



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SC5994 — NPN Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment

Features

- Adoption of MBIT process
- Low collector-to-emitter saturation voltage
- Large current capacity
- High-speed switching

Specifications

Absolute Maximum Ratings at Ta=25°C

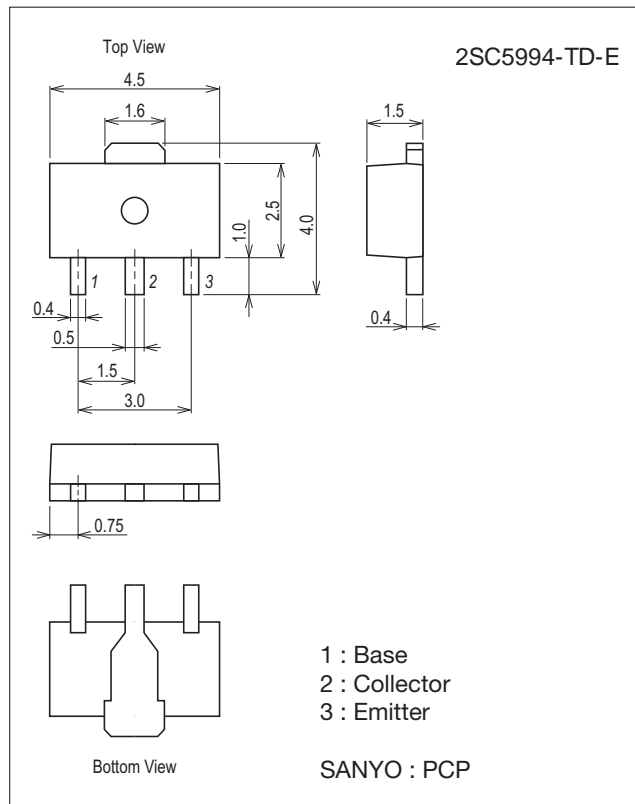
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		100	V
Collector-to-Emitter Voltage	VCES		100	V
	VCEO		50	V
Emitter-to-Base Voltage	VEBO		6	V
Collector Current	IC		2	A
Collector Current (Pulse)	ICP		4	A
Base Current	IB		400	mA

Continued on next page.

Package Dimensions

unit : mm (typ)

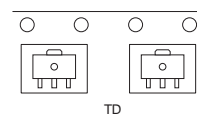
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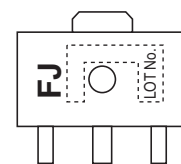
Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

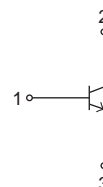
Packing Type: TD



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

<http://www.sanyosemi.com/en/network/>

2SC5994

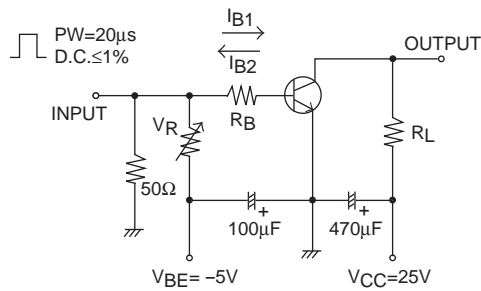
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Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	PC	When mounted on ceramic substrate (450mm ² ×0.8mm)	1.3	W
		T _c =25°C	3.5	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CBO}	V _{CB} =50V, I _E =0A			1	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =4V, I _C =0A			1	μA
DC Current Gain	h _{FE1}	V _{CE} =2V, I _C =100mA	200		560	
	h _{FE2}	V _{CE} =2V, I _C =1.5A	40			
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _C =300mA		420		MHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=1MHz		9		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =1A, I _B =50mA		135	300	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =1A, I _B =50mA		0.9	1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =10μA, I _E =0A	100			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CES}	I _C =100μA, R _{BE} =0Ω	100			V
	V _{(BR)CEO}	I _C =1mA, R _{BE} =∞	50			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.		30		ns
Storage Time	t _{stg}			330		ns
Fall Time	t _f			40		ns

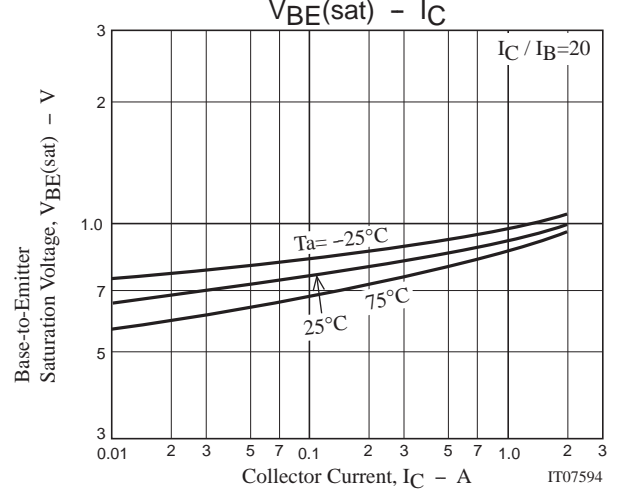
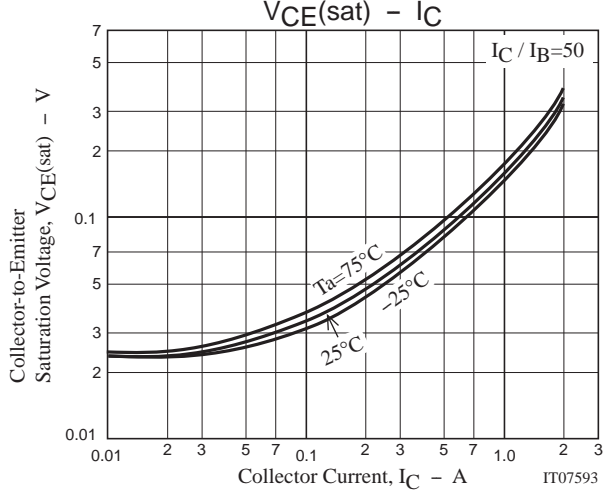
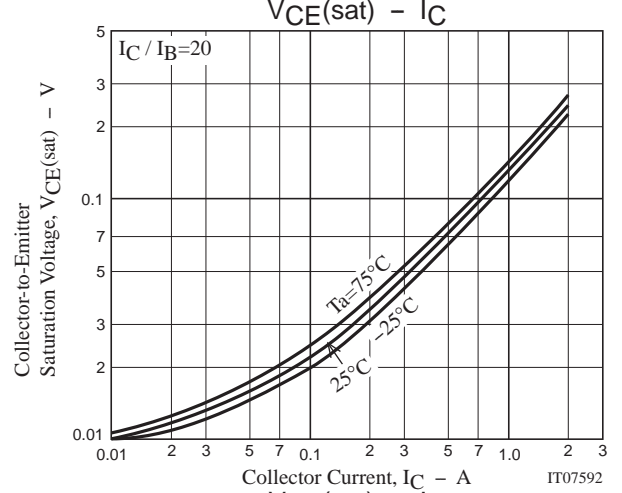
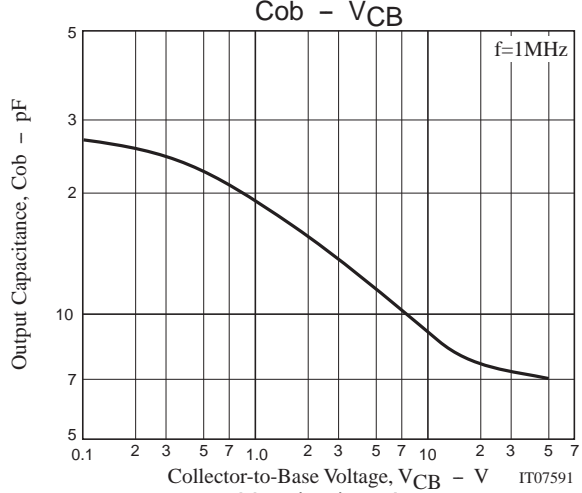
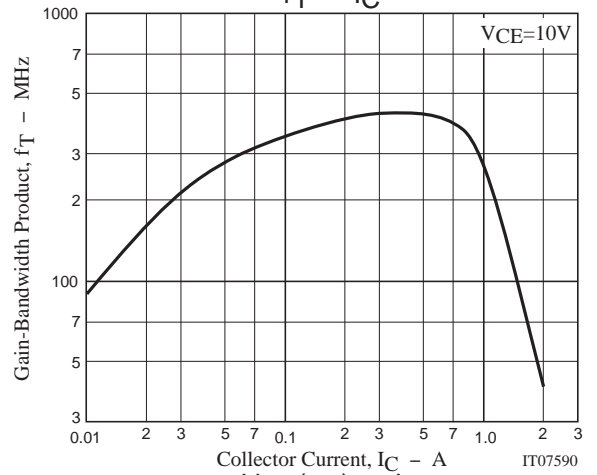
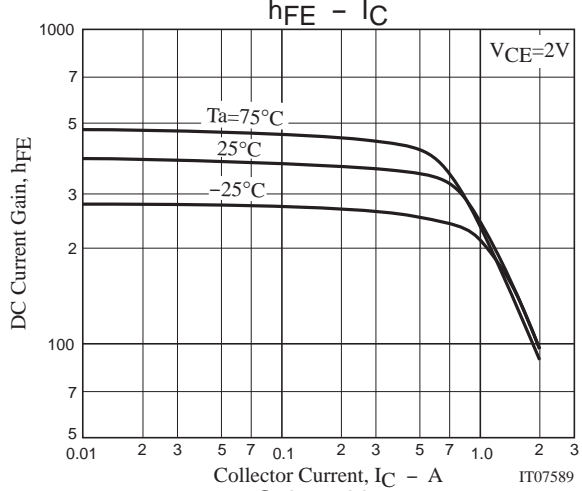
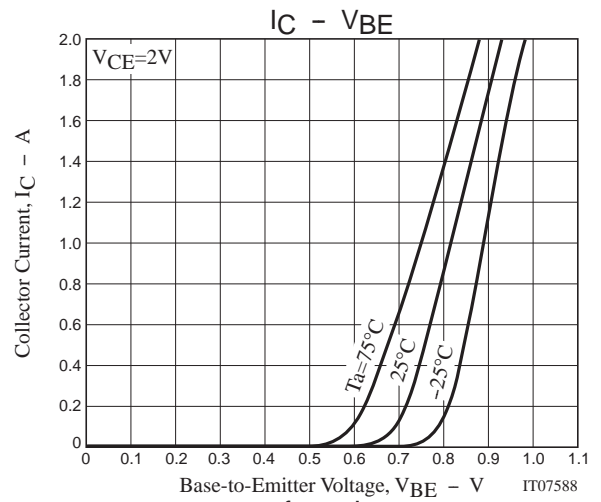
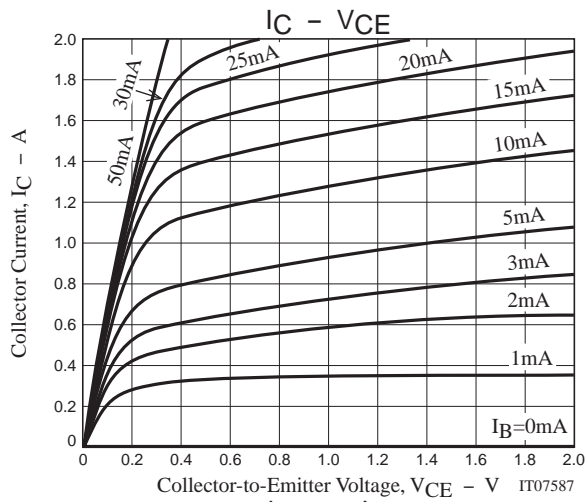
Switching Time Test Circuit

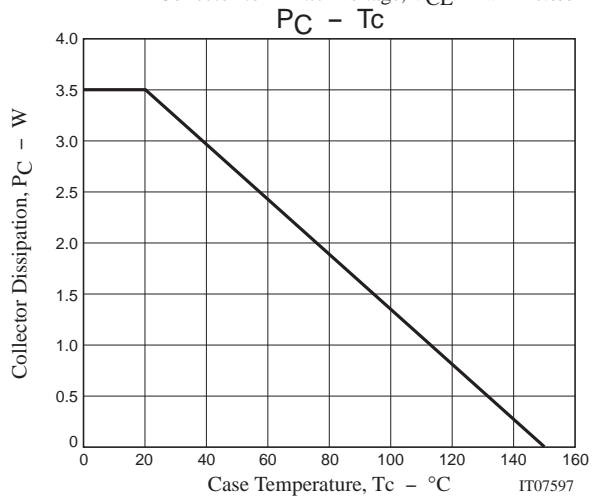
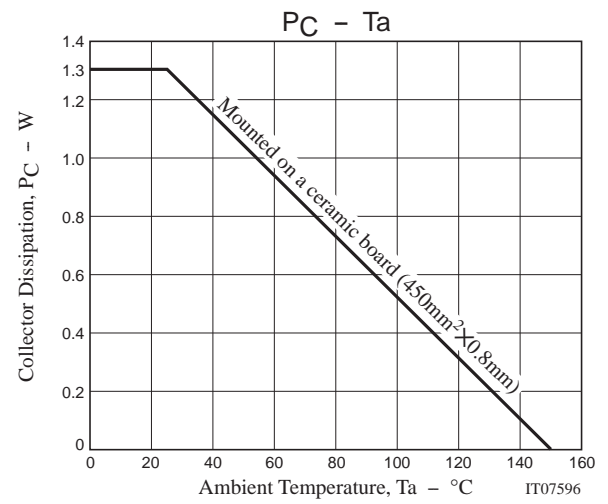
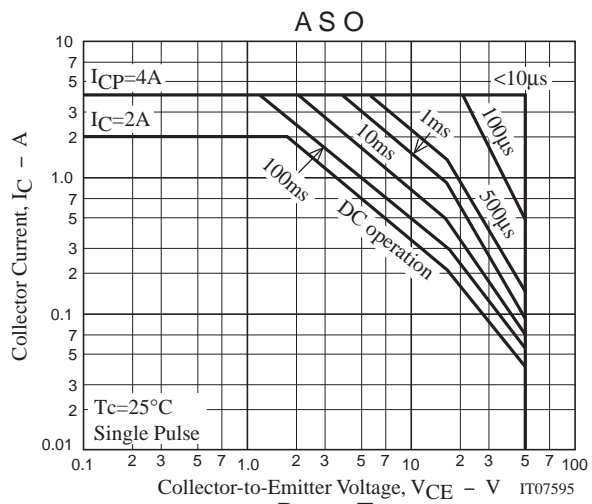


$$I_C = 10I_{B1} = -10I_{B2} = 700\text{mA}$$

Ordering Information

Device	Package	Shipping	memo
2SC5994-TD-E	PCP	1,000pcs./reel	Pb Free





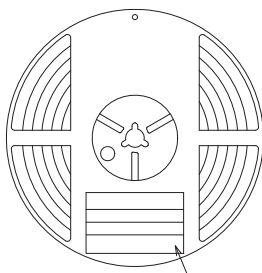
Embossed Taping Specification

2SC5994-TD-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)
PCP	PCP	1,000	4,000	24,000	4 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label
(unit:mm)

(P) TYPE	000000000
(15) LOT	00
(Q) QTY	0,000 (1) LEAD FREE #
(2) SPECIAL	*Z0722005310C*
ASSEMBLY:**** (DIFFUSION:****)	

Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

TYPE CODE	*****
TYPE	*****
QTY	0,000 PCS (1) LEAD FREE #
LOT	*****
PACKAGE	*****
SPECIAL	*Z0722005310C*
ASSEMBLY:**** (DIFFUSION:****)	

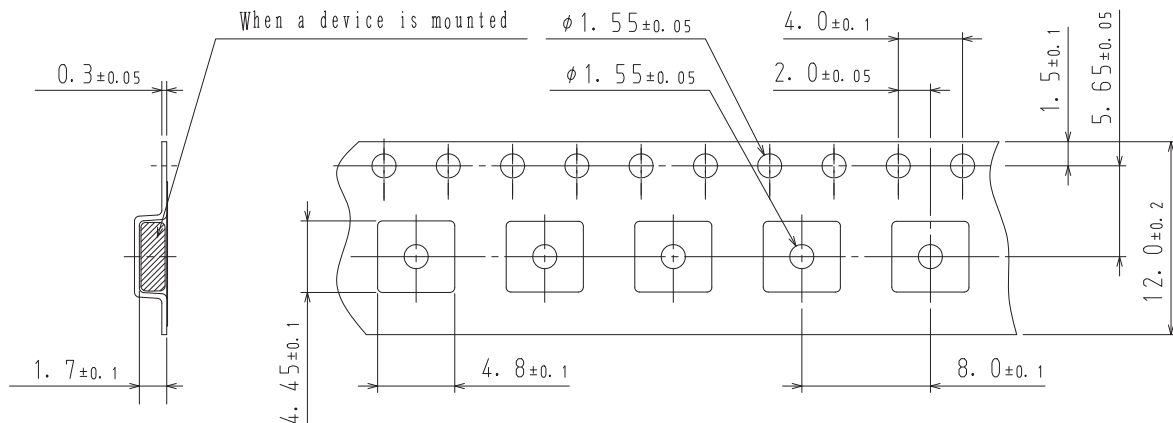
NOTE (1)

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

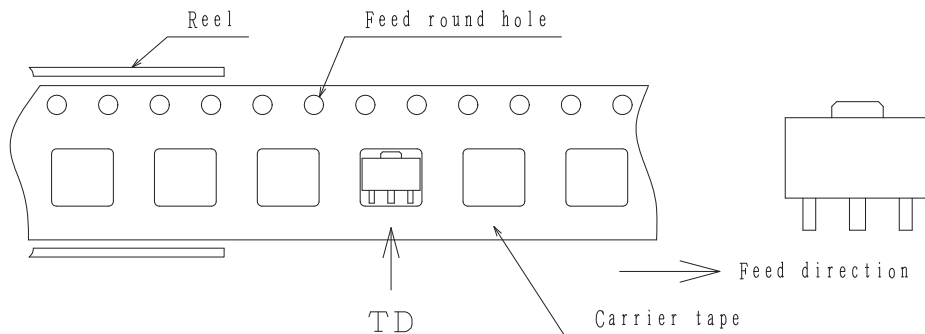
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

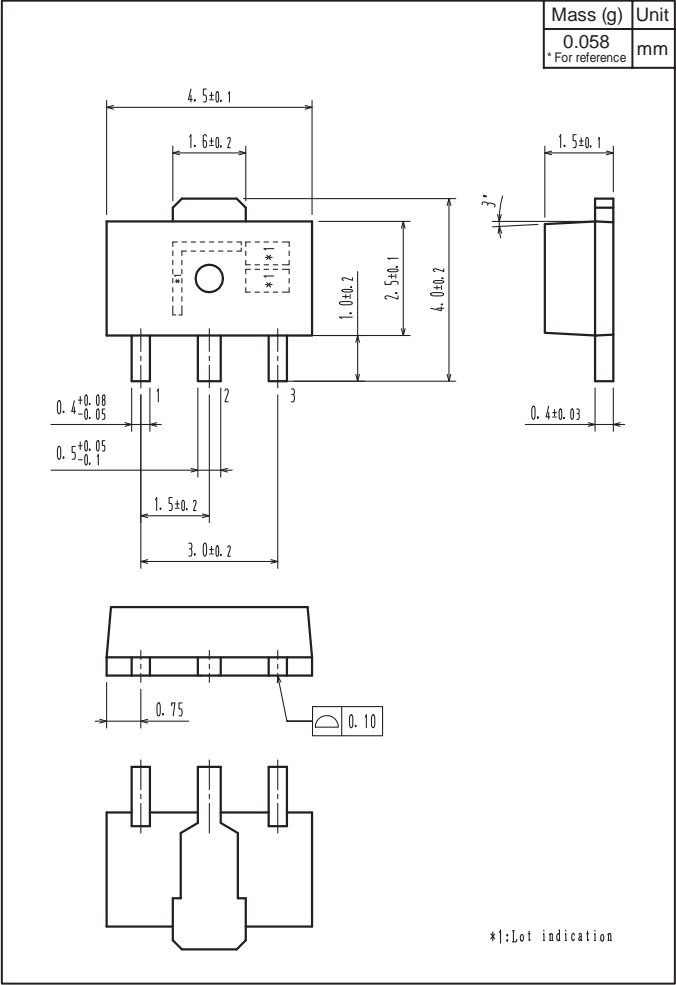
2-1. Carrier tape size (unit:mm)



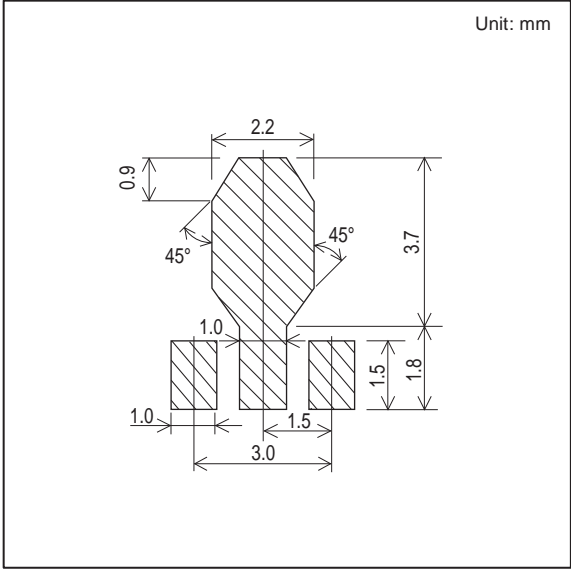
2-2. Device placement direction



Outline Drawing
2SC5994-TD-E



Land Pattern Example



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