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2SC5994

Bipolar Transistor 50V, 2A, Low $V_{CE(sat)}$, NPN Single PCP

Applicaitons

- 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 $T_a=25^\circ\text{C}$

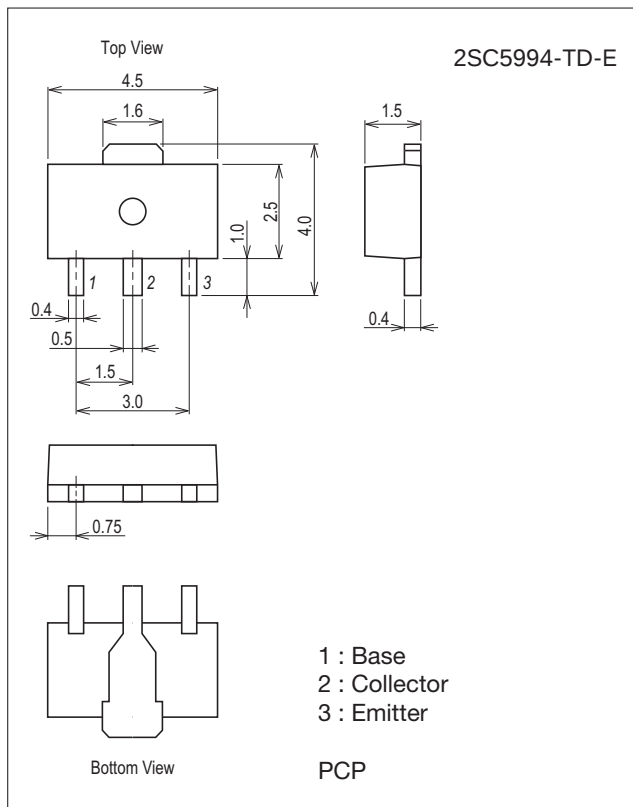
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		100	V
Collector-to-Emitter Voltage	V_{CES}		100	V
	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}		4	A
Base Current	I_B		400	mA

Continued on next page.

Package Dimensions

unit : mm (typ)

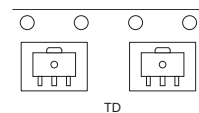
7007B-004



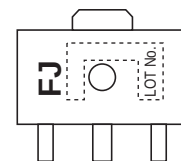
Product & Package Information

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

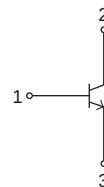
Packing Type: TD



Marking



Electrical Connection



Continued from preceding page.

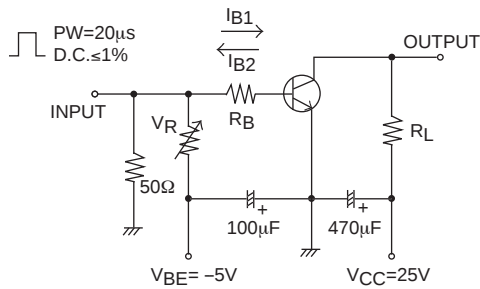
Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	P _C	When mounted on ceramic substrate (450mm ² ×0.8mm)	1.3	W
		T _C =25°C	3.5	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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.

Electrical Characteristics at T_a=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

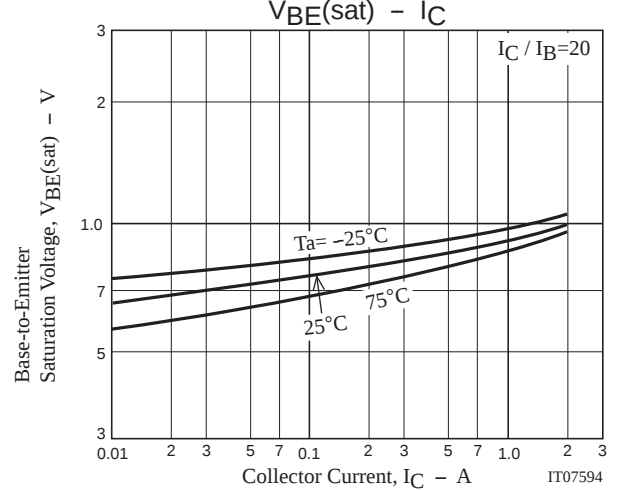
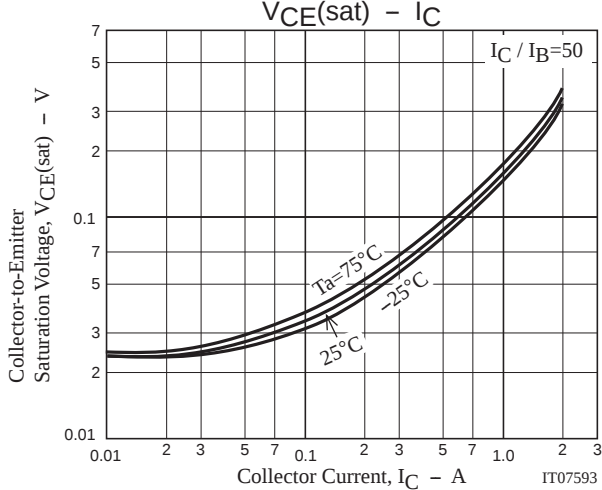
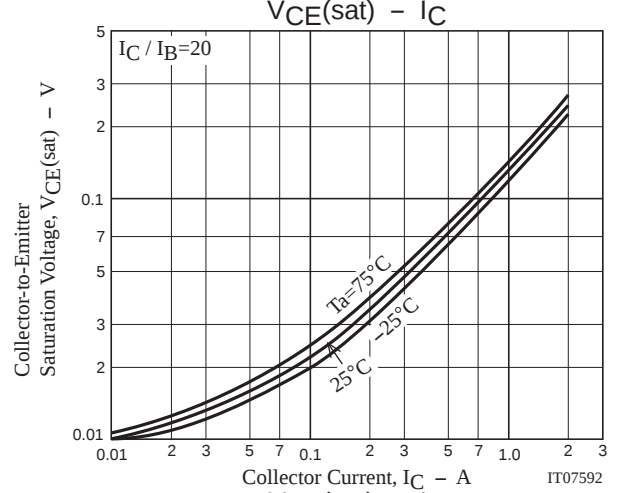
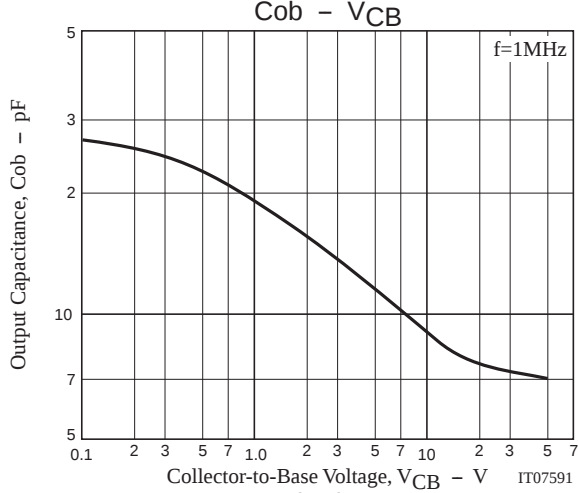
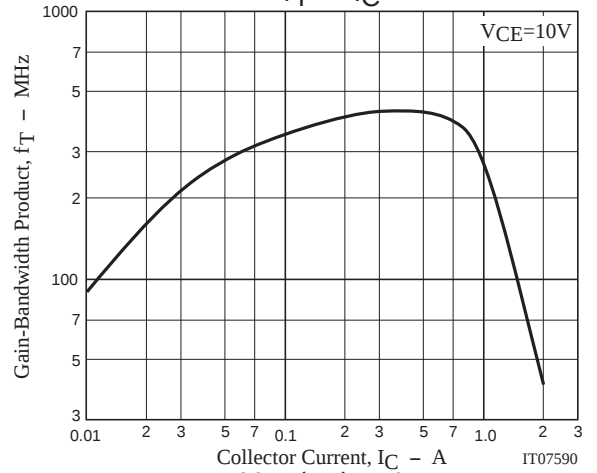
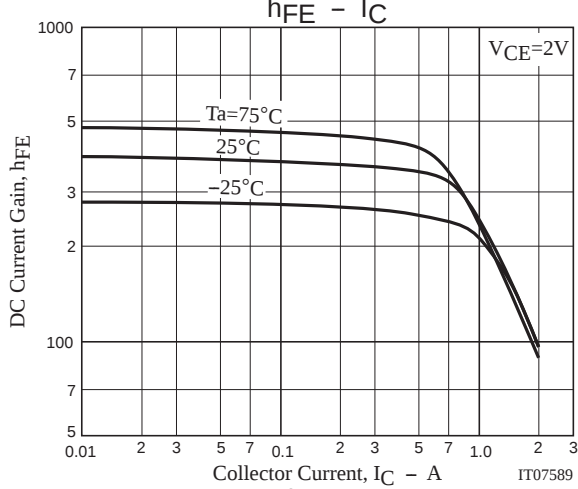
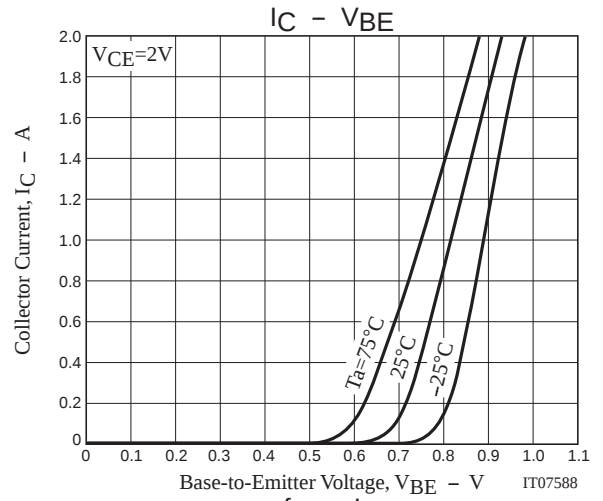
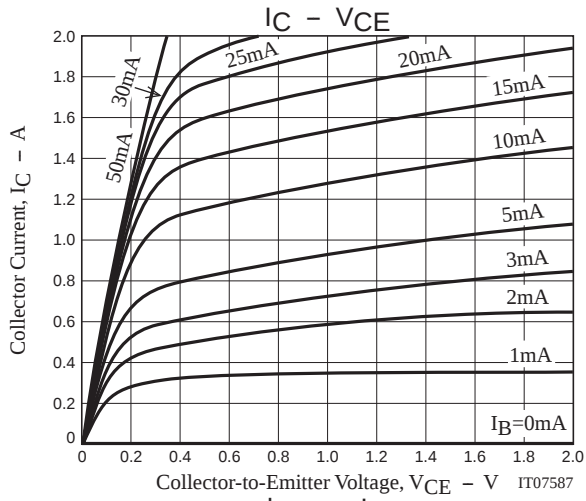
Switching Time Test Circuit

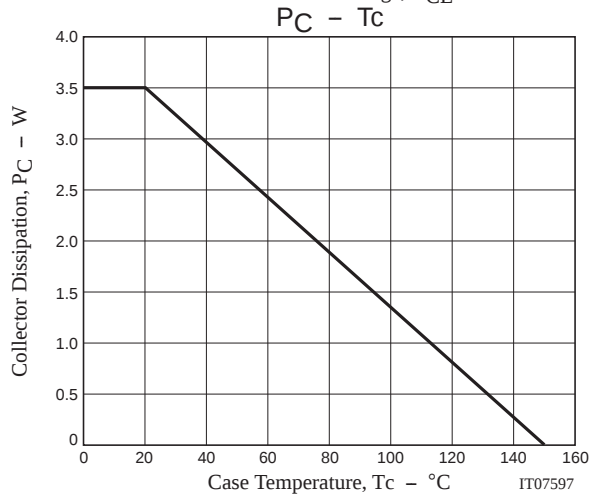
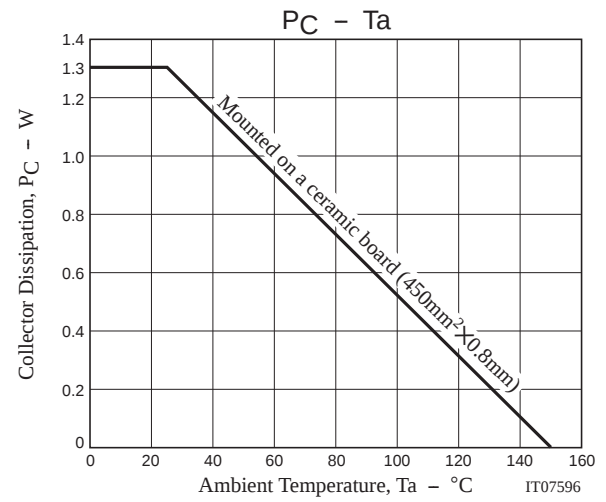
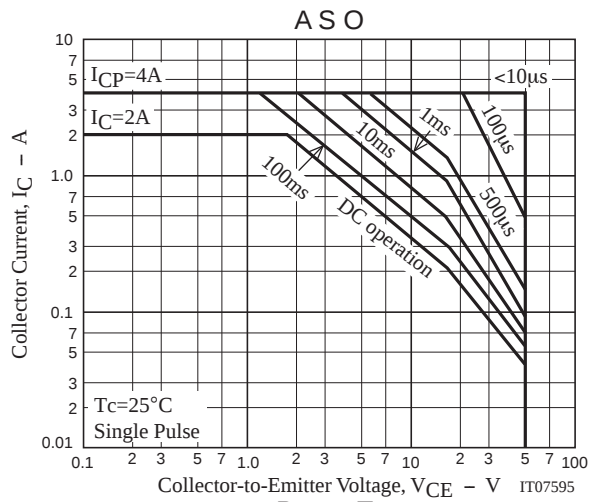


$$I_C=10I_{B1}=-10I_{B2}=700\text{mA}$$

Ordering Information

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





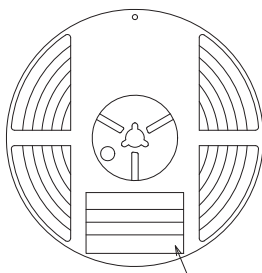
Embossed Taping Specification

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



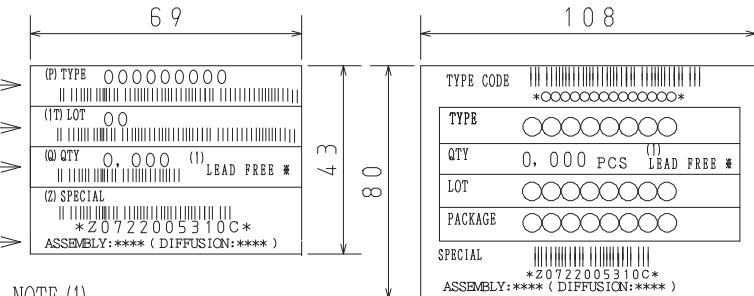
Reel label

Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label
(unit:mm)

Outer box label

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



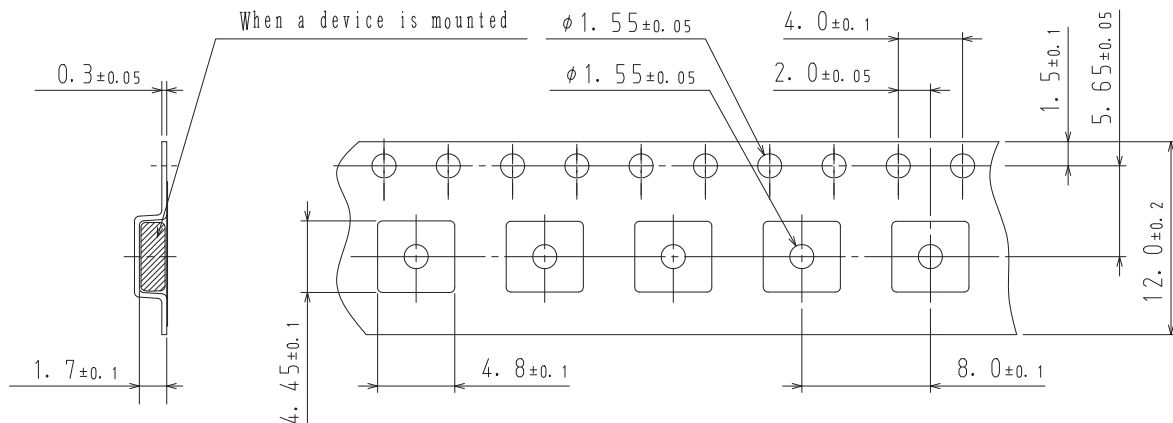
NOTE (1)

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

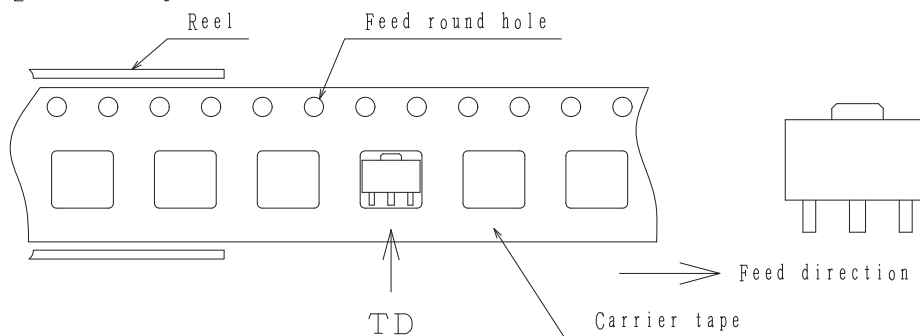
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

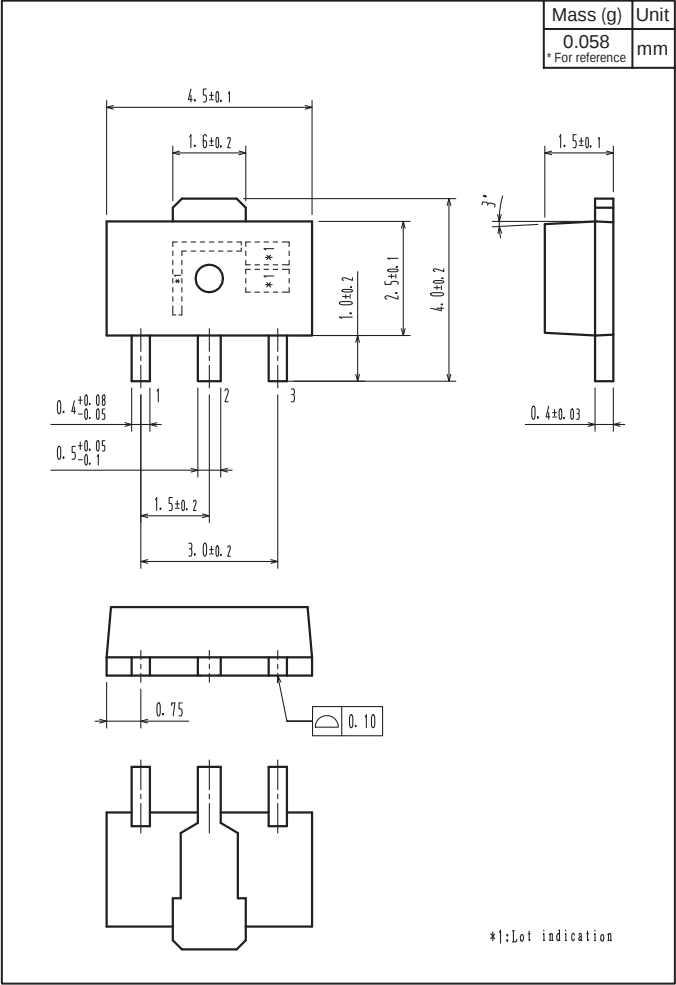


2-2. Device placement direction

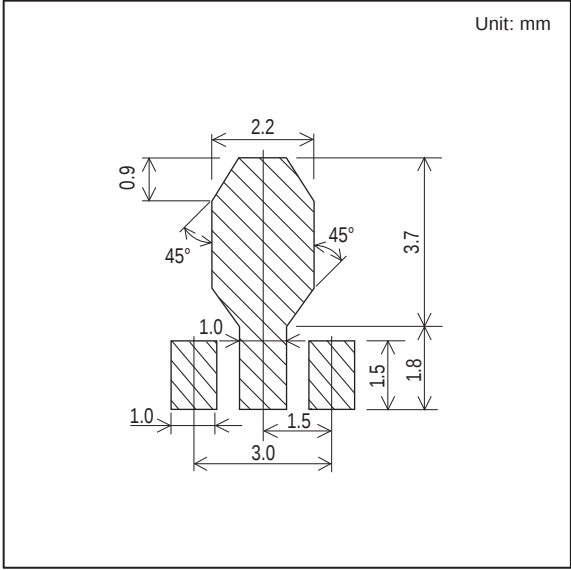


Those with pin 1 index on the feed hole side.....TD

Outline Drawing
2SC5994-TD-E



Land Pattern Example



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