



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SA1706 — PNP Epitaxial Planar Silicon Transistor High-Current Switching Applications

Applications

- Voltage regulators, relay drivers, lamp drivers

Features

- Adoption of FBET, MBIT processes
- Large current capacity and wide ASO
- Fast switching speed

Specifications

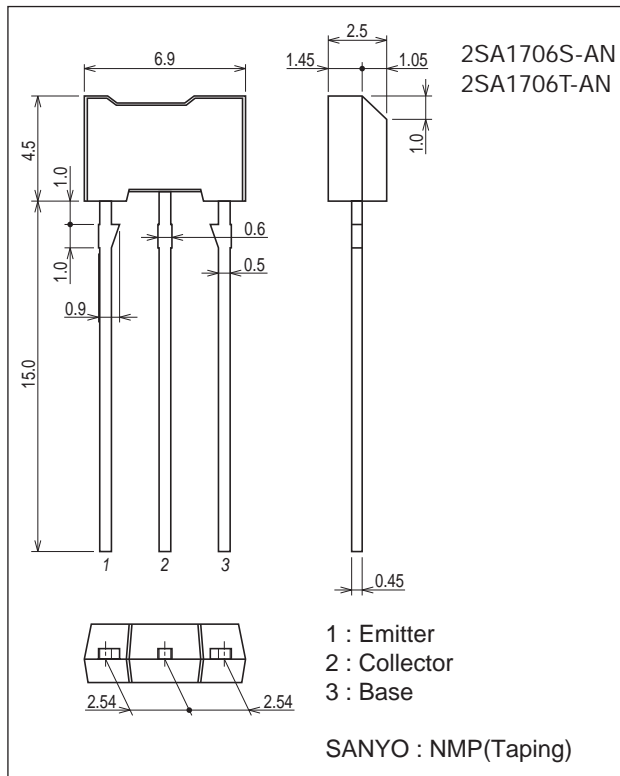
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		-60	V
Collector-to-Emitter Voltage	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
Collector Dissipation	PC		1	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

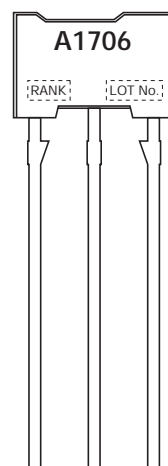
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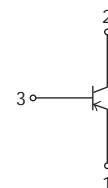
Product & Package Information

- Package : NMP(Taping)
- JEITA, JEDEC : SC-71
- Minimum Packing Quantity : 2,500 pcs./box

Marking(NMP(Taping))



Electrical Connection



2SA1706

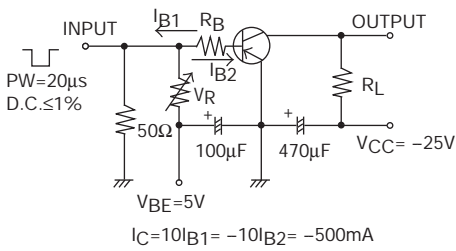
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =-50V, I _E =0A			-100	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} =-4V, I _C =0A			-100	nA
DC Current Gain	h _{FE1}	V _{CE} =-2V, I _C =-100mA	140*		400*	
	h _{FE2}	V _{CE} =-2V, I _C =-1.5A	40			
Gain-Bandwidth Product	f _T	V _{CE} =-10V, I _C =-50mA		150		MHz
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =-1A, I _B =-50mA		-0.3	-0.7	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =-1A, I _B =-50mA		-0.9	-1.2	V
Output Capacitance	C _{ob}	V _{CB} =-10V, f=1MHz		22		pF
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =-10μA, I _E =0A	-60			V
Collector-to-Emitter Breakdown Voltage	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.		60		ns
Storage Time	t _{stg}			450		ns
Fall Time	t _f			30		ns

* : The 2SA1706 is classified by 100mA h_{FE} as follows :

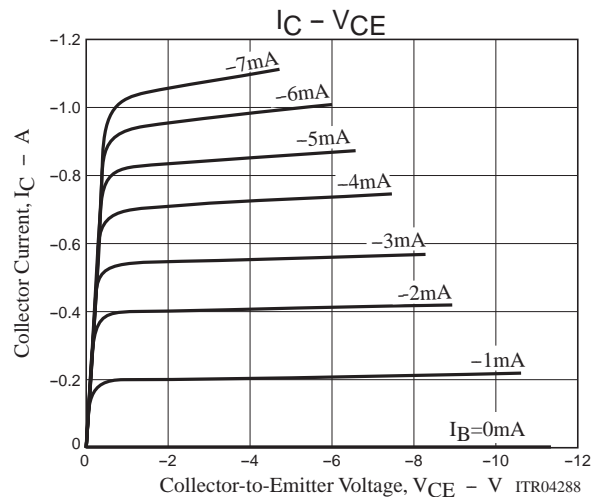
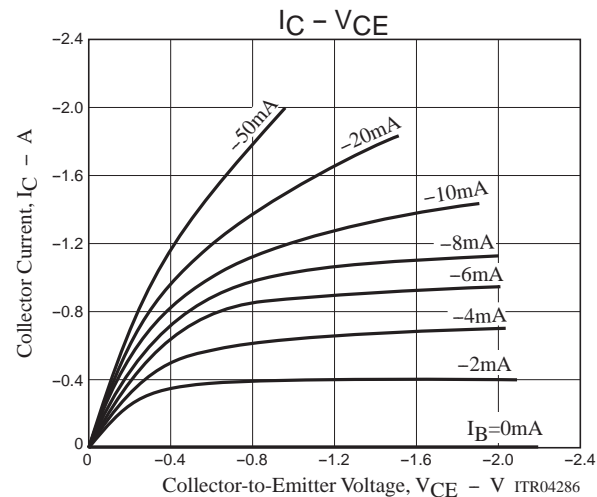
Rank	S	T
h _{FE}	140 to 280	200 to 400

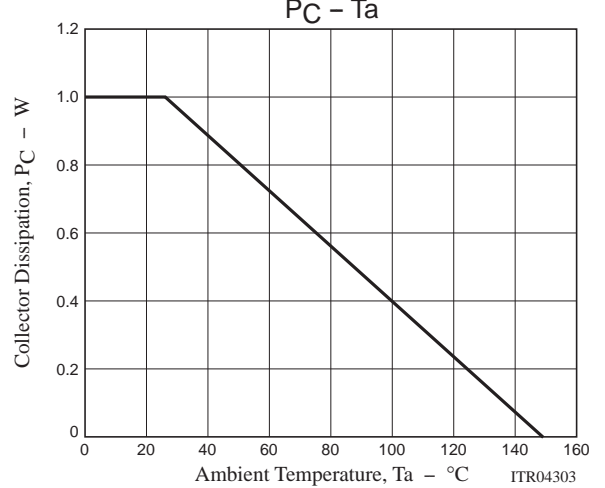
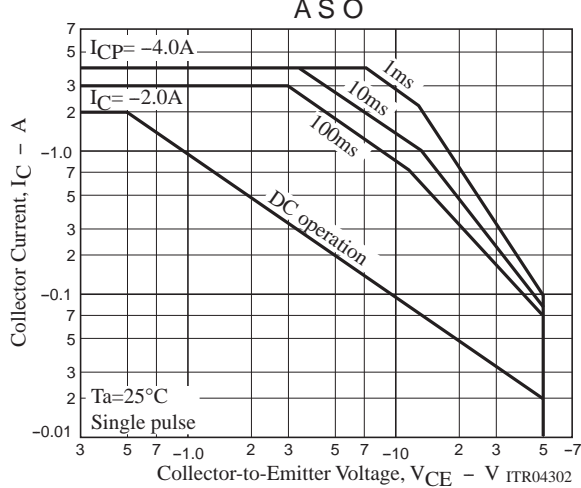
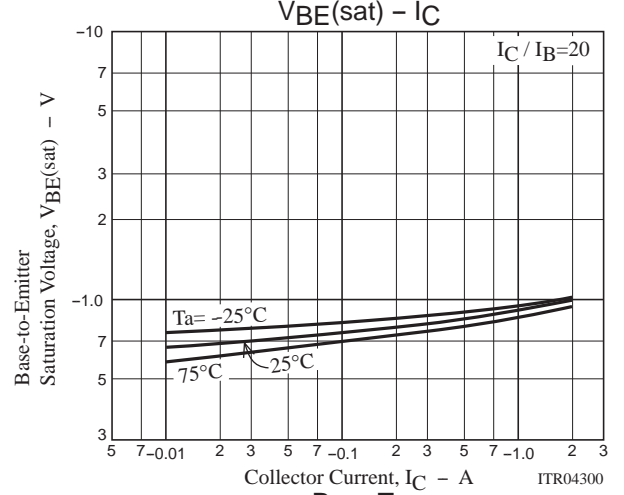
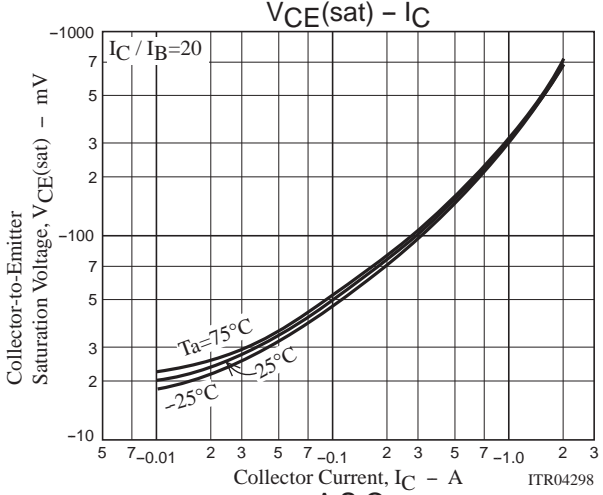
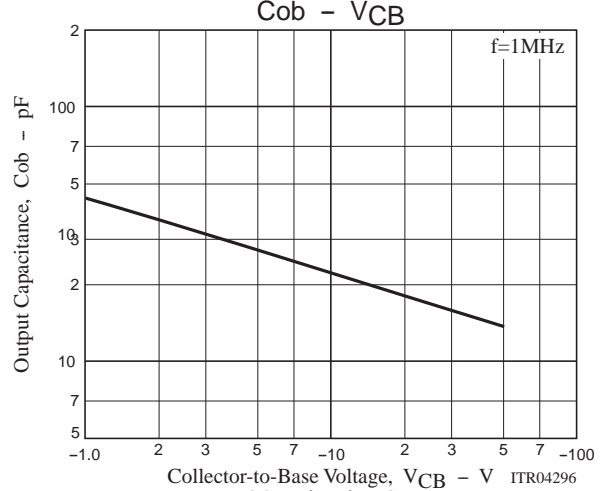
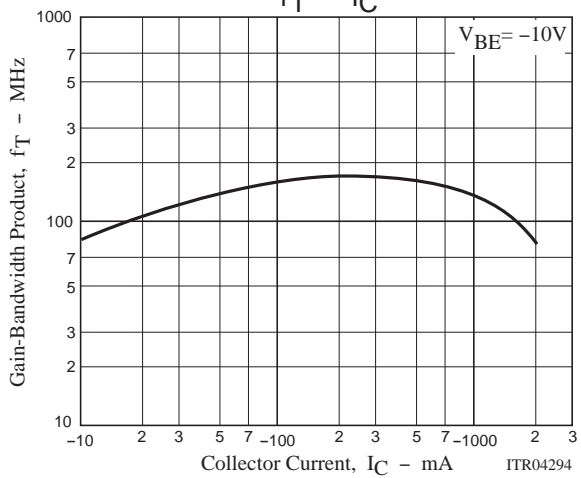
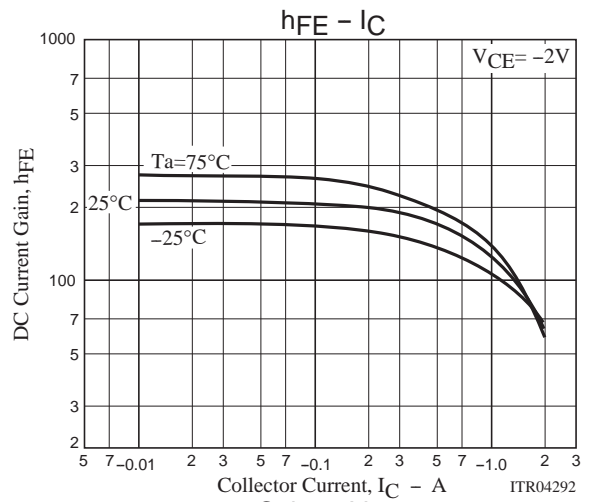
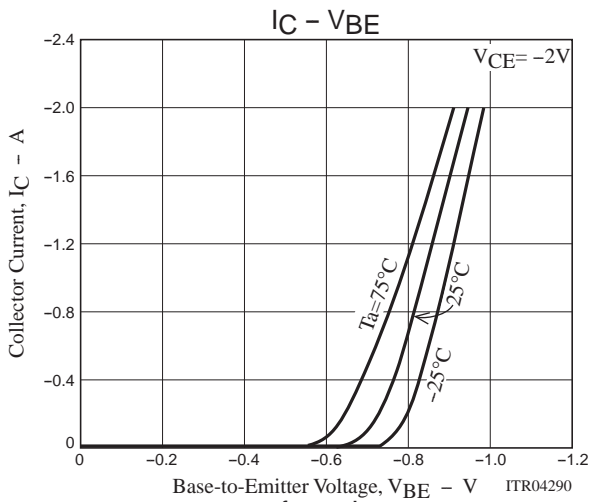
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SA1706S-AN	NMP(Taping)	2,500pcs./box	Pb Free
2SA1706T-AN	NMP(Taping)	2,500pcs./box	





Bag Packing Specification

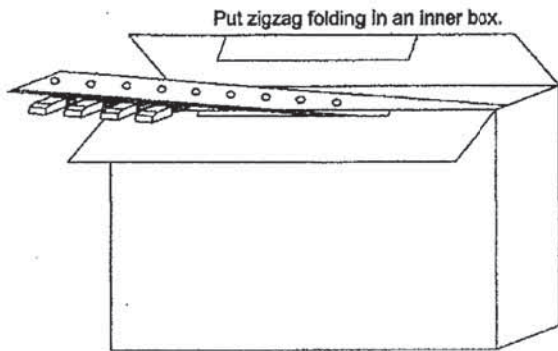
2SA1706S-AN, 2SA1706T-AN

NMP (Zigzag folding)

Storage package Outline name	Package type	Maximum Number of devices contained (pcs.)		Packing format	
		Inner box No.	Storage quantity	Outer box (C-6)	Outer box (C-8)
NMP	AN/AZ	C-3 Inner box Dimensions :mm(external) 330×45×125	2,500	8 inner boxes contained(20,000pcs.) Outer box Dimensions:mm(external) 585×345×195	4 inner boxes contained(10,000pcs.) Outer box Dimensions:mm(external) 345×300×195

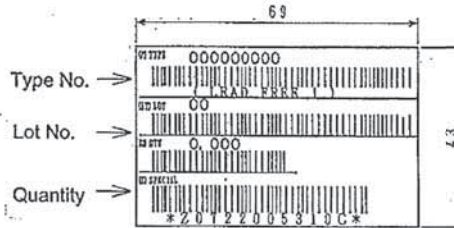
1. Packing format

Packing method



2. Bar code label

(Unit : mm)

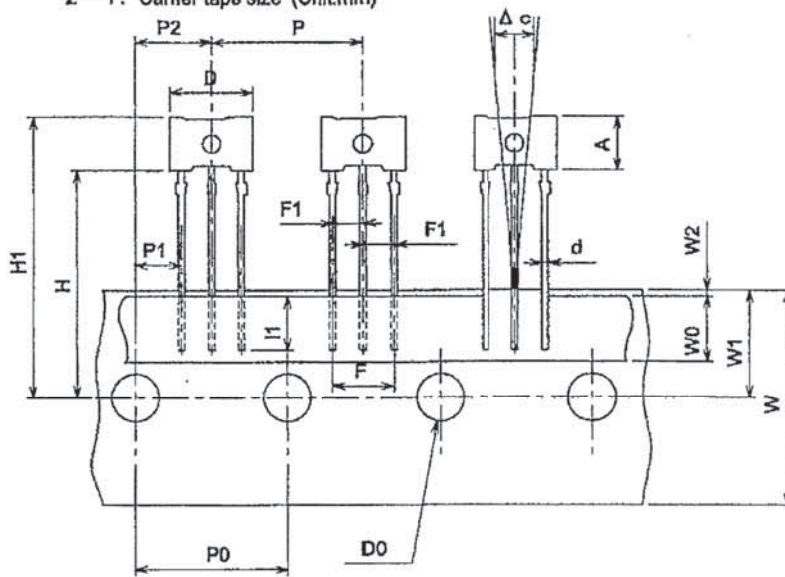


*LEAD FREE 1:

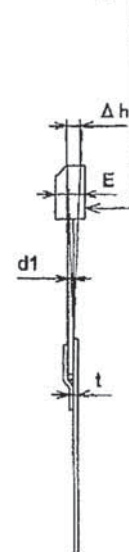
Lead-free External terminal surface treatment product.

2. Taping specifications

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



Marking surface



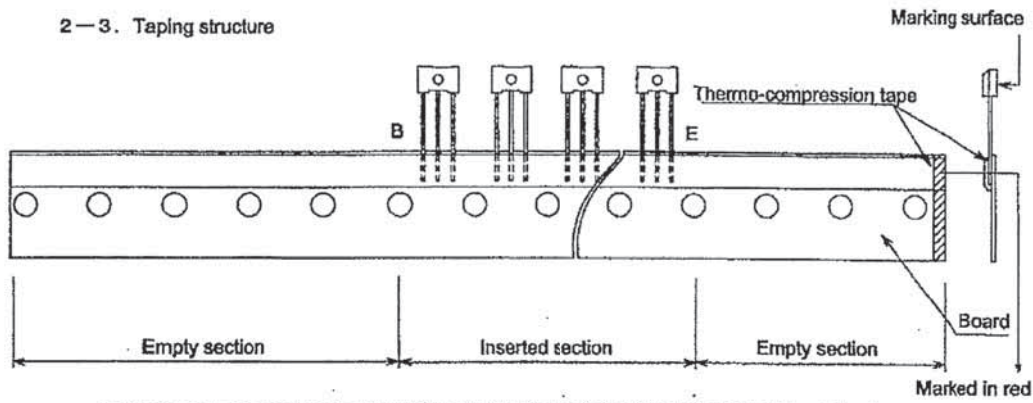
2-2. Taping size standard

Item	Symbol	Standard	Tolerance
Work piece outside diameter	D	6.9	±0.2
	E	2.5	±0.2
Work piece height	A	4.5	±0.2
Lead wire diameter	d	0.5	±0.1
Lead wire thickness	d1	0.45	±0.1
Bonded lead wire	I1	3.0MIN	
Pitch between products	P	12.7	±0.5
Pitch between perforations	P0	12.7	±0.2
Total pitch for 21 perforations	P0×20	254.0	±1.0
Distance between lead wire	F	5.0	+0.8 -0.2
Lead wire pitch distance	F1	2.54	+0.4 -0.1
Displacement of perforations	P1	3.81	±0.3
	P2	6.35	±0.3
Displacement of tape	W2	0 ~ 0.5	

Unit:mm

Item	Symbol	Standard	Tolerance
Tape width	W	18.0	±0.5
Adhesive tape	W0	6.0	±0.5
Displacement of perforations	W1	9.0	±0.5
Work piece bottom surface position	H	19.0	+1.0 -0.5
Work piece upper limit position	H1	23.5	±1.0
Perforations diameter	D0	φ4.0	±0.2
Tape thickness (total thickness)	t	0.6	±0.2
Product inclination	Δc	0	±0.7
Product inclination	Δh	0	±1.0

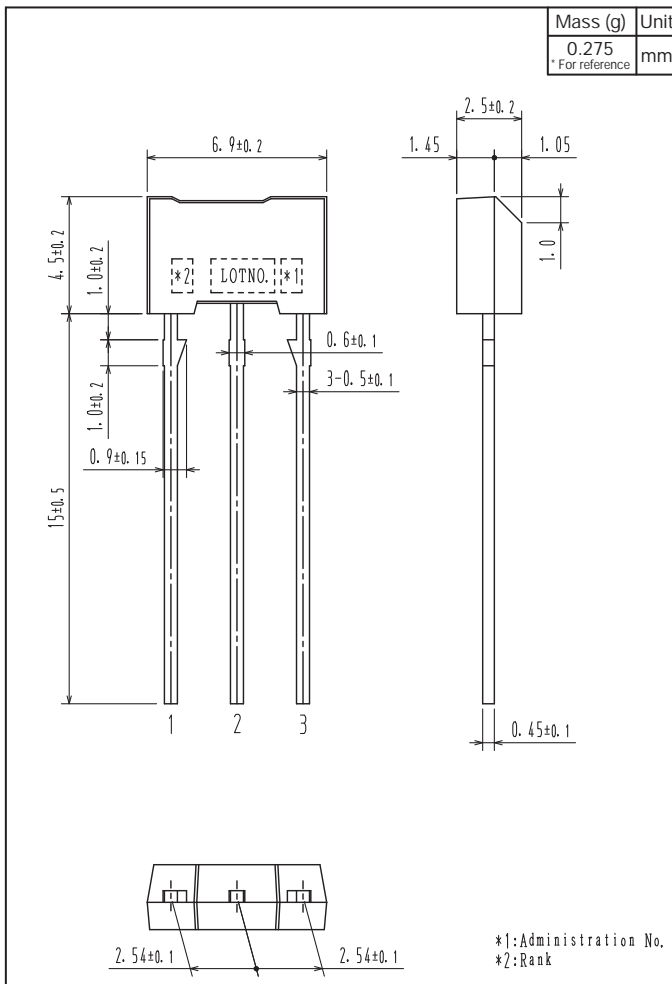
2—3. Taping structure



- Provide an empty section for about three to five pieces in leading and end portions of the tape.
- Provide an empty section in the fold-back portion.
- Provide marking in red to the E-side end of the board.

Outline Drawing

2SA1706S-AN, 2SA1706T-AN



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