



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SC3332 — NPN Epitaxial Planar Silicon Transistor High-Voltage Switching Applications

Features

- High breakdown voltage
- Excellent hFE linearity
- Wide ASO and highly resistant to breakdown
- Adoption of MBIT process

Specifications

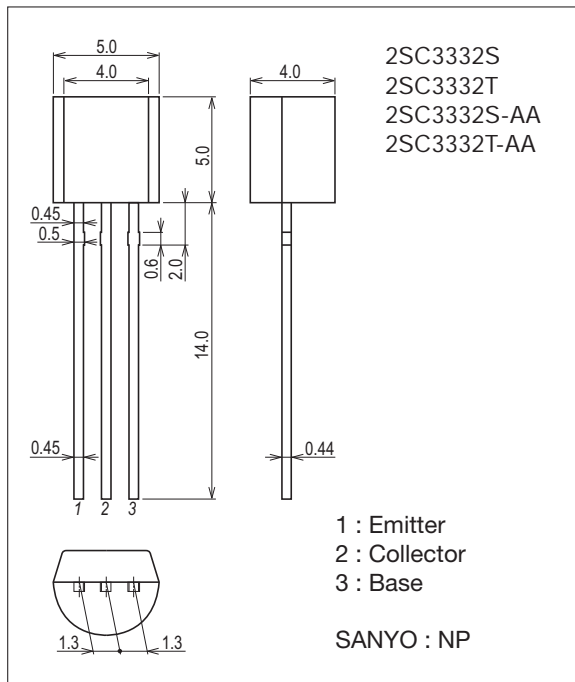
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		180	V
Collector-to-Emitter Voltage	VCEO		160	V
Emitter-to-Base Voltage	VEBO		6	V
Collector Current	IC		0.7	A
Collector Current (Pulse)	ICP		1.5	A
Collector Dissipation	PC		700	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Package Dimensions

unit : mm (typ)

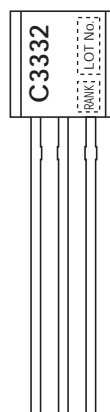
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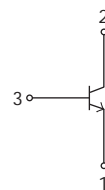
Product & Package Information

- Package : NP
- JEITA, JEDEC : SC-34A, TO-92, TO-226AA, SOT-54
- Minimum Packing Quantity : 1,500 pcs./box, 500pcs./bag

Marking



Electrical Connection



2SC3332

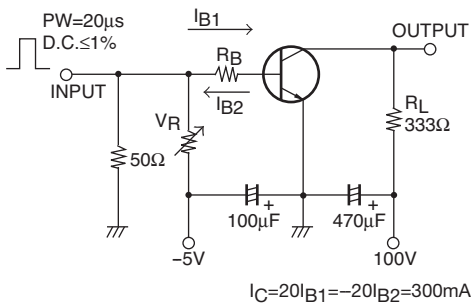
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =120V, I _E =0A			0.1	μA
Emitter Cutoff Current	IEBO	V _{EB} =4V, I _C =0A			0.1	μA
DC Current Gain	h _{FE1}	V _{CE} =5V, I _C =100mA	100*		400*	
	h _{FE2}	V _{CE} =5V, I _C =10mA	80			
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _C =50mA		120		MHz
Output Capacitance	C _{ob}	V _{CB} =10V		8		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =250mA, I _B =25mA		0.12	0.4	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =250mA, I _B =25mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =10μA, I _E =0A	180			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =1mA, R _{BE} =∞	160			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.		50		ns
Storage Time	t _{stg}			1000		ns
Fall Time	t _f			60		ns

* : The 2SC3332 is classified by 100mA h_{FE} as follows :

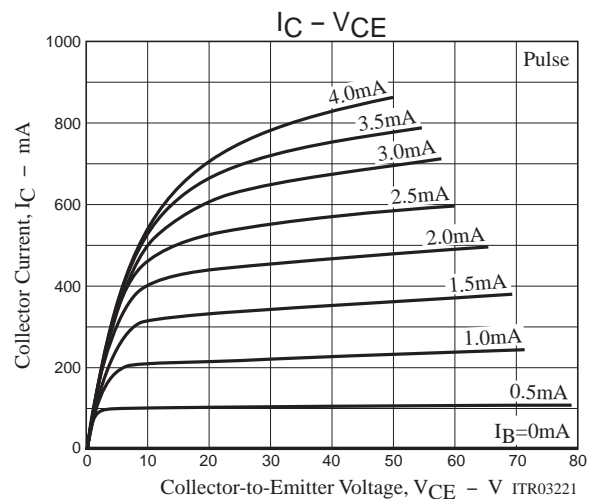
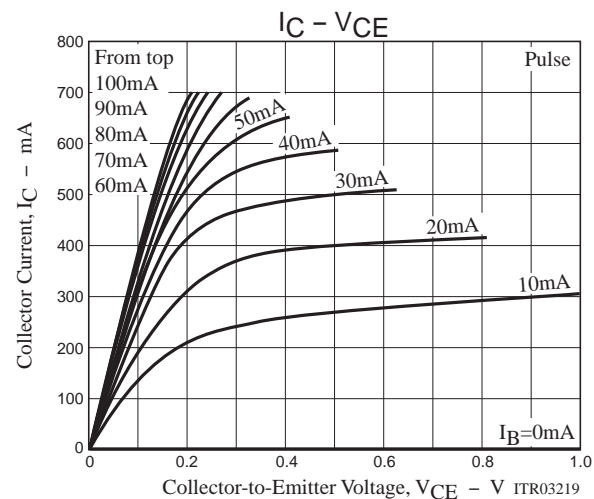
Rank	R	S	T
h _{FE}	100 to 200	140 to 280	200 to 400

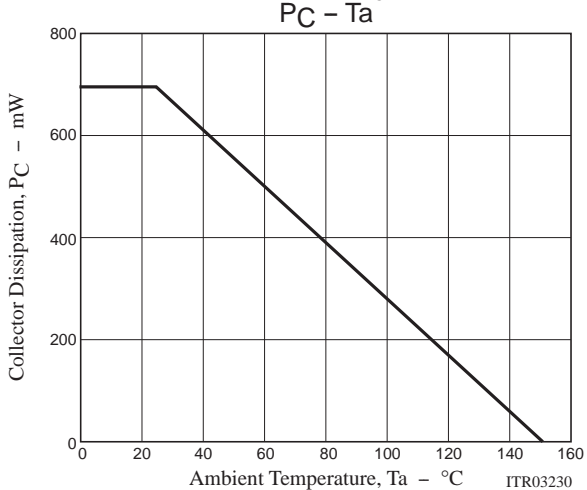
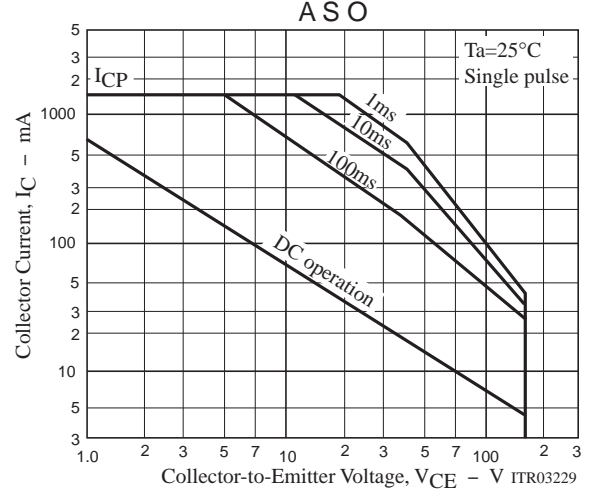
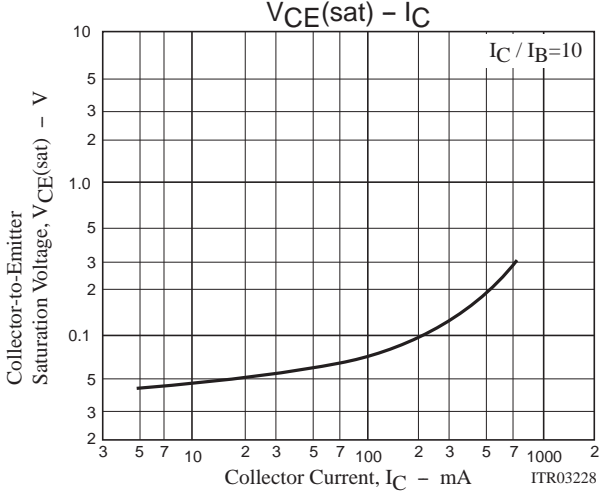
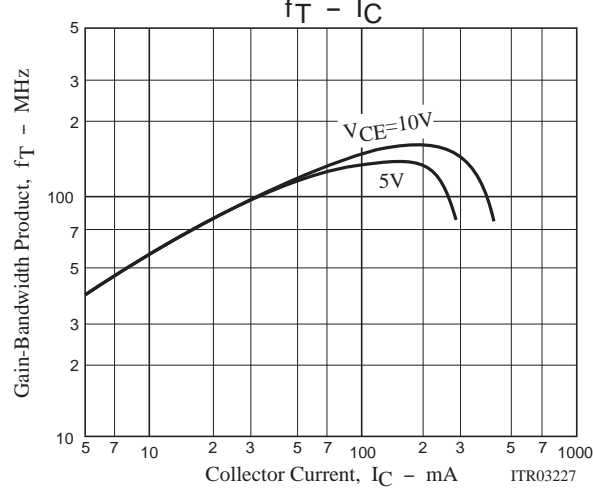
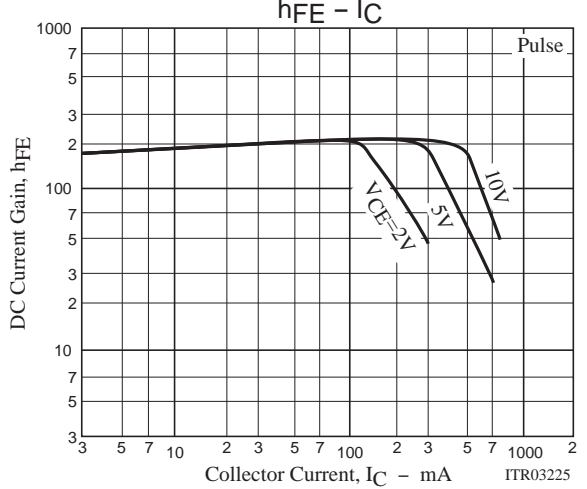
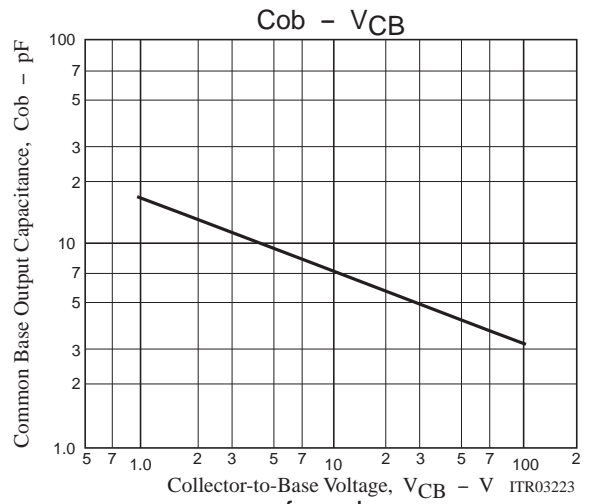
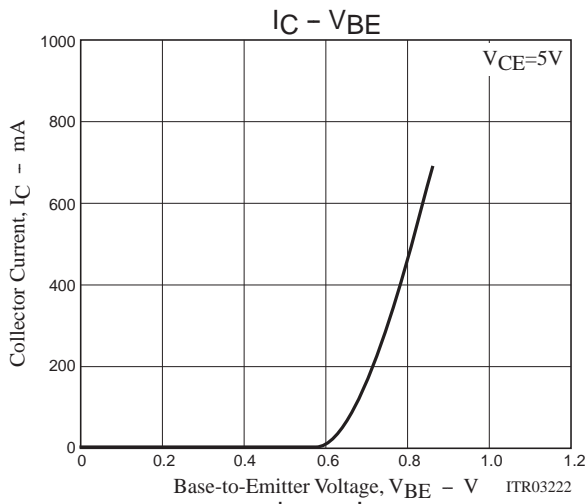
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SC3332S	NP	500pcs./bag	Pb Free
2SC3332T	NP	500pcs./bag	
2SC3332S-AA	NP	1,500pcs./box	
2SC3332T-AA	NP	1,500pcs./box	





Taping Specification

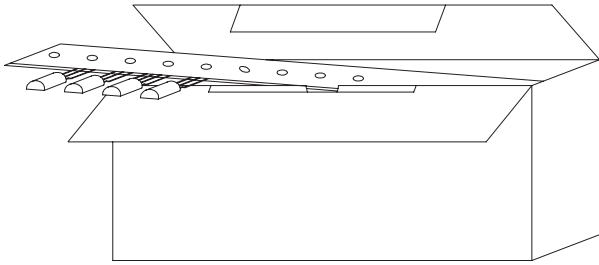
2SC3332S-AA, 2SC3332T-AA

1. Packing Format

Package Name	Packing Type	Maximum Number of devices contained (pcs)		Packing format
		Inner BOX (C-2)	number of contained	
N P	A A	Dimensions:mm (external) 330×45×145	1,500	16 inner boxes contained (24,000pcs) Dimensions:mm (external) 585×345×200

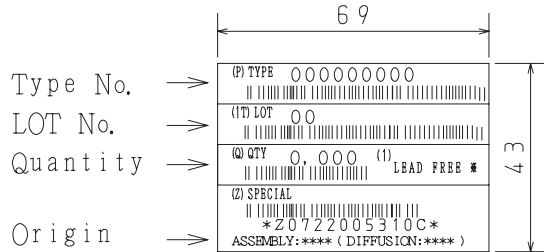
Packing method

Put zigzag folding in an inner box.



Inner box label

(unit:mm)



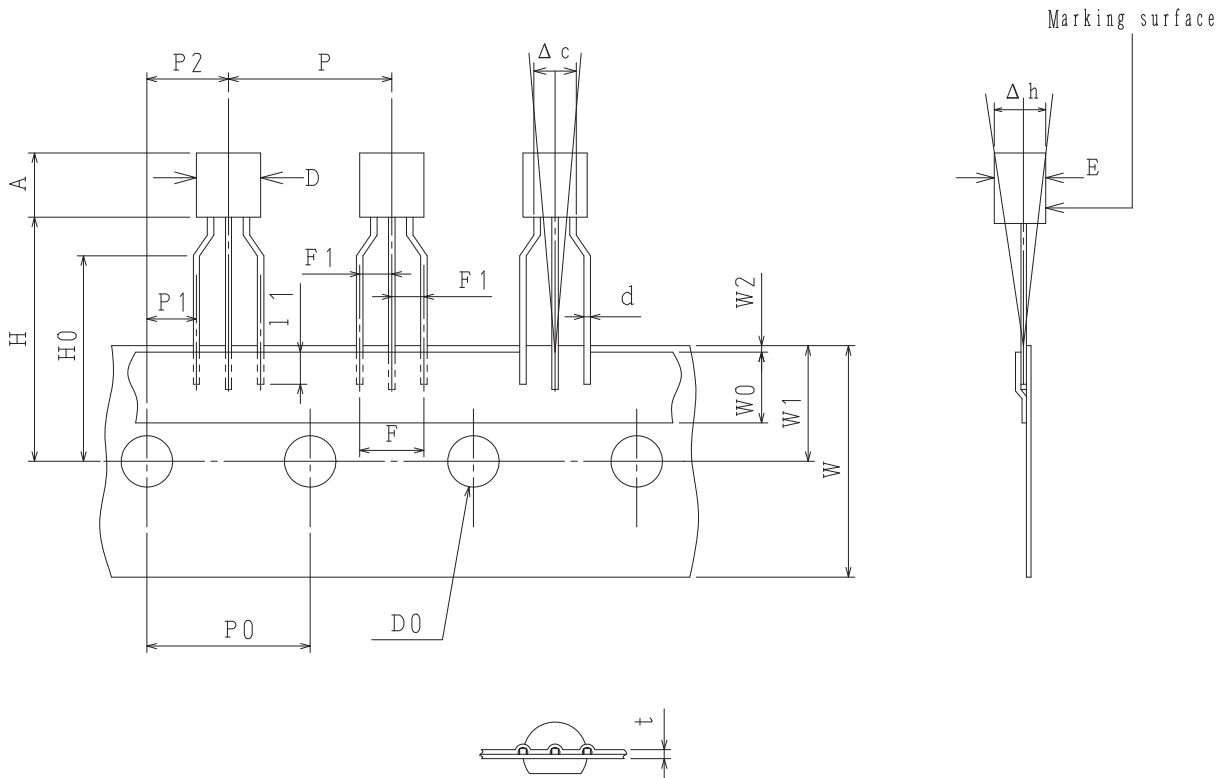
NOTE (1)

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 specifications

2-1. Carrier tape size



2-2. Taping size standard

unit:mm

Item	Symbol	Standard	Tolerance	
Work piece outside diameter	D	5.0	± 0.2	
	E	4.0	± 0.2	
Work piece height	A	5.0	± 0.2	
Lead wire diameter	d	0.45x0.44t	± 0.1	
Bonded lead wire	l 1	2.0MIN		
Pitch between products	P	12.7	± 0.5	
Pitch between perforations	P 0	12.7	± 0.2	
Distance between lead wire	F	5.0	$\begin{matrix} +0.8 \\ -0.2 \end{matrix}$	
Lead wire pitch distance	F 1	2.5	$\begin{matrix} +0.2 \\ -0.1 \end{matrix}$	
Product inclination	Δh	0	± 2.0	
Displacement of perforations	P 1	3.85	± 0.3	Measurement position is the bottom of the clinch
	P 2	6.35	± 0.3	
Displacement of tape	W 2	0.5MAX		Not to be displaced to the outside of the board
Tape width	W	18.0	$\begin{matrix} +1.0 \\ -0.5 \end{matrix}$	
Adhesive tape	W 0	6.0	± 1.5	
Displacement of perforations	W 1	9.0	± 0.5	
Work piece bottom surface position	H	19.0	± 1.0	
Insert stopper position	H 0	16.0	± 0.5	
Work piece upper limit position	H 1	24.5	± 1.5	
Perforations diameter	D 0	$\phi 4.0$	± 0.2	
Tape thickness	t	0.6	± 0.2	
Product inclination	Δc	0	± 1.0	

Bag Packing Specification

2SC3332S, 2SC3332T

1. Packing condition

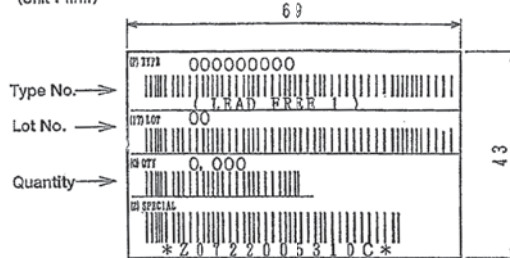
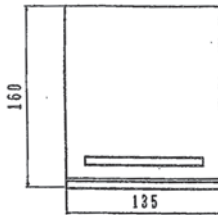
Storage package outline name	Maximum number of devices contained (pcs.)		Packing condition	
	Bags	Inner box	Devices contained	Outer box (A-1)
NP	500	B-1 Inner box dimensions : mm (external) 445×225×55	10,000	Outer box (A-1) 5 inner boxes contained 50,000 Outer box dimensions : mm (external) 470 × 250 × 300
				Outer box (A-2) 3 inner boxes contained 30,000 Outer box dimensions : mm (external) 470 × 250 × 190

3. Bar code label

(Unit : mm)

2. Bag dimensions

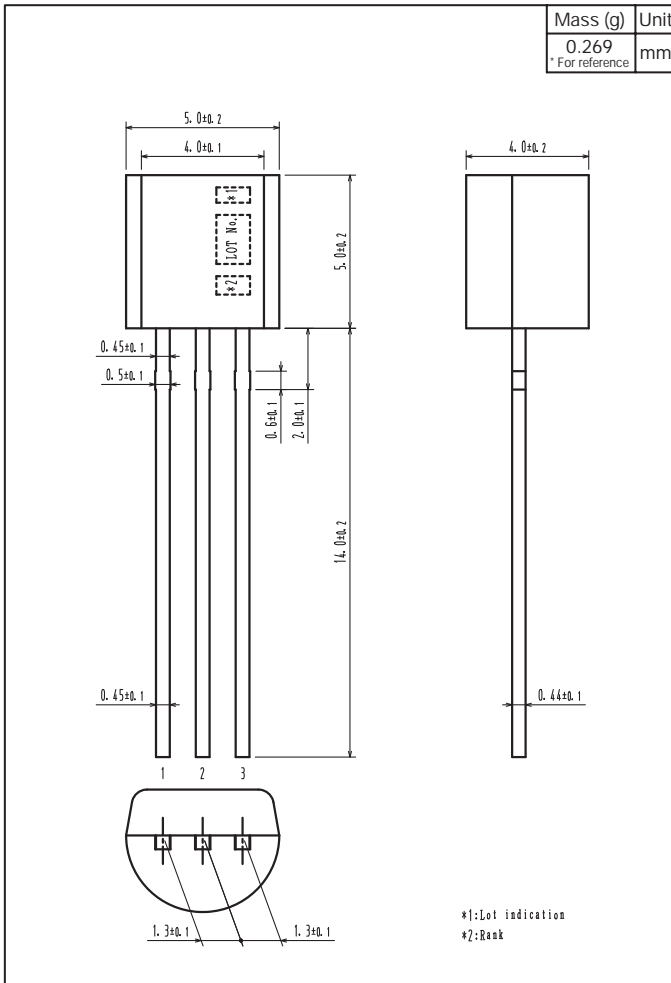
(Unit : mm)



*LEAD FREE 1 :
Lead-free External terminal surface treatment product.

Outline Drawing

2SC3332S, 2SC3332T



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