Ordering number : EN7907A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

PNP / NPN Epitaxial Planar Silicon Transistors

CPH3140 / CPH3240 — High-Voltage Switching Applications

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

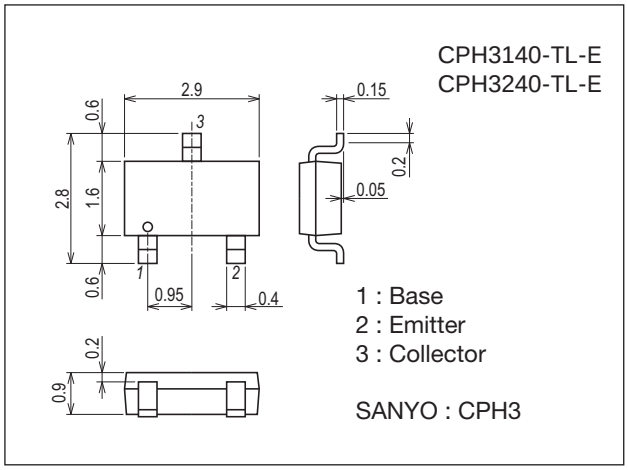
Absolute Maximum Ratings at Ta=25°C

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	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Package Dimensions

unit : mm (typ)

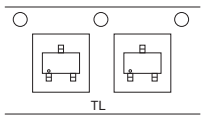
7015A-003



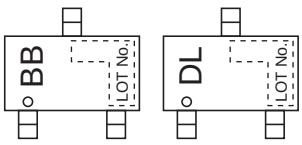
Product & Package Information

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

Packing Type: TL

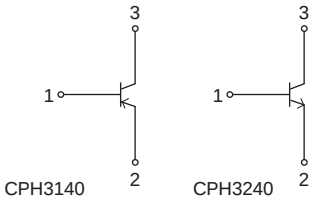


Marking



CPH3140 CPH3240

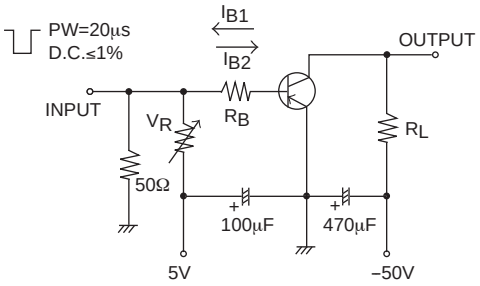
Electrical Connection



Electrical Characteristics at Ta=25°C

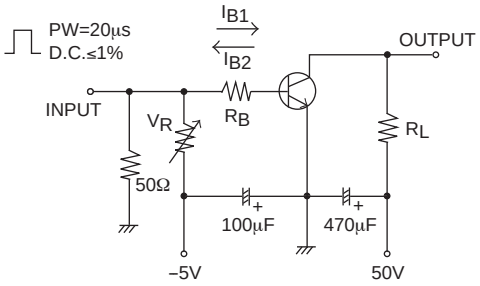
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)100V, I_E=0A			(−)100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(−)4V, I_C=0A			(−)100	nA
DC Current Gain	h_{FE}	V_{CE}=(−)5V, I_C=(−)100mA	140		400	
Gain-Bandwidth Product	f_T	V_{CE}=(−)10V, I_C=(−)100mA		120		MHz
Output Capacitance	Cob	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=(−)10μA, I_E=0A	(−)120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(−)1mA, R_{BE}=∞	(−)100			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(−)10μA, I_C=0A	(−)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

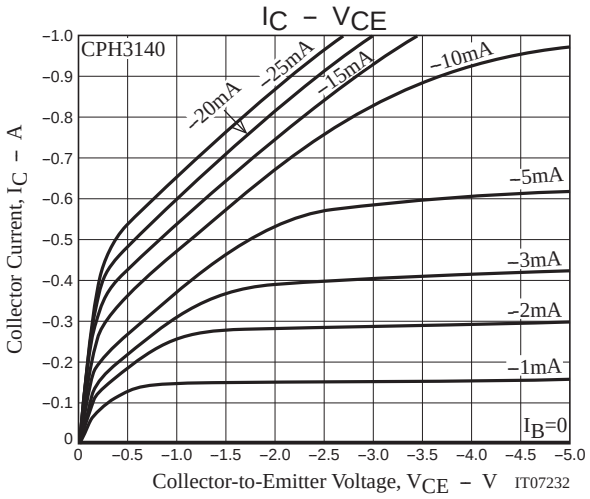


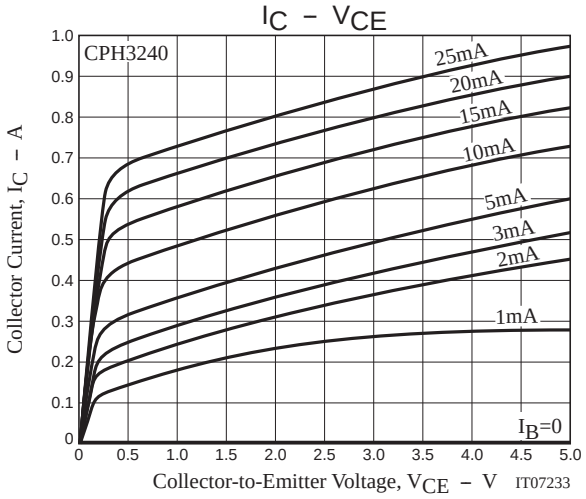
I_C=10I_{B1}= −10I_{B2}=400mA

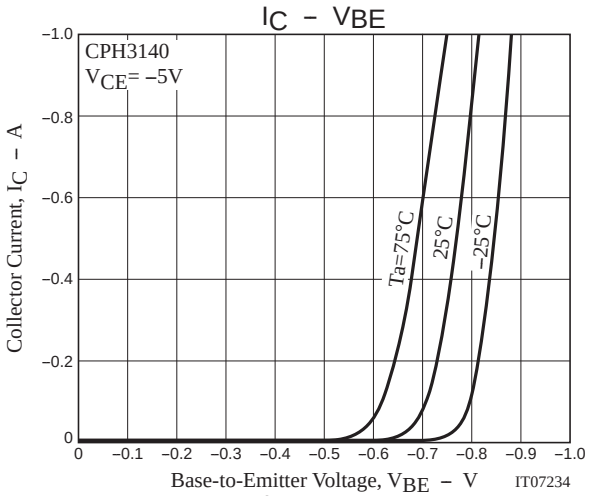
CPH3240

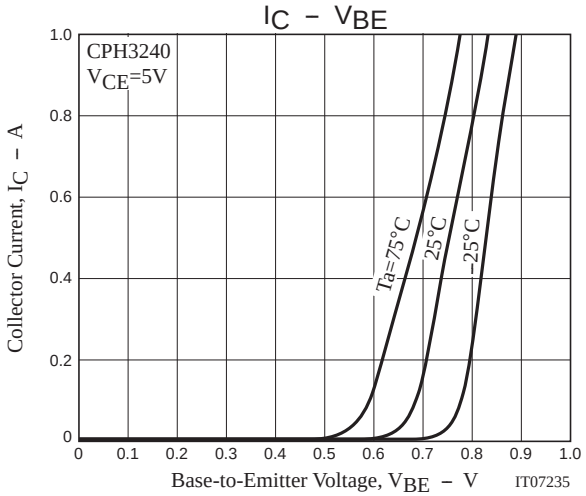
Ordering Information

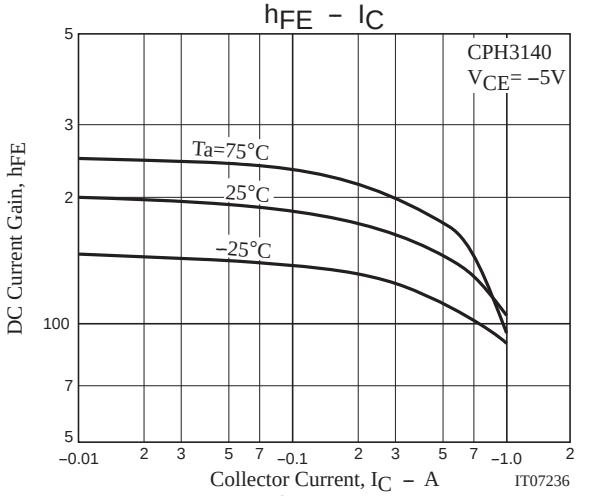
Device	Package	Shipping	memo
CPH3140-TL-E	CPH3	3,000pcs./reel	Pb Free
CPH3240-TL-E	CPH3	3,000pcs./reel	Pb Free

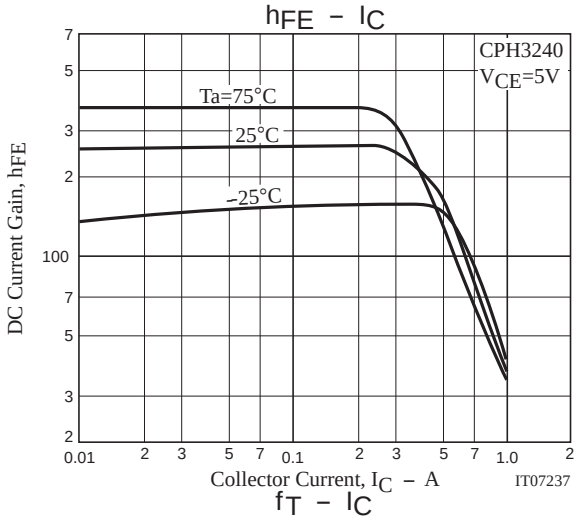


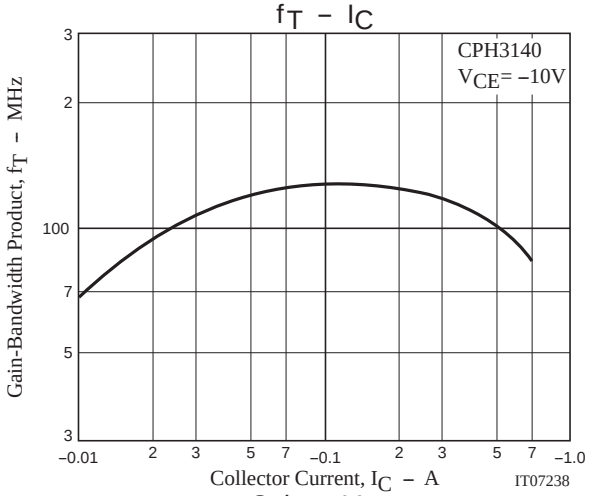


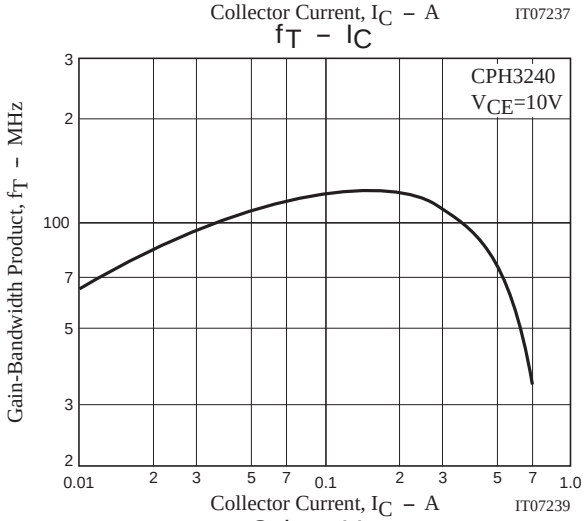

IC – VBE
CPH3140
VCE= –5V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT07234

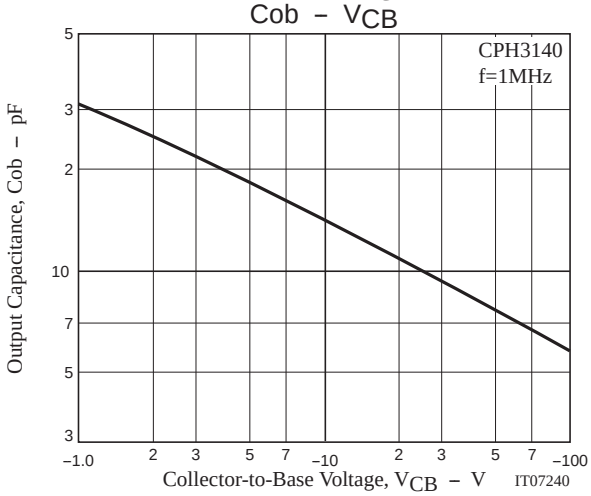

IC – VBE
CPH3240
VCE=5V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT07235

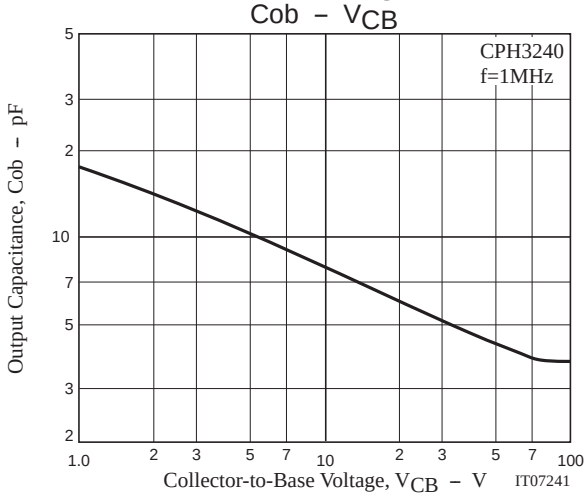

hFE – IC
CPH3140
VCE= –5V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT07236

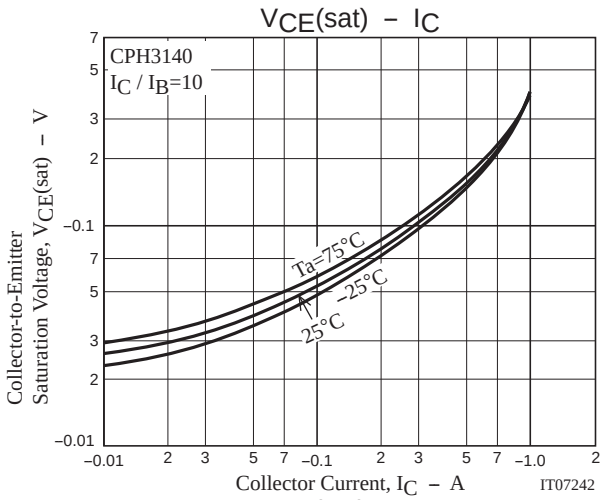

hFE – IC
CPH3240
VCE=5V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT07237

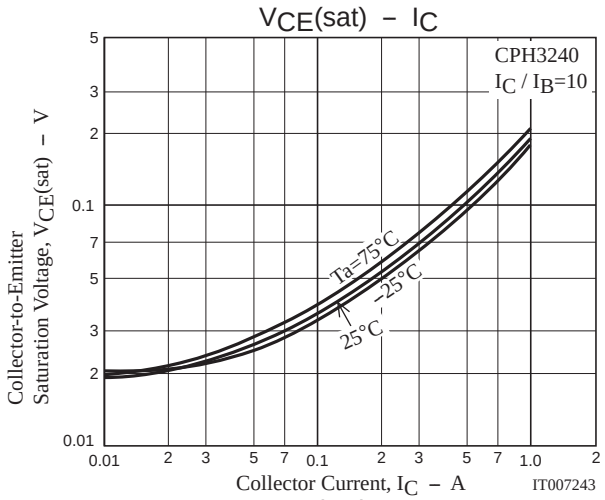

fT – IC
CPH3140
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT07238

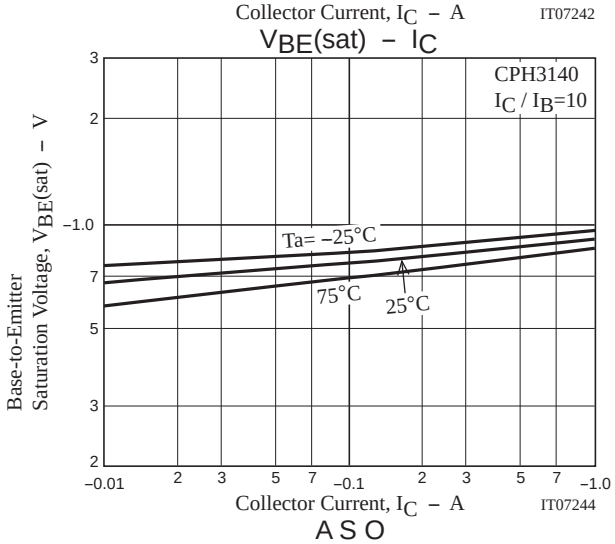

fT – IC
CPH3240
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT07239

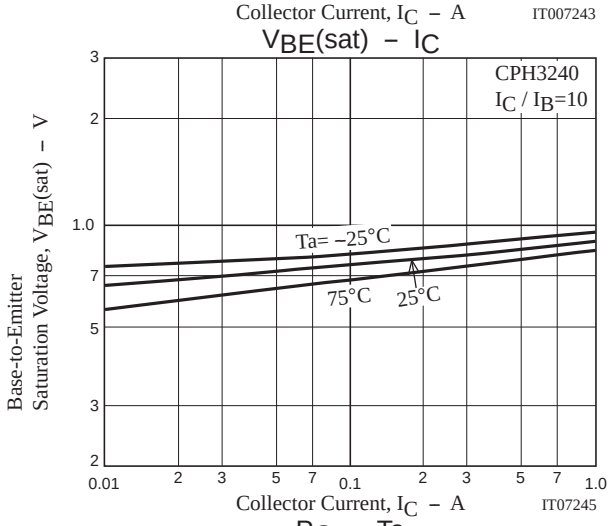

Cob – VCB
CPH3140
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT07240

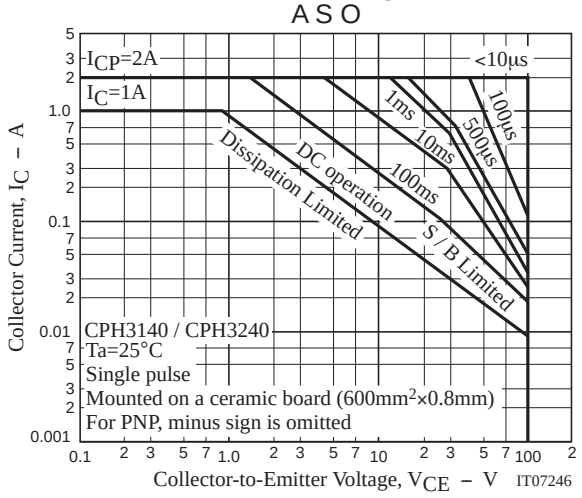

Cob – VCB
CPH3240
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT07241

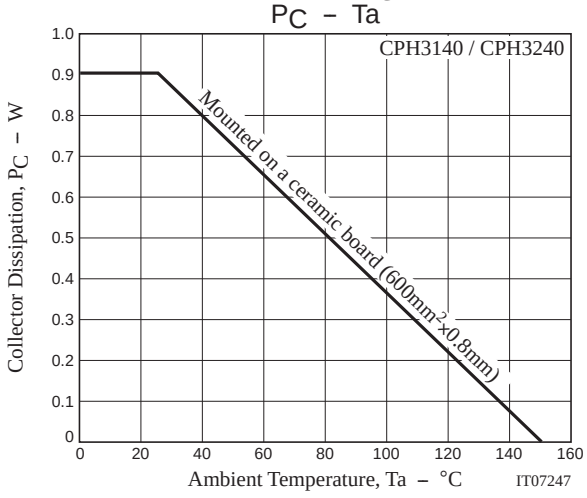

VCE(sat) – IC
CPH3140
IC / IB=10
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07242


VCE(sat) – IC
CPH3240
IC / IB=10
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT007243


VBE(sat) – IC
CPH3140
IC / IB=10
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT07244


VBE(sat) – IC
CPH3240
IC / IB=10
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT07245


A S O
ICP=2A
IC=1A
<10μs
100μs
1ms
10ms
500μs
100ms
DC operation
Dissipation Limited
S / B Limited
CPH3140 / CPH3240
Ta=25°C
Single pulse
Mounted on a ceramic board (600mm²×0.8mm)
For PNP, minus sign is omitted
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07246


PC – Ta
CPH3140 / CPH3240
Mounted on a ceramic board (600mm²×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT07247

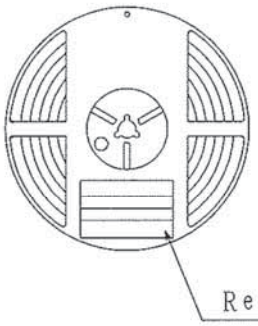
Embossed Taping Specification

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

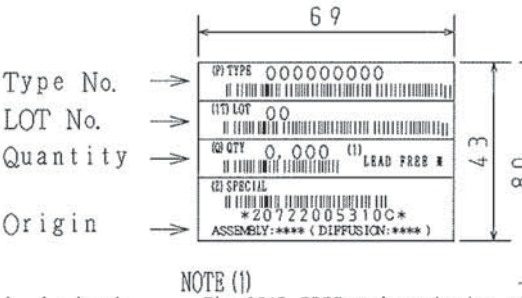
Packing method



Reel label

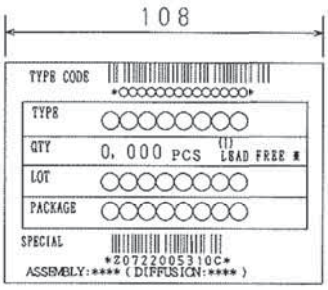
Reel label, Inner box label

(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.

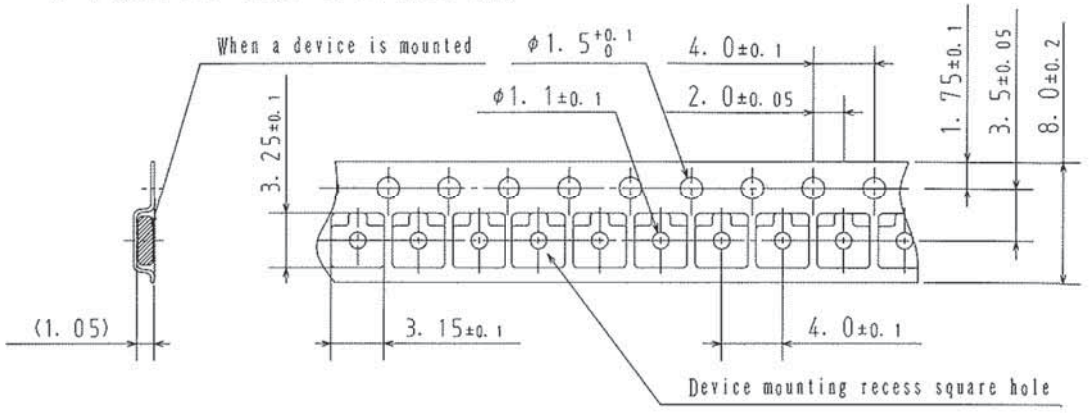


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

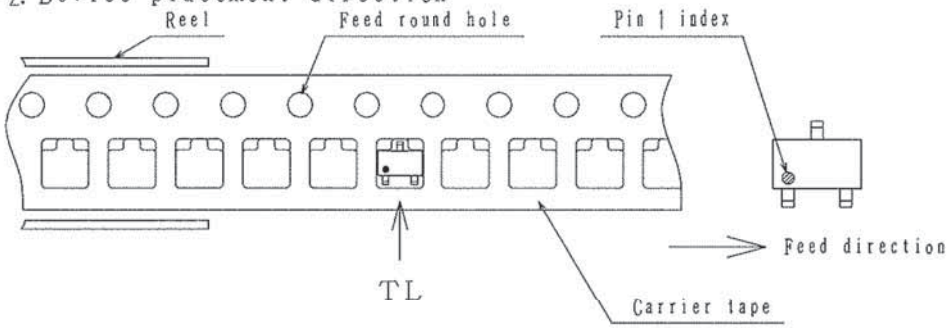
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



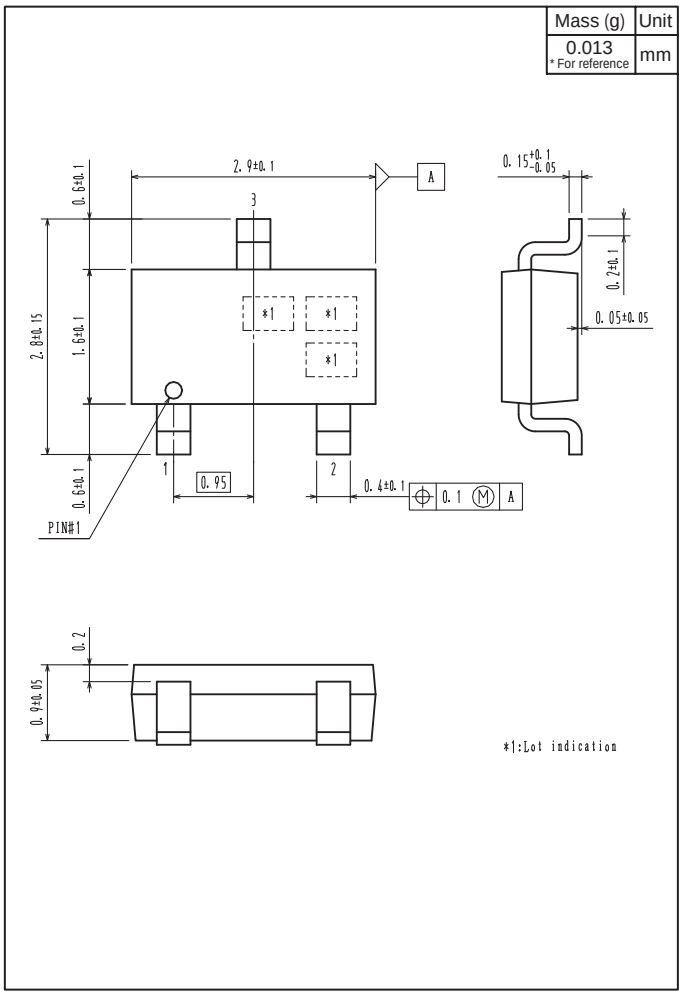
2-2. Device placement direction



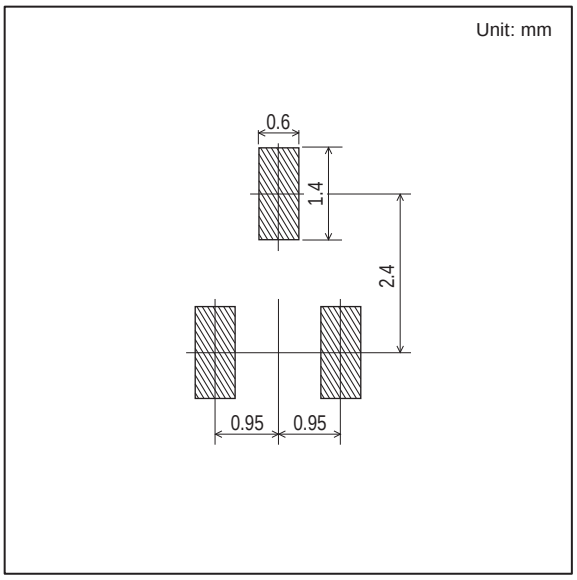
Those with one electrode terminal on the feed hole side·····TL

Outline Drawing

CPH3140-TL-E, CPH3240-TL-E



Land Pattern Example



This catalog provides information as of June, 2012. Specifications and information herein are subject to change without notice.

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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moschip.ru_6
moschip.ru_9