



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

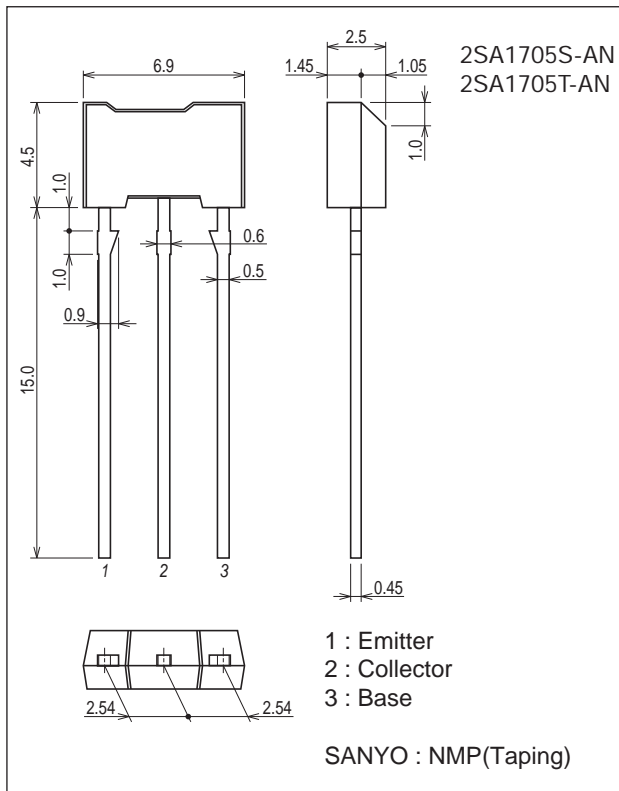
Absolute Maximum Ratings at Ta=25°C

| 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)

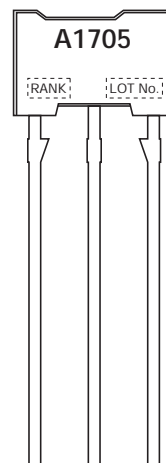
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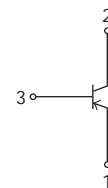
Product & Package Information

- 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

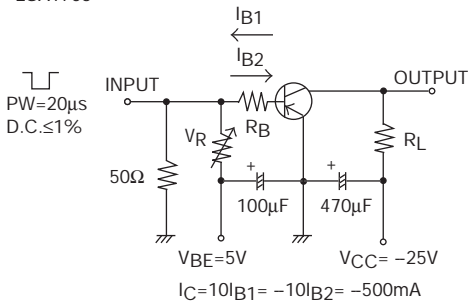
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|------|------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=-50V, I_E=0A$ | | | -100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=-4V, I_C=0A$ | | | -100 | nA |
| DC Current Gain | h_{FE1} | $V_{CE}=-2V, I_C=-100mA$ | 140* | | 400* | |
| | h_{FE2} | $V_{CE}=-2V, I_C=-1A$ | 30 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=-10V, I_C=-50mA$ | | 150 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-500mA, I_B=-50mA$ | | -180 | -500 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=-500mA, I_B=-50mA$ | | -0.9 | -1.2 | V |
| Output Capacitance | C_{ob} | $V_{CB}=-10V, f=1MHz$ | | 12 | | pF |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=-10\mu A, I_E=0A$ | -60 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=-1mA, R_{BE}=\infty$ | -50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=-10\mu A, I_C=0A$ | -5 | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | 40 | | ns |
| Storage Time | t_{stg} | | | 300 | | ns |
| Fall Time | t_f | | | 30 | | ns |

* : The 2SA1705 is classified by 100mA h_{FE} as follows :

| Rank | S | T |
|----------|------------|------------|
| h_{FE} | 140 to 280 | 200 to 400 |

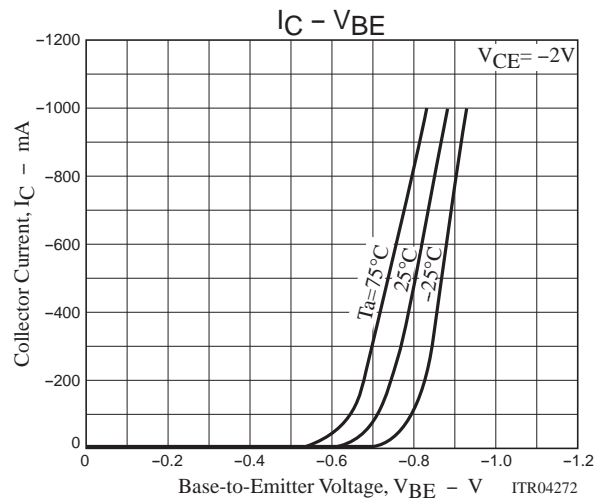
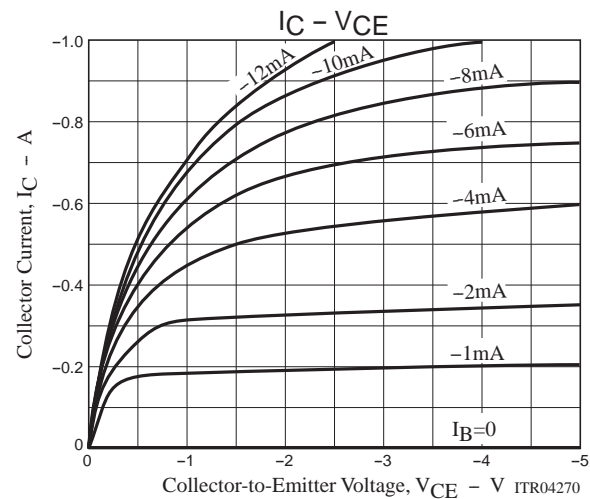
Switching Time Test Circuit

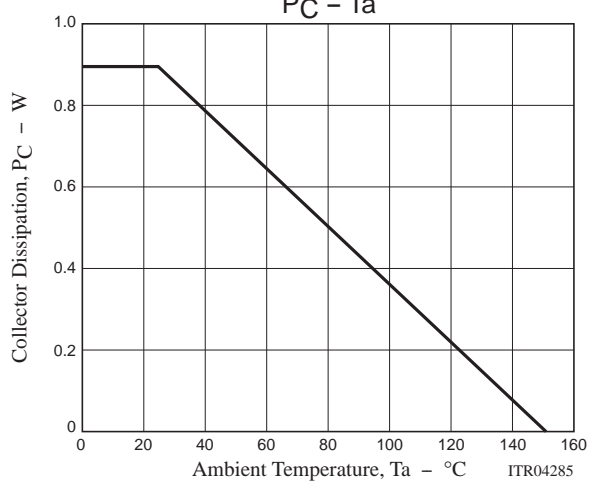
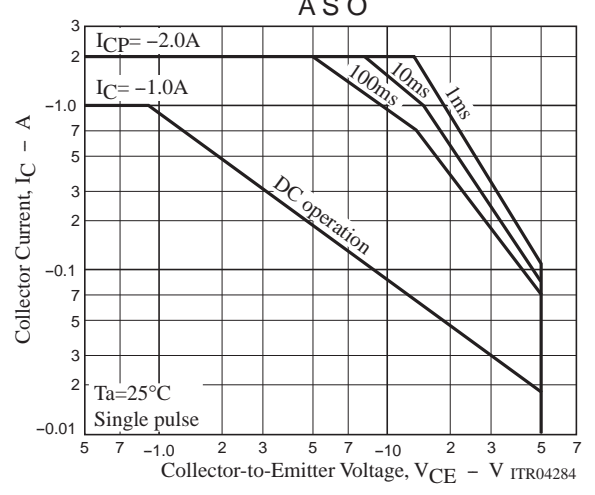
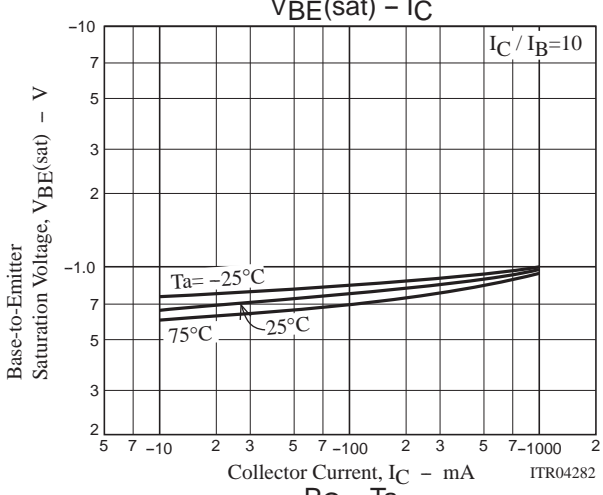
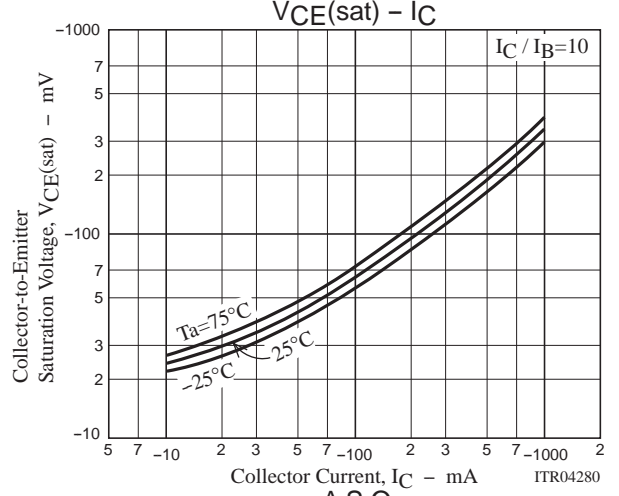
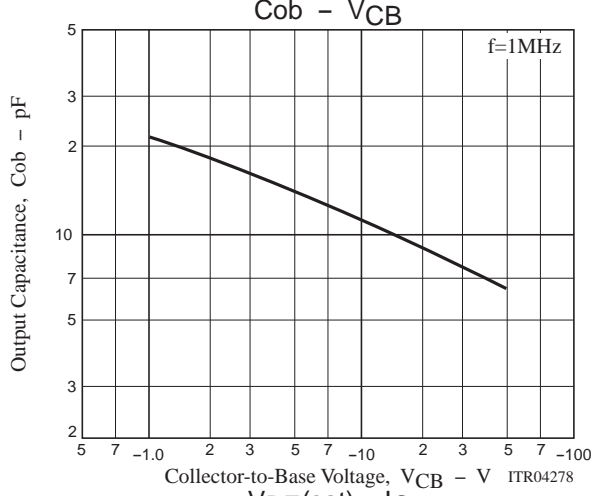
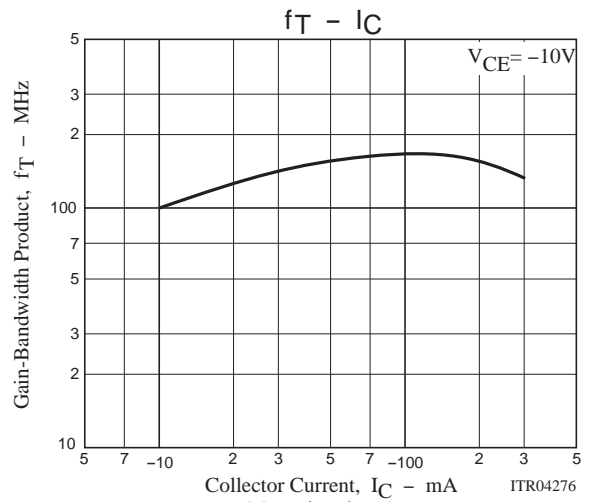
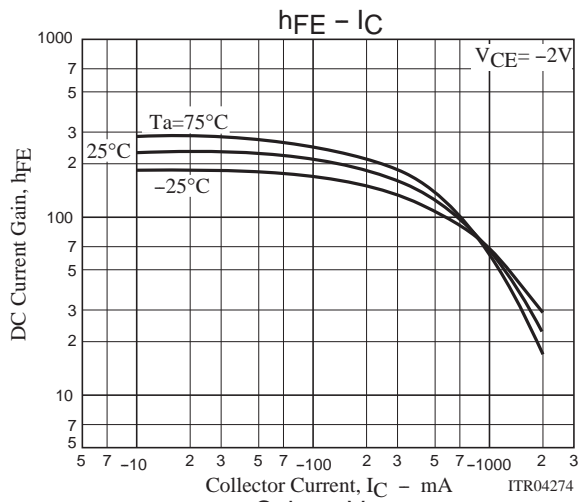
2SA1705



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

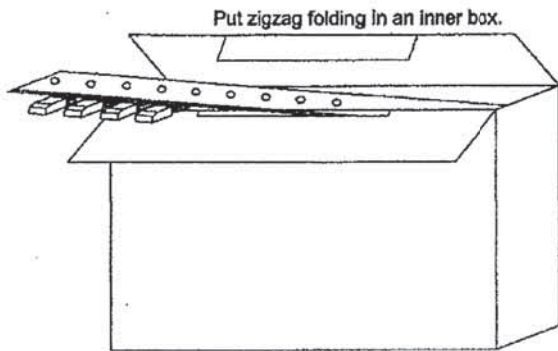
2SA1705S-AN, 2SA1705T-AN

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 |

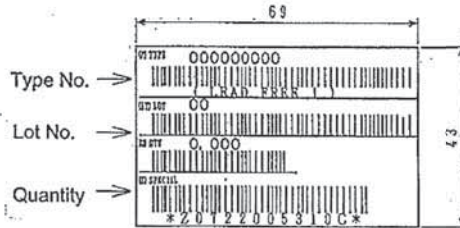
1. Packing format

Packing method



2. Bar code label

(Unit : mm)

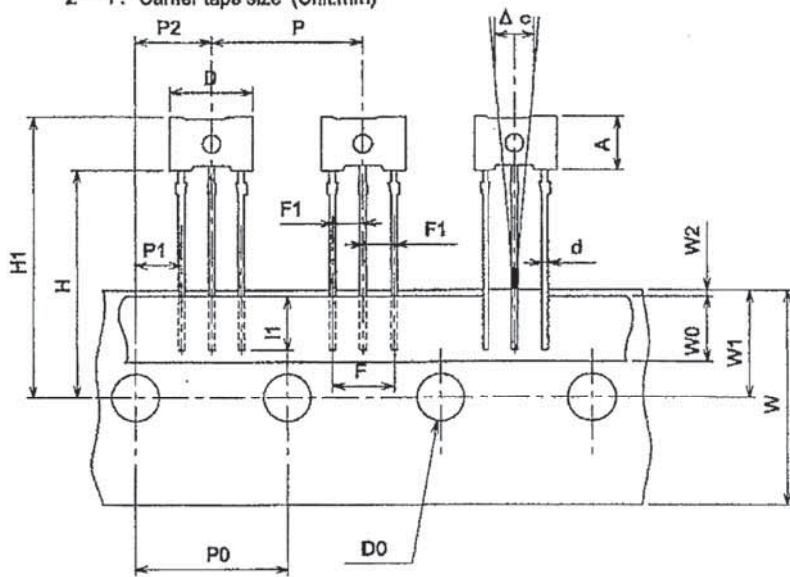


*LEAD FREE 1:

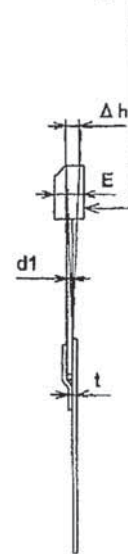
Lead-free External terminal surface treatment product.

2. Taping specifications

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



Marking surface



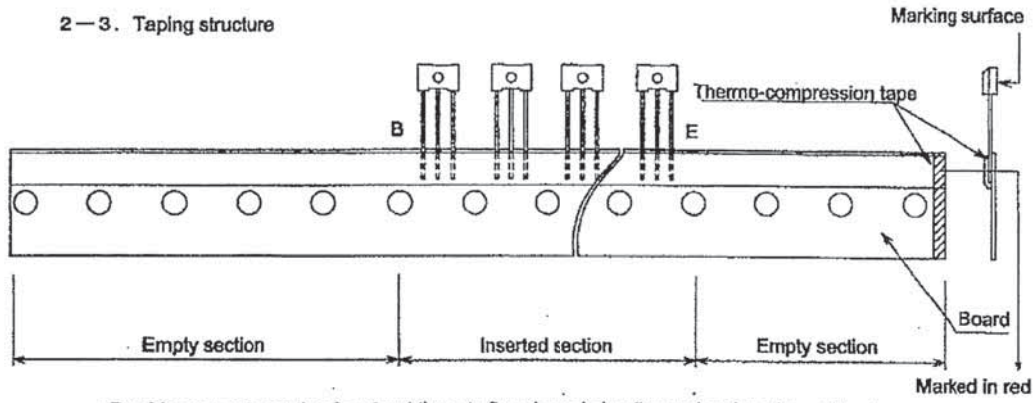
2-2. Taping size standard

| 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 |

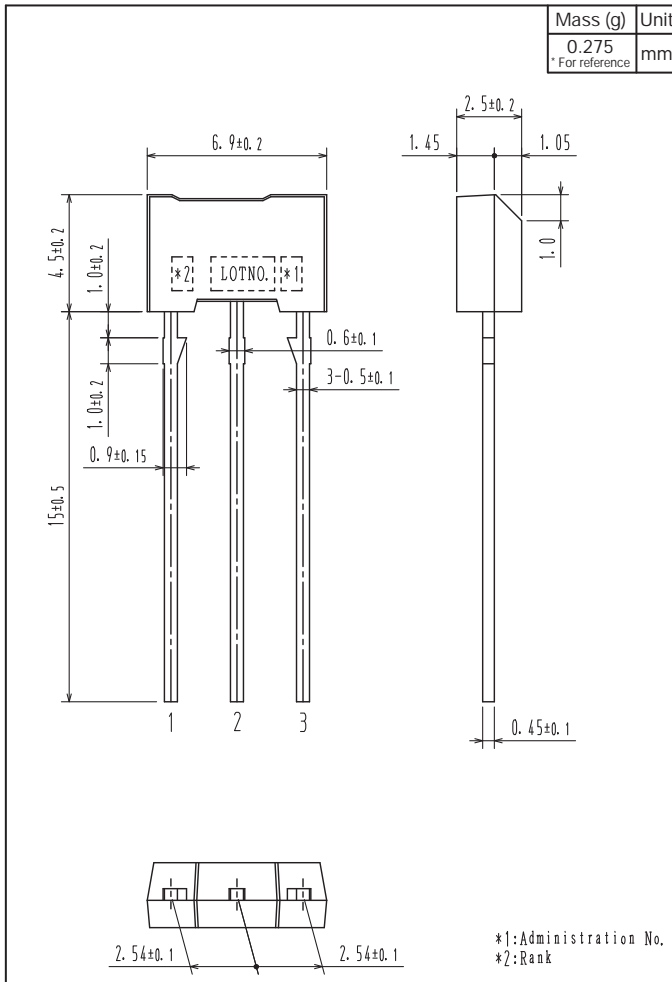
2—3. Taping structure



- 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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