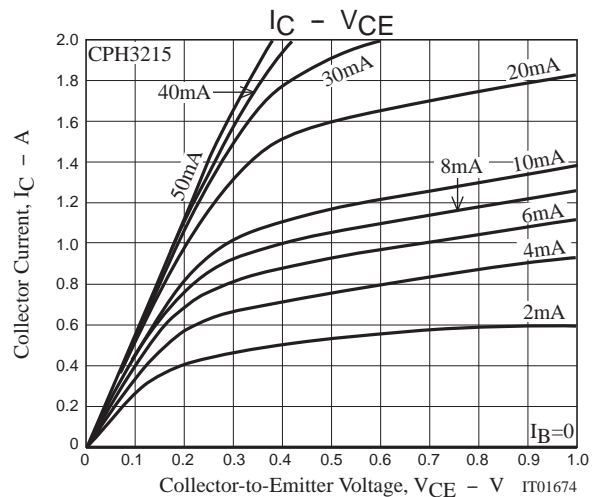
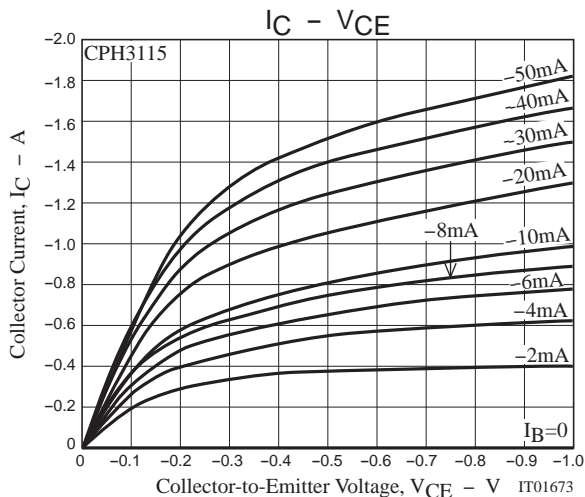
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)30V, I_E=0A$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0A$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2V, I_C=(-)100mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)300mA$		(450)500		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(9)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)750mA, I_B=(-)15mA$		(-250)150	(-375)225	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)750mA, I_B=(-)15mA$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-30)40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	(-)5			V
Turn-On Time	t_{on}	See specified Test Circuit.		35		ns
Storage Time	t_{stg}			(115)205		ns
Fall Time	t_f			30		ns

Switching Time Test Circuit

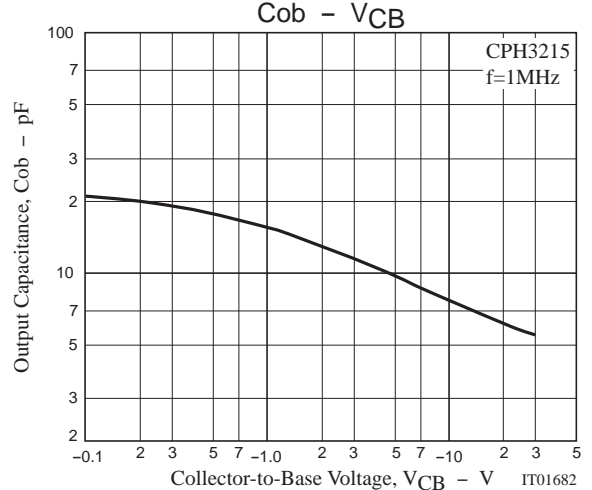
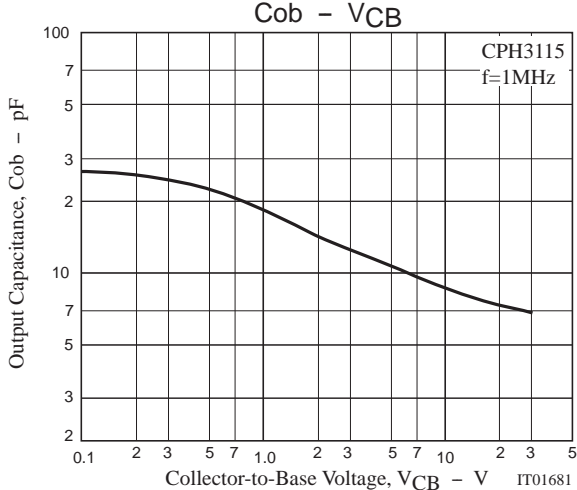
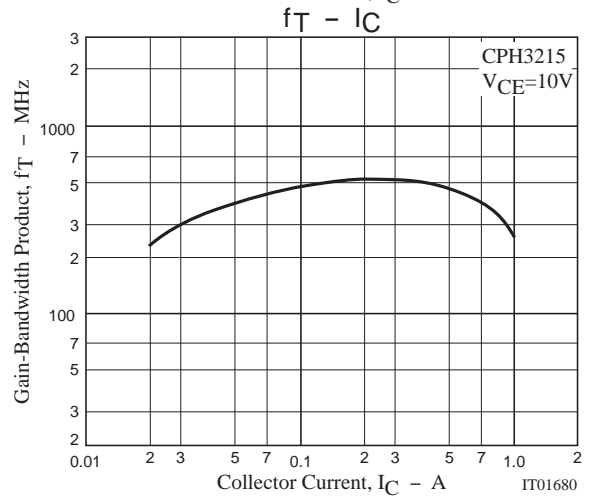
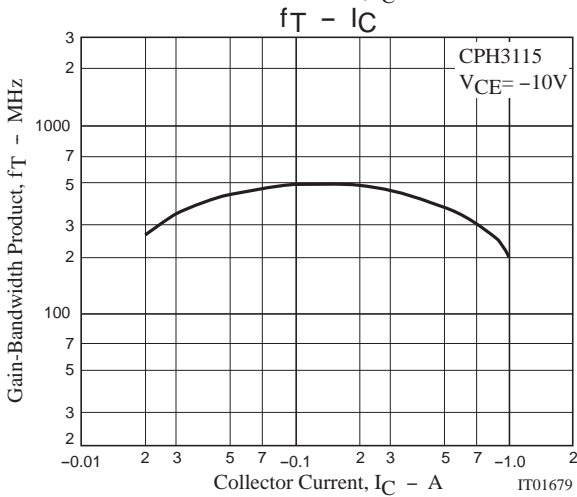
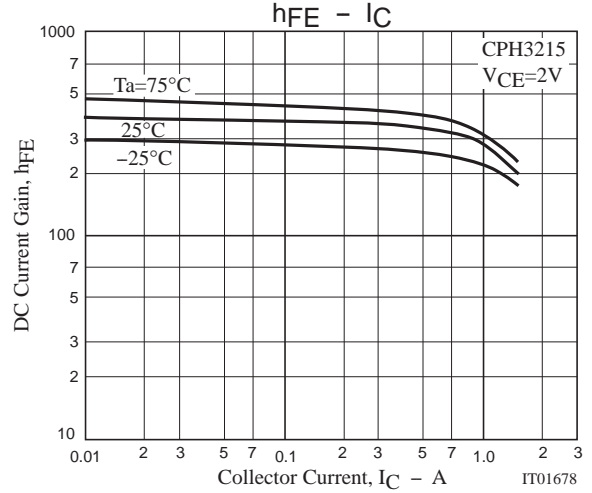
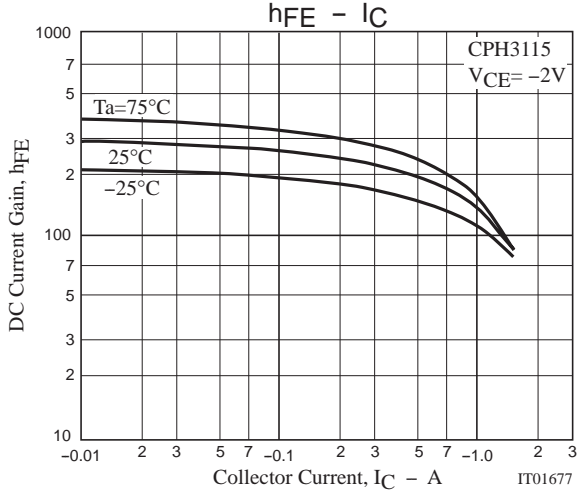
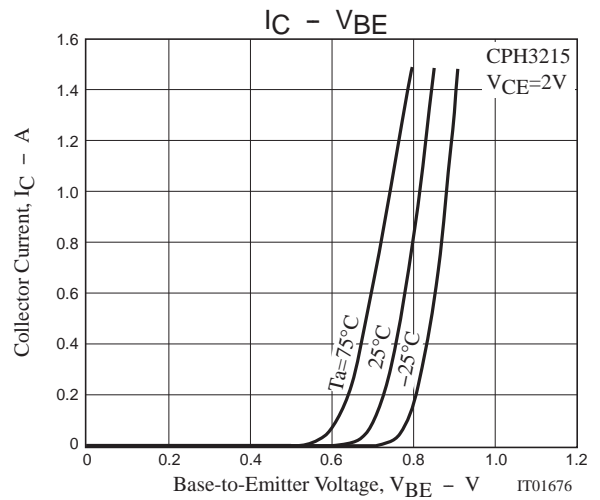
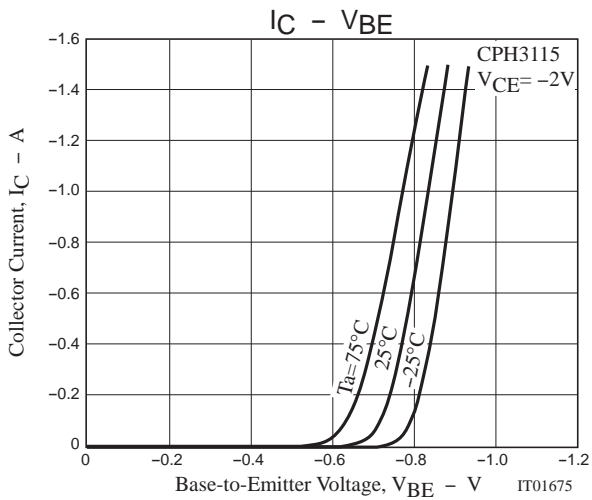


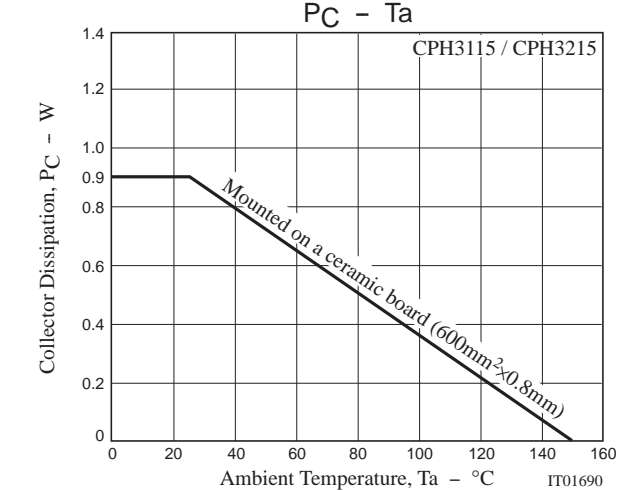
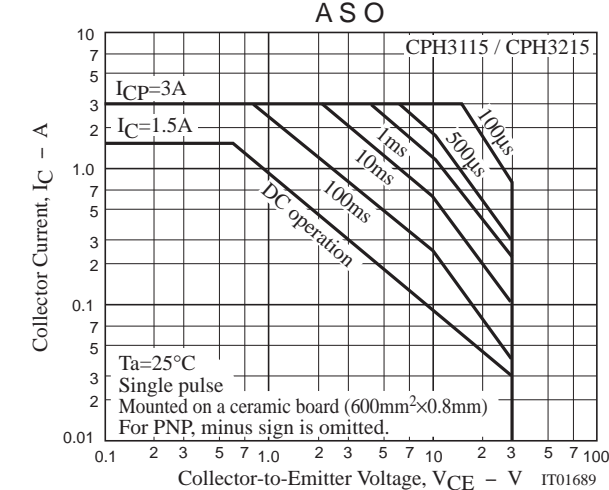
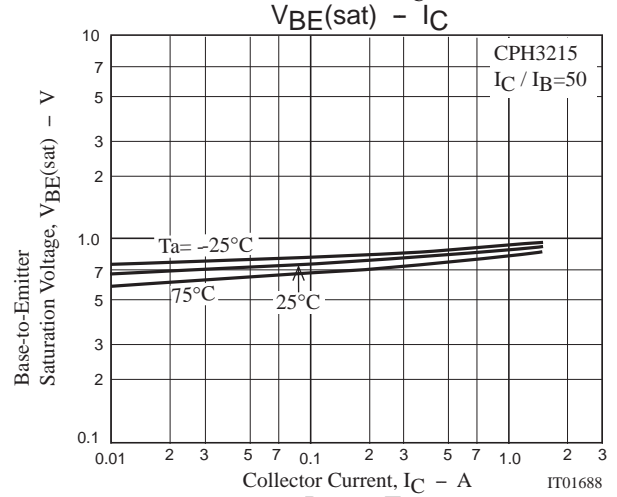
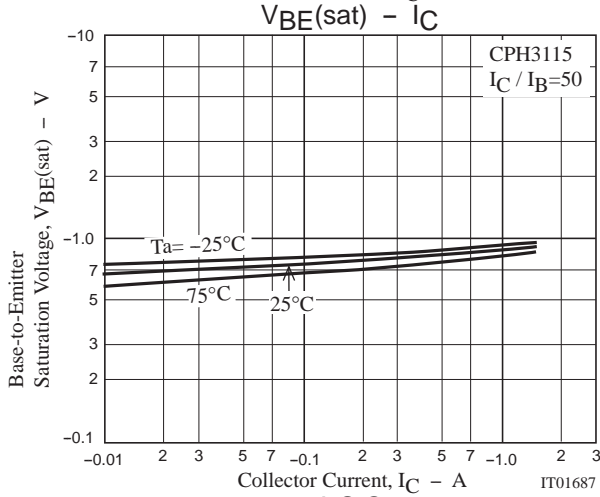
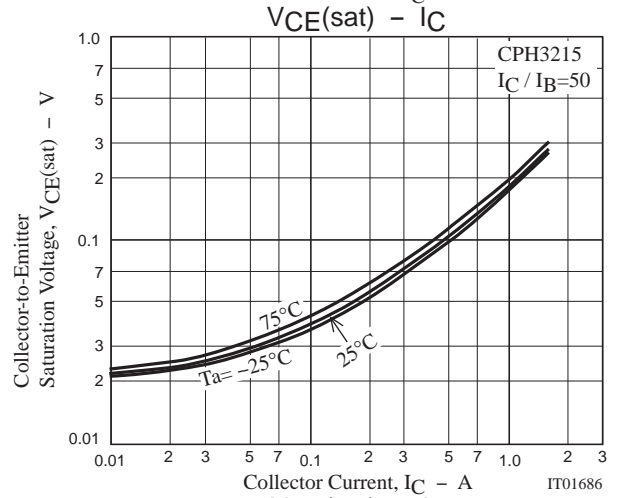
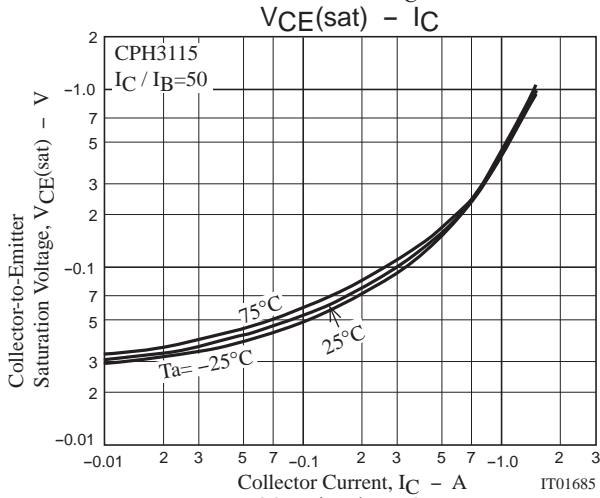
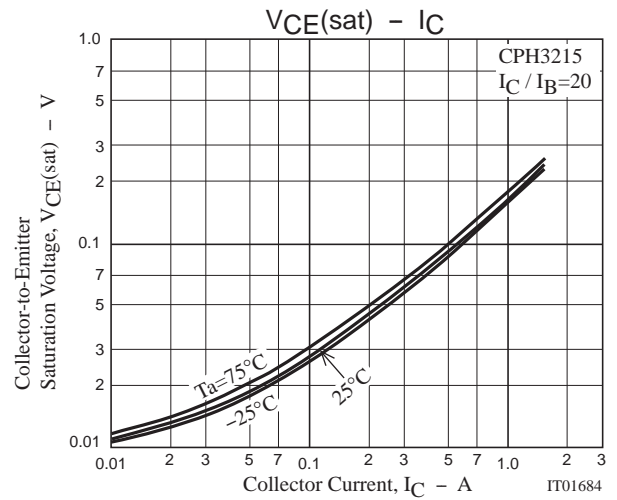
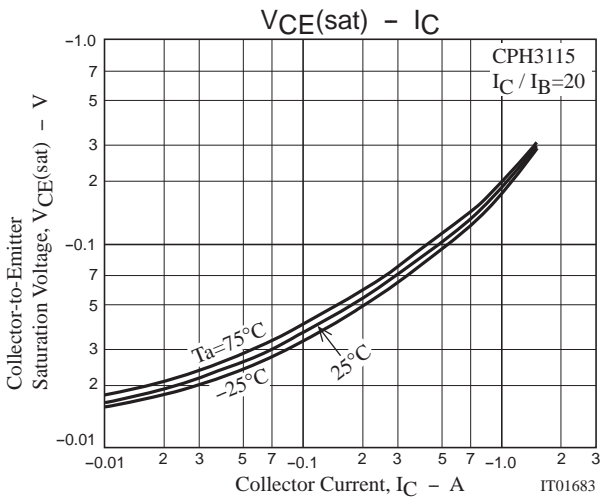
Ordering Information

Device	Package	Shipping	memo
CPH3115-TL-E	CPH3	3,000pcs./reel	Pb Free
CPH3215-TL-E	CPH3	3,000pcs./reel	Pb Free
CPH3115-TL-H	CPH3	3,000pcs./reel	Pb Free and Halogen Free
CPH3215-TL-H	CPH3	3,000pcs./reel	Pb Free and Halogen Free



CPH3115 / CPH3215





CPH3115 / CPH3215

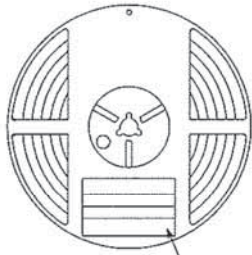
Embossed Taping Specification

CPH3115-TL-E, CPH3215-TL-E, CPH3115-TL-H, CPH3215-TL-H

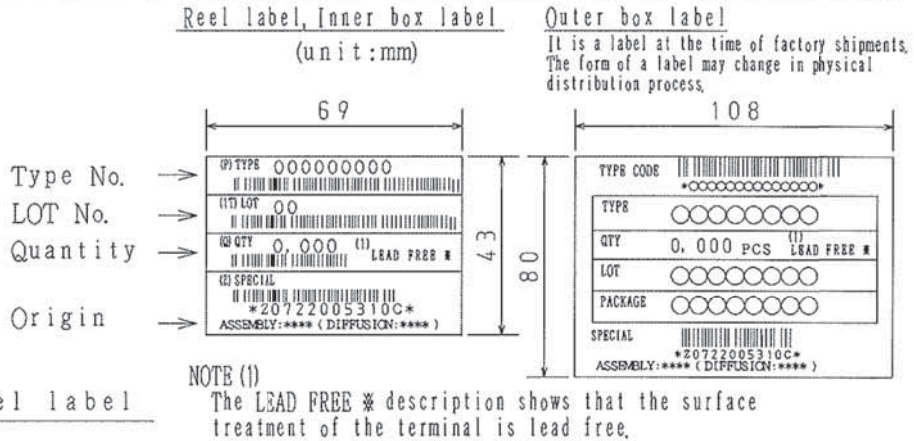
1. Packing Format

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



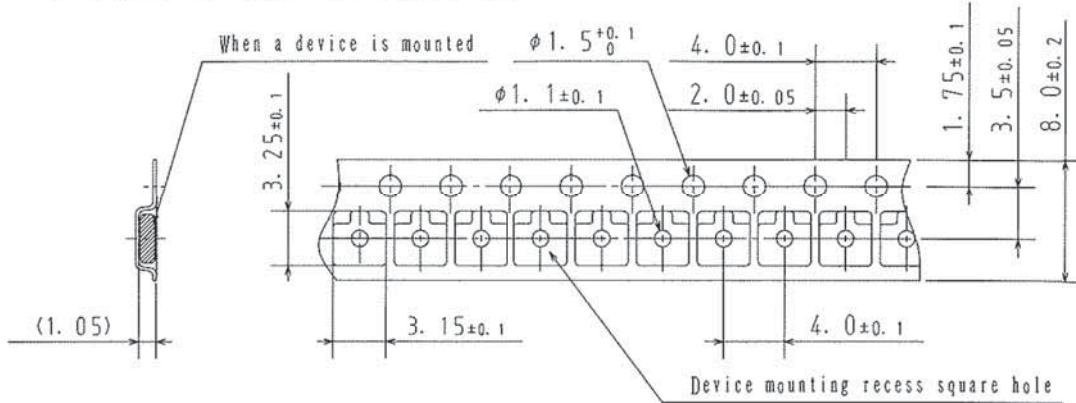
NOTE (1)

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

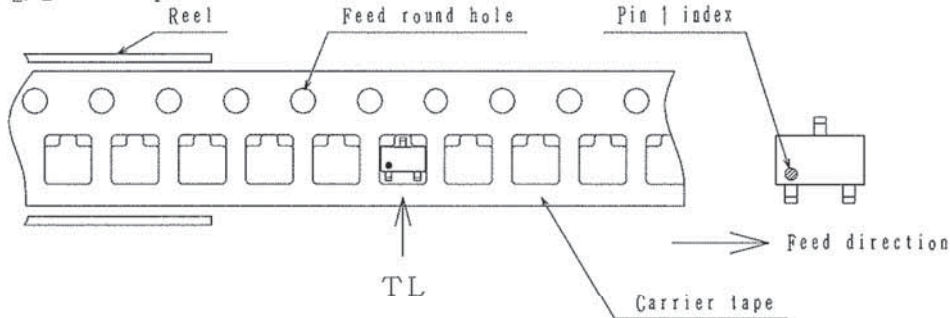
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction



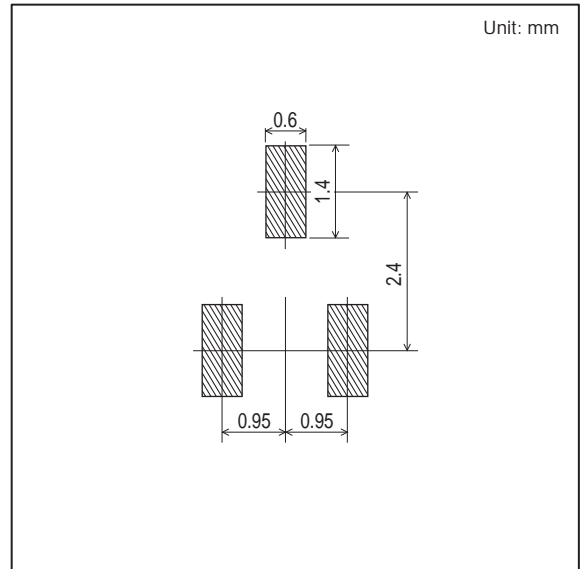
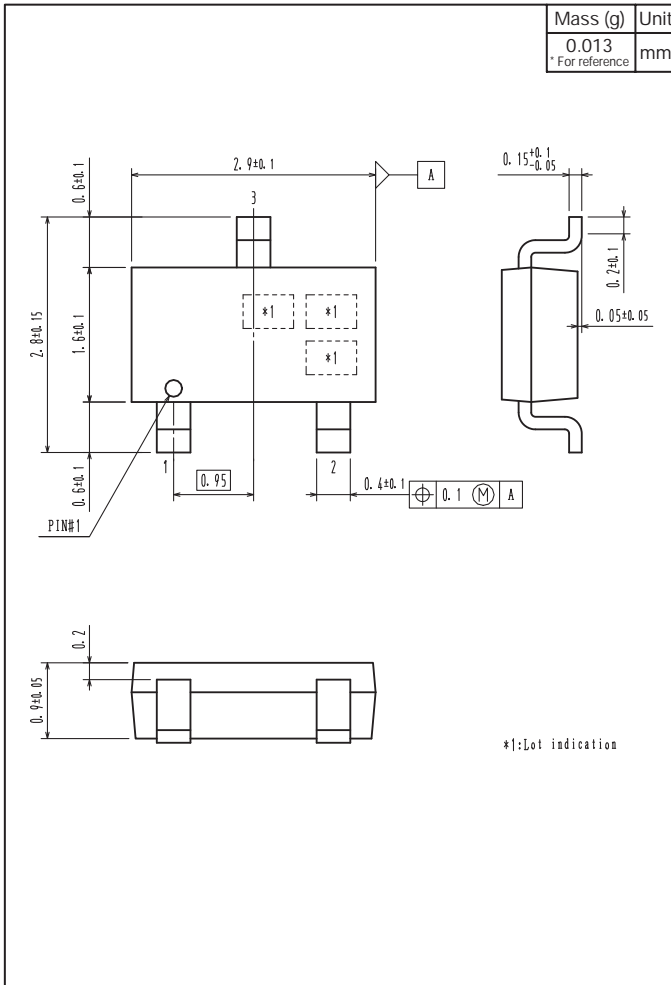
Those with one electrode terminal on the feed hole side.....TL

CPH3115 / CPH3215

Outline Drawing

Land Pattern Example

CPH3115-TL-E, CPH3215-TL-E, CPH3115-TL-H, CPH3215-TL-H



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