



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 2SA1705 — PNP Epitaxial Planar Silicon Transistor Low-Frequency Power Amplifier Applications

### Applications

- Voltage regulators, relay drivers, lamp drivers

### Features

- Adoption of FBET process
- Fast switching speed

### Specifications

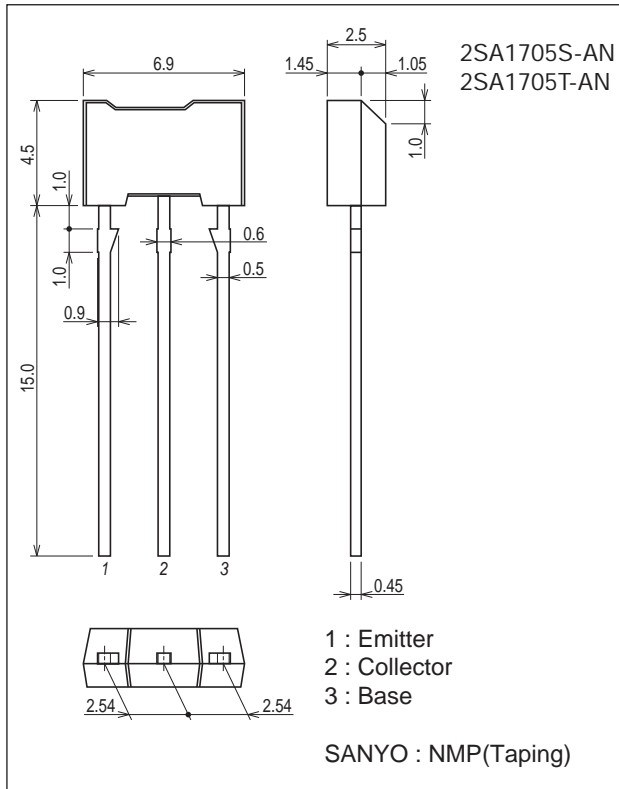
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		-60	V
Collector-to-Emitter Voltage	VCEO		-50	V
Emitter-to-Base Voltage	VEBO		-5	V
Collector Current	IC		-1	A
Collector Current (Pulse)	ICP		-2	A
Collector Dissipation	PC		0.9	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

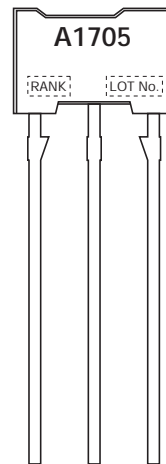
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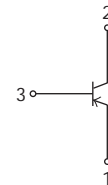
### Product & Package Information

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

### Marking(NMP(Taping))



### Electrical Connection



# 2SA1705

## Electrical Characteristics at Ta=25°C

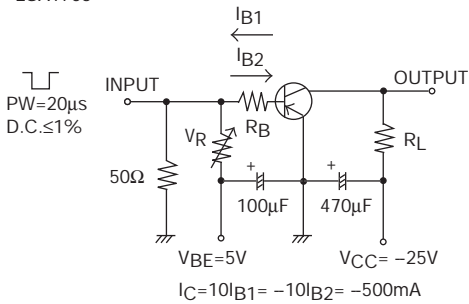
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> =-50V, I <sub>E</sub> =0A			-100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0A			-100	nA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-100mA	140*		400*	
	h <sub>FE2</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-1A	30			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-50mA		150		MHz
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA		-180	-500	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA		-0.9	-1.2	V
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, f=1MHz		12		pF
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-10μA, I <sub>E</sub> =0A	-60			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =-1mA, R <sub>BE</sub> =∞	-50			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-10μA, I <sub>C</sub> =0A	-5			V
Turn-ON Time	t <sub>on</sub>	See specified Test Circuit.		40		ns
Storage Time	t <sub>stg</sub>			300		ns
Fall Time	t <sub>f</sub>			30		ns

\* : The 2SA1705 is classified by 100mA h<sub>FE</sub> as follows :

Rank	S	T
h <sub>FE</sub>	140 to 280	200 to 400

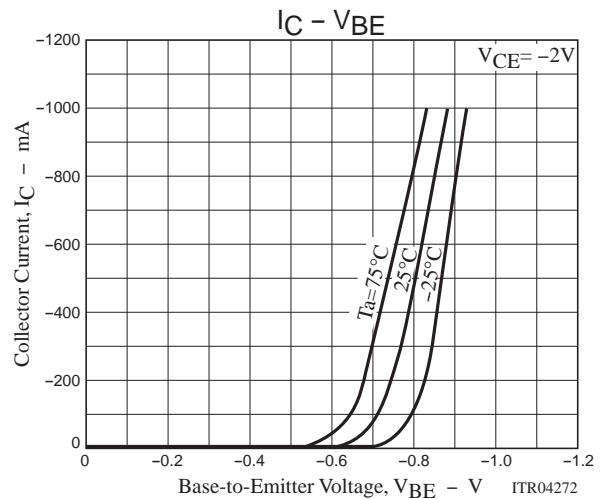
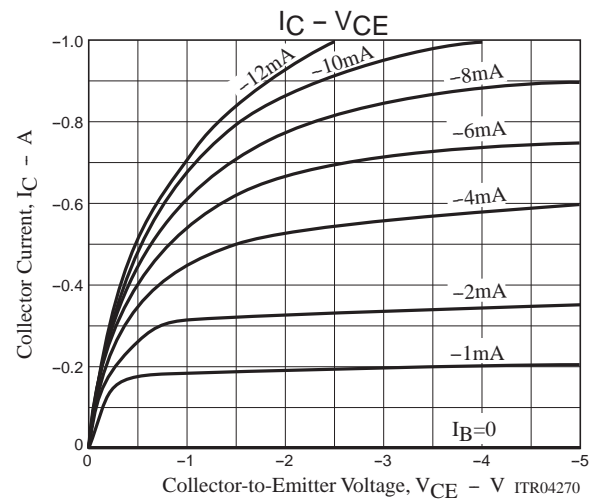
## Switching Time Test Circuit

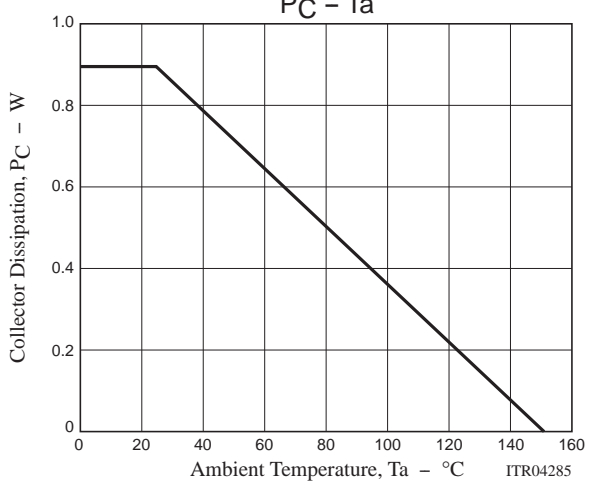
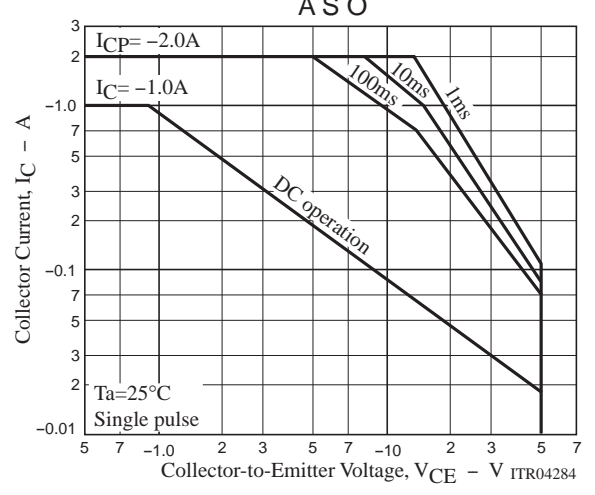
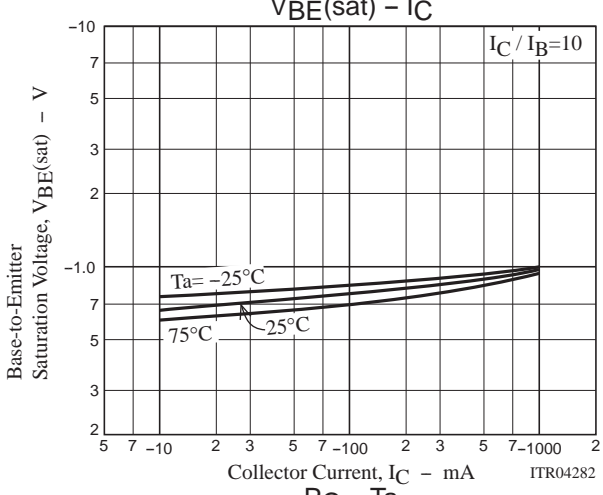
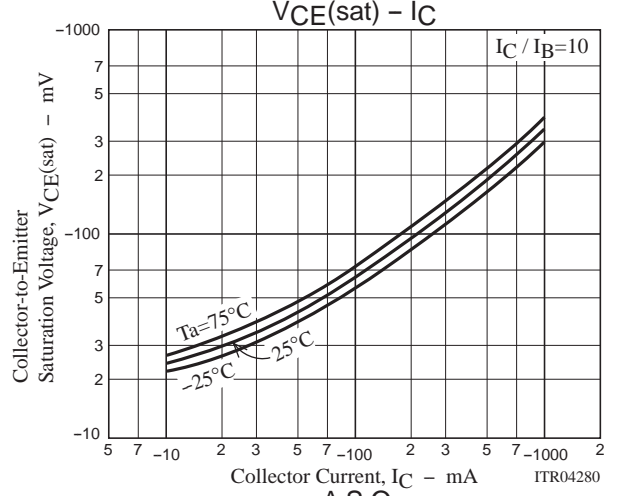
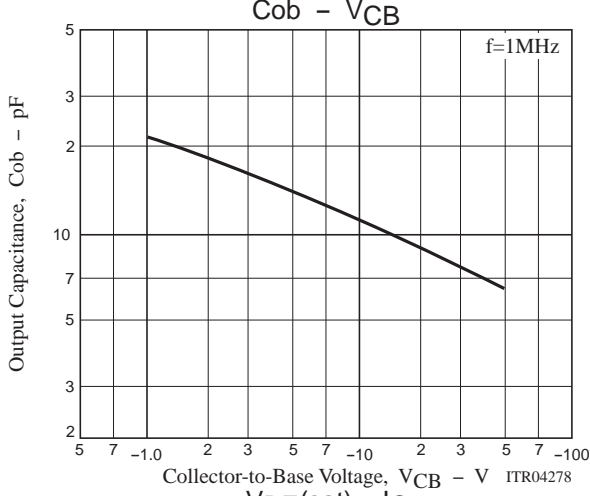
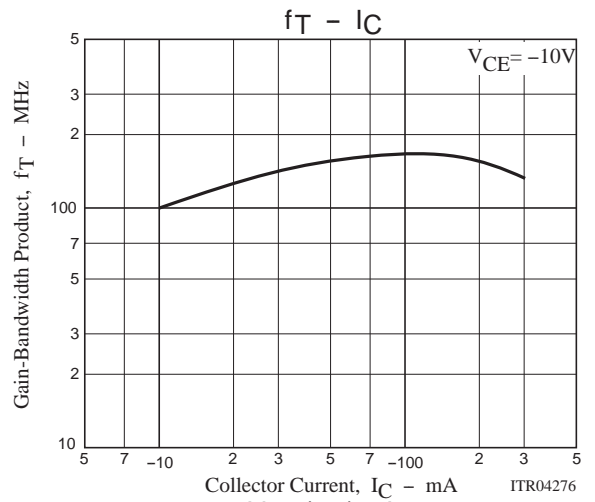
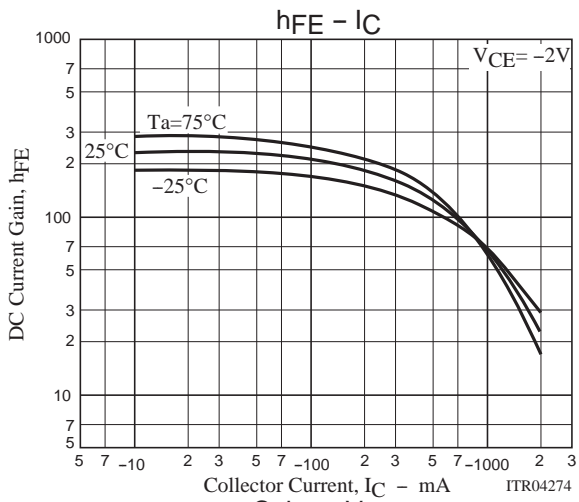
2SA1705



## Ordering Information

Device	Package	Shipping	memo
2SA1705S-AN	NMP(Taping)	2,500pcs./box	Pb Free
2SA1705T-AN	NMP(Taping)	2,500pcs./box	





Bag Packing Specification

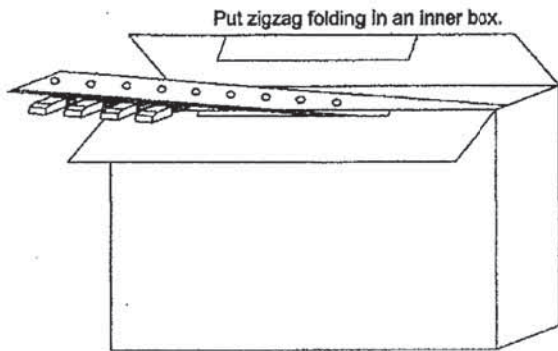
2SA1705S-AN, 2SA1705T-AN

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

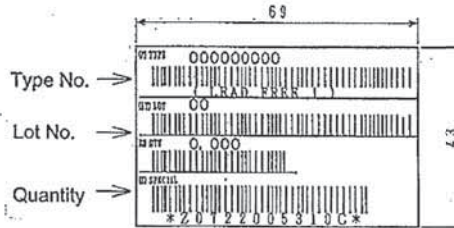
1. Packing format

Packing method



2. Bar code label

(Unit : mm)

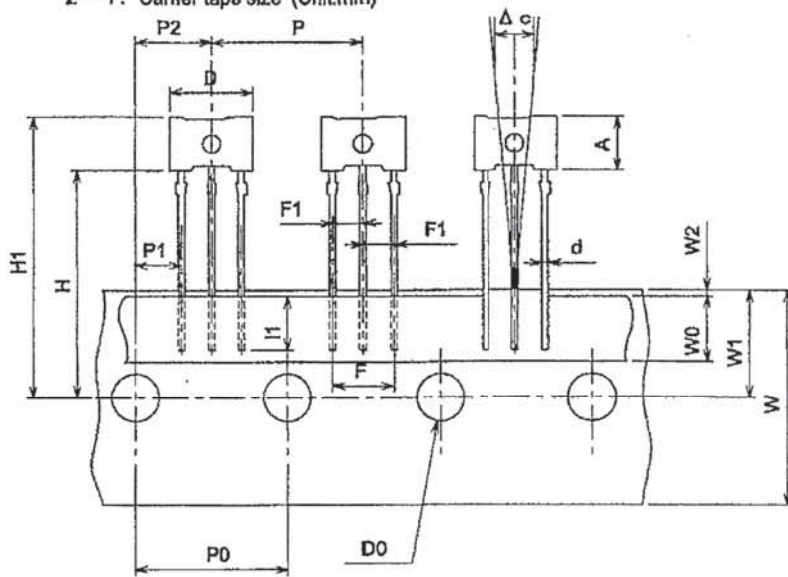


\*LEAD FREE 1:

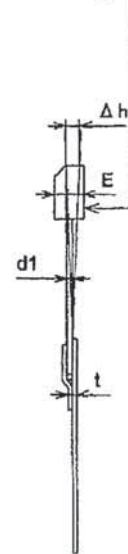
Lead-free External terminal surface treatment product.

2. Taping specifications

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



Marking surface



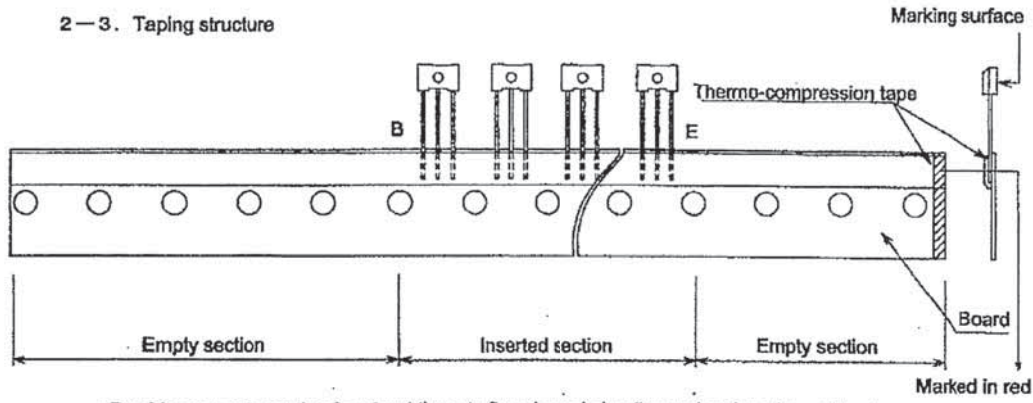
2-2. Taping size standard

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

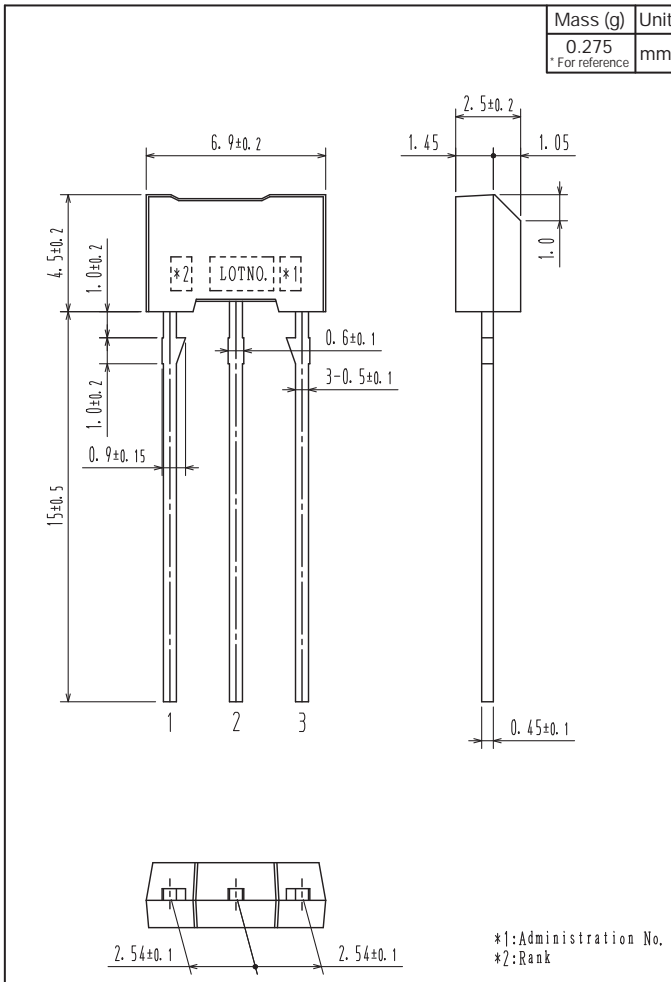
2—3. Taping structure



- 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

2SA1705S-AN, 2SA1705T-AN



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