



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH3144 — PNP Epitaxial Planar Silicon Transistor

DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash

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

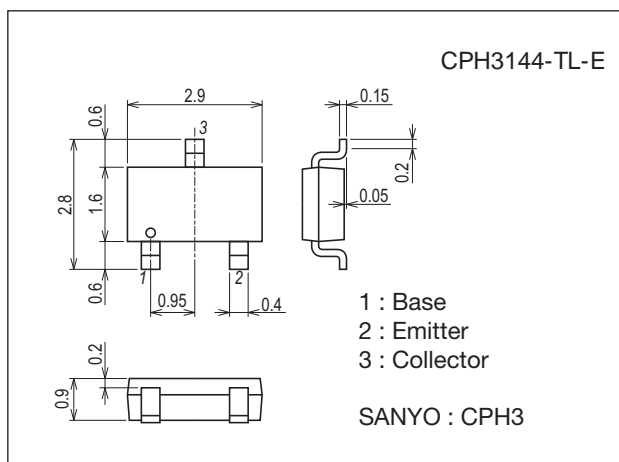
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		-30	V
Collector-to-Emitter Voltage	VCEO		-30	V
Emitter-to-Base Voltage	VEBO		-5	V
Collector Current	IC		-2	A
Collector Current (Pulse)	ICP		-5	A
Base Current	IB		-400	mA
Collector Dissipation	PC	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)

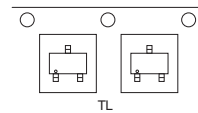
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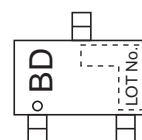
Product & Package Information

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

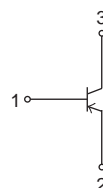
Packing Type: TL



Marking



Electrical Connection



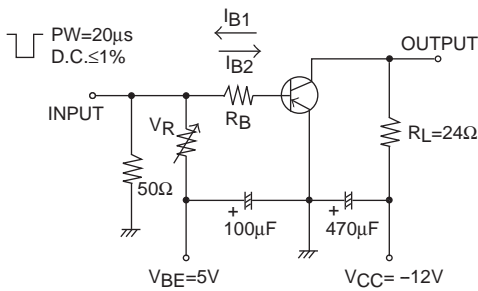
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Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = -30\text{V}, I_E = 0\text{A}$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0\text{A}$			-0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = -2\text{V}, I_C = -100\text{mA}$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE} = -10\text{V}, I_C = -300\text{mA}$		440		MHz
Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		17		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1.5\text{A}, I_B = -75\text{mA}$		-170	-260	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -1.5\text{A}, I_B = -75\text{mA}$		-0.94	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0\text{A}$	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0\text{A}$	-5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		45		ns
Storage Time	t_{stg}			200		ns
Fall Time	t_f			23		ns

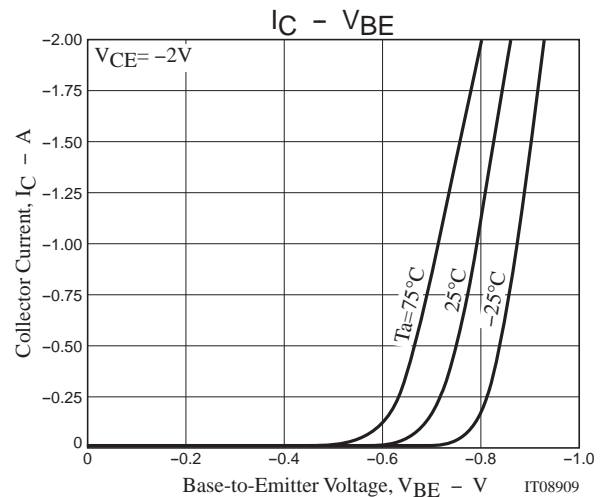
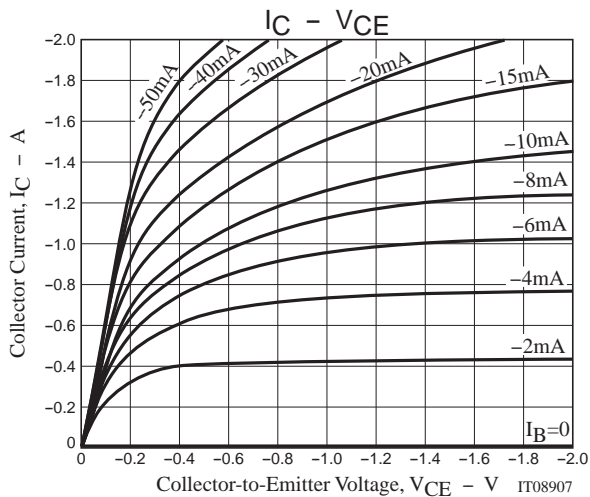
Switching Time Test Circuit

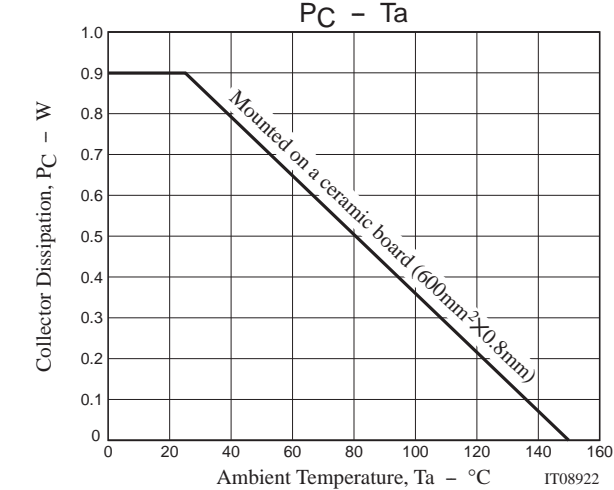
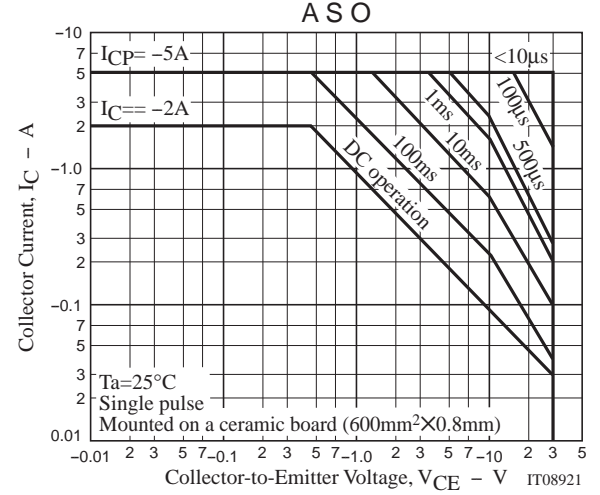
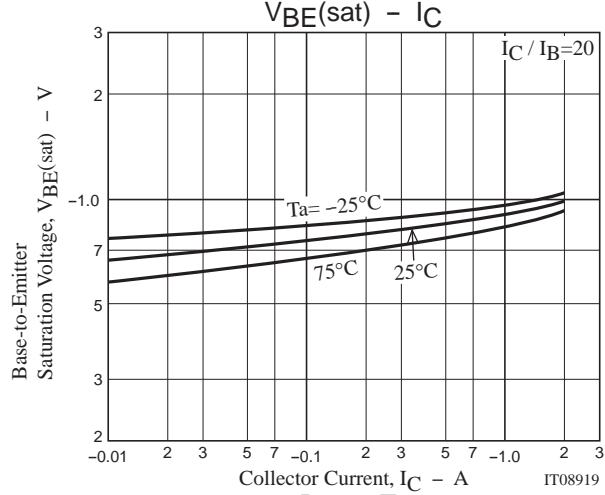
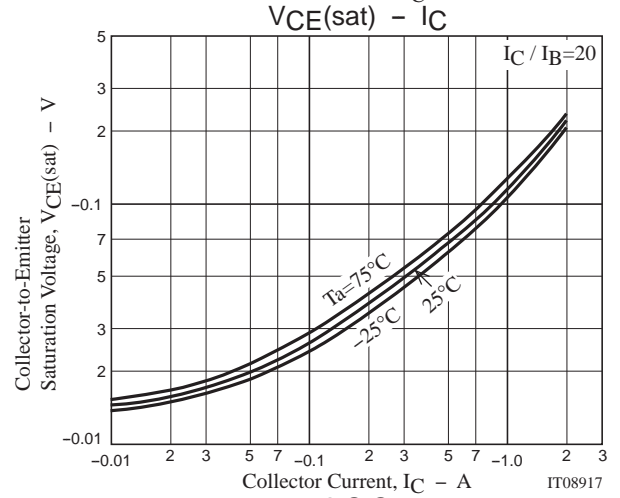
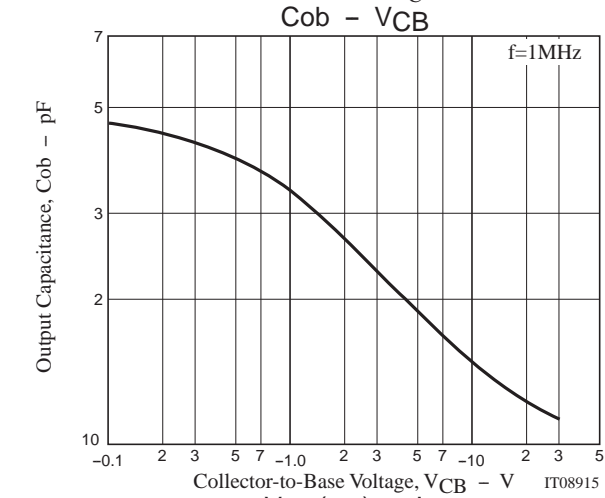
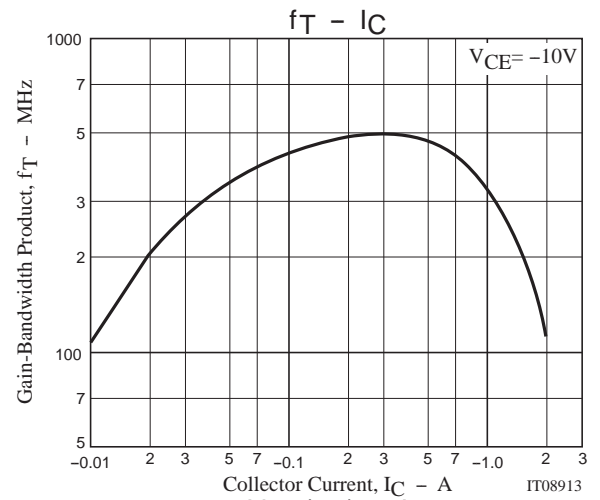
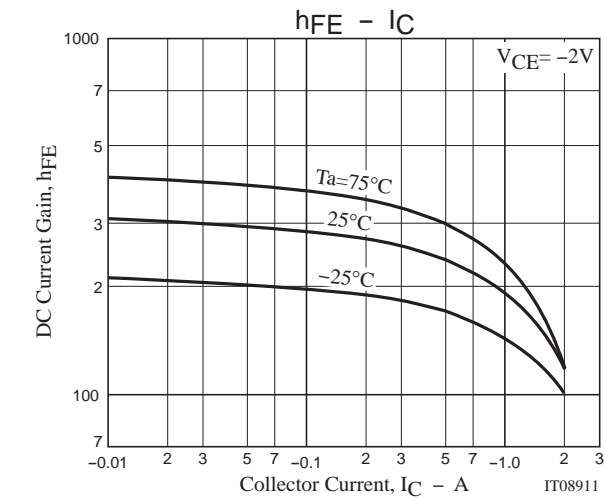


$$I_C = 20I_{B1} = -20I_{B2} = -500\text{mA}$$

Ordering Information

Device	Package	Shipping	memo
CPH3144-TL-E	CPH3	3,000pcs./reel	Pb Free





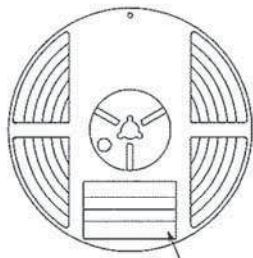
Embossed Taping Specification

CPH3144-TL-E

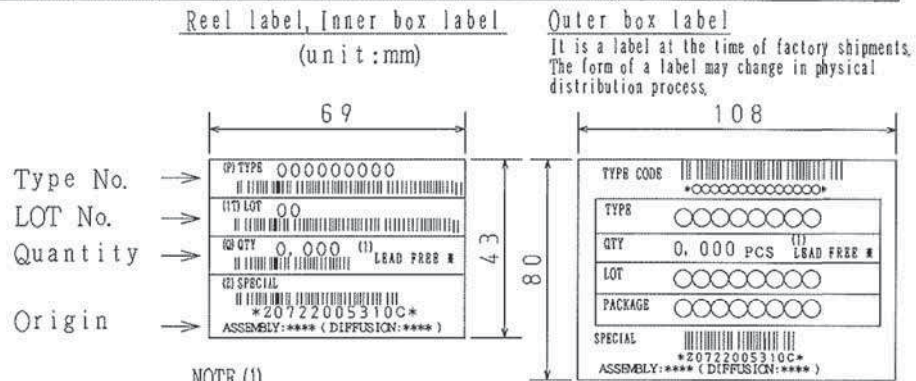
1. Packing Format

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

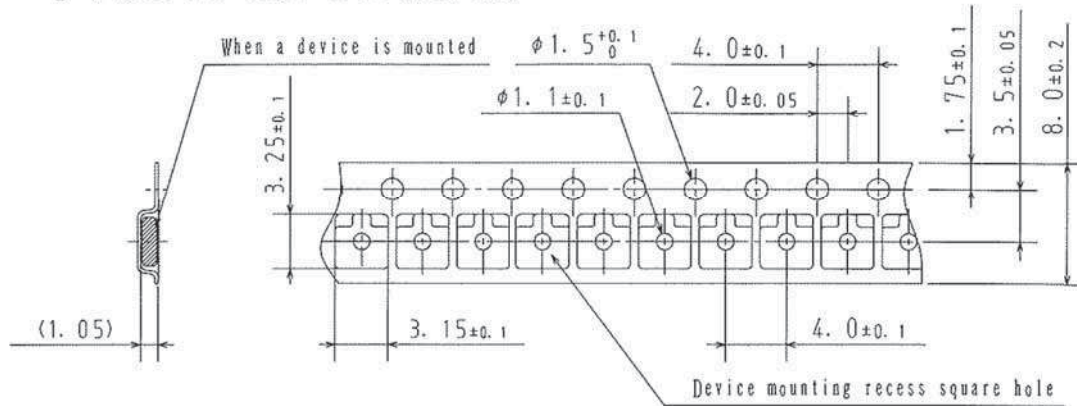


Reel label

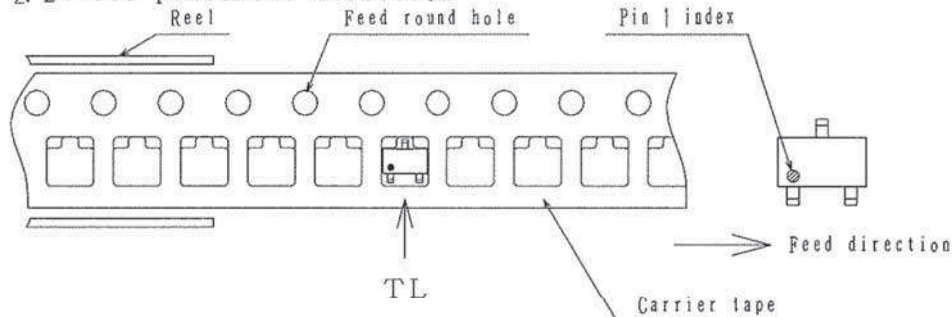


2. Taping configuration

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

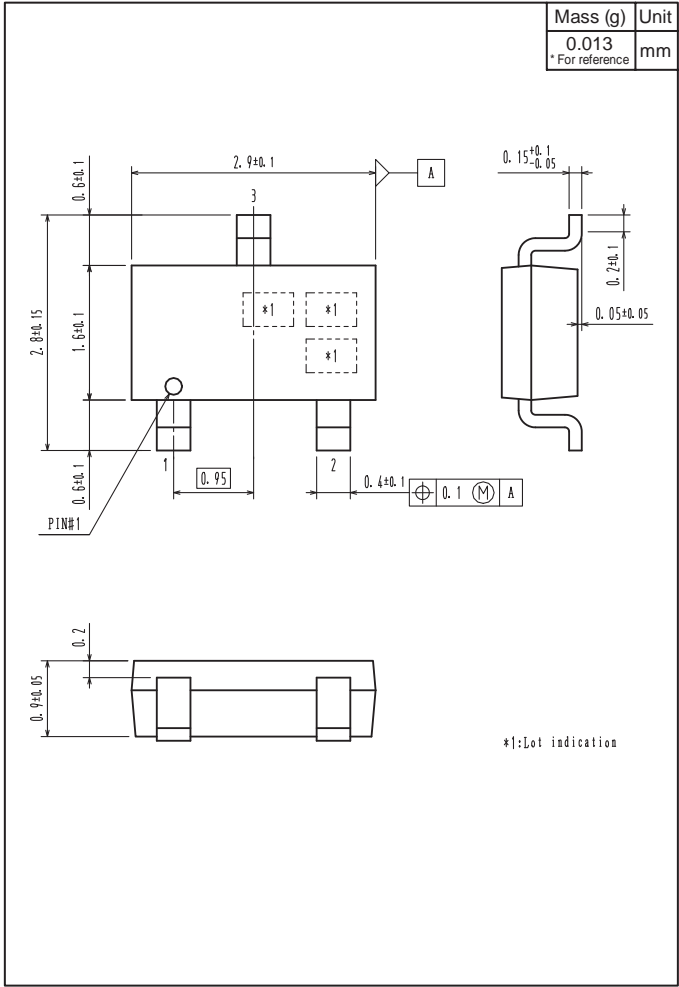


2-2. Device placement direction

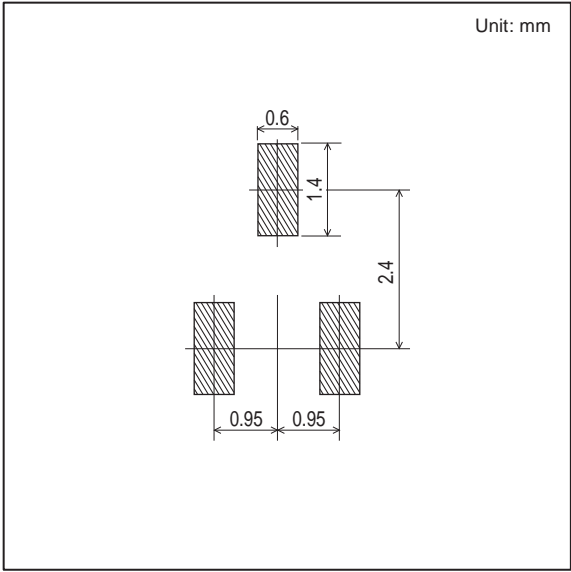


Those with one electrode terminal on the feed hole side.....TL

Outline Drawing
CPH3144-TL-E



Land Pattern Example



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