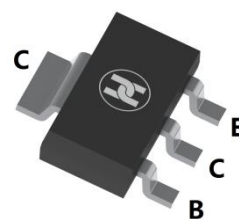
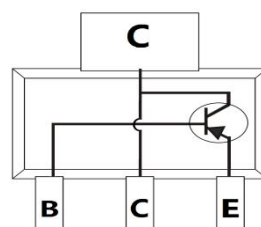


**BIPOLAR TRANSISTOR (PNP)**
**FEATURES**

- Complementary to PZT2222A
- Epitaxial planar die construction
- Surface Mount device


**SOT-223**

**MECHANICAL DATA**

- Case: SOT-223
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.04 grams (approximate)

**MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**

| Parameter                   | Symbol    | Value      | Unit             |
|-----------------------------|-----------|------------|------------------|
| Collector-Base Voltage      | $V_{CBO}$ | -60        | V                |
| Collector-Emitter Voltage   | $V_{CEO}$ | -60        | V                |
| Emitter-Base Voltage        | $V_{EBO}$ | -5         | V                |
| Collector Current           | $I_C$     | -0.6       | A                |
| Collector Power Dissipation | $P_C$     | 1          | W                |
| Junction Temperature        | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature         | $T_{STG}$ | -55 ~ +150 | $^\circ\text{C}$ |

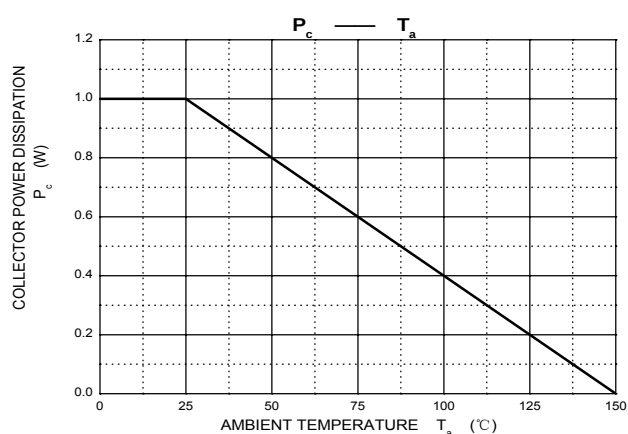
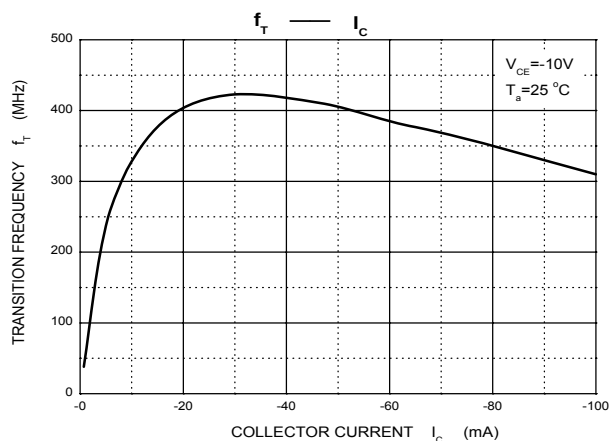
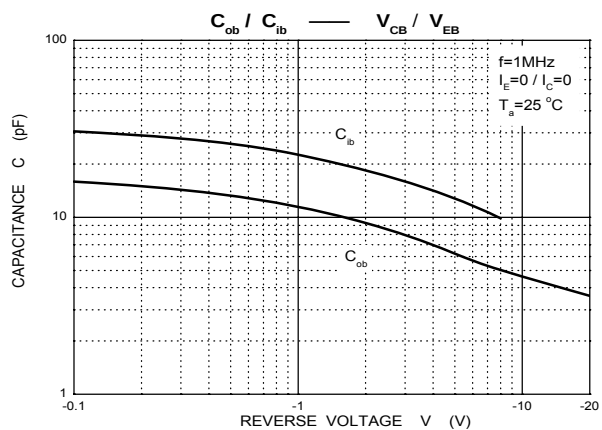
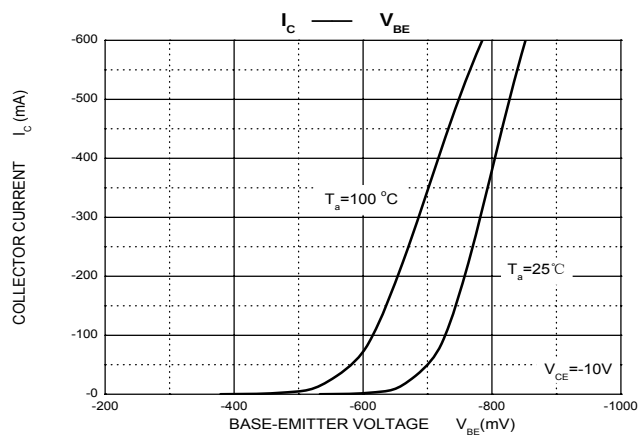
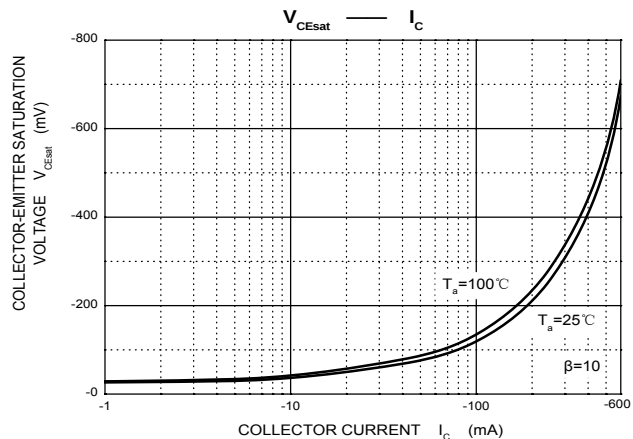
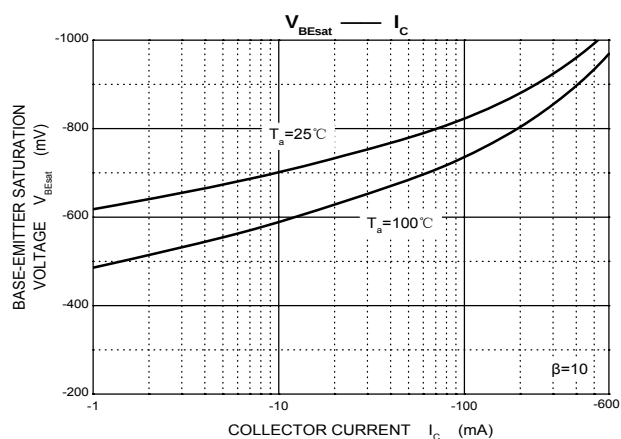
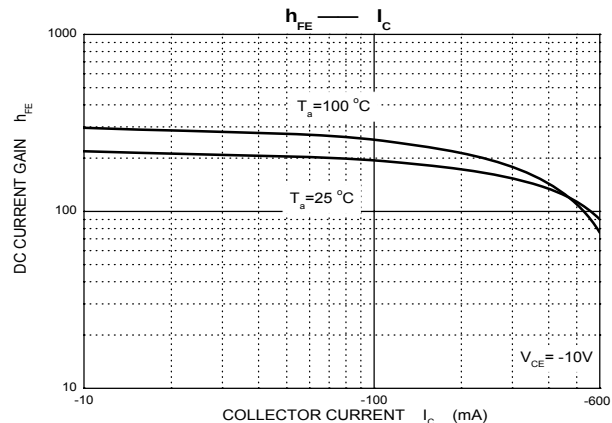
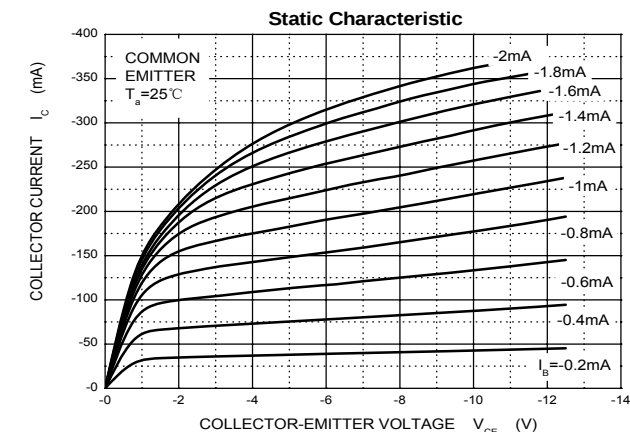
**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise specified)**

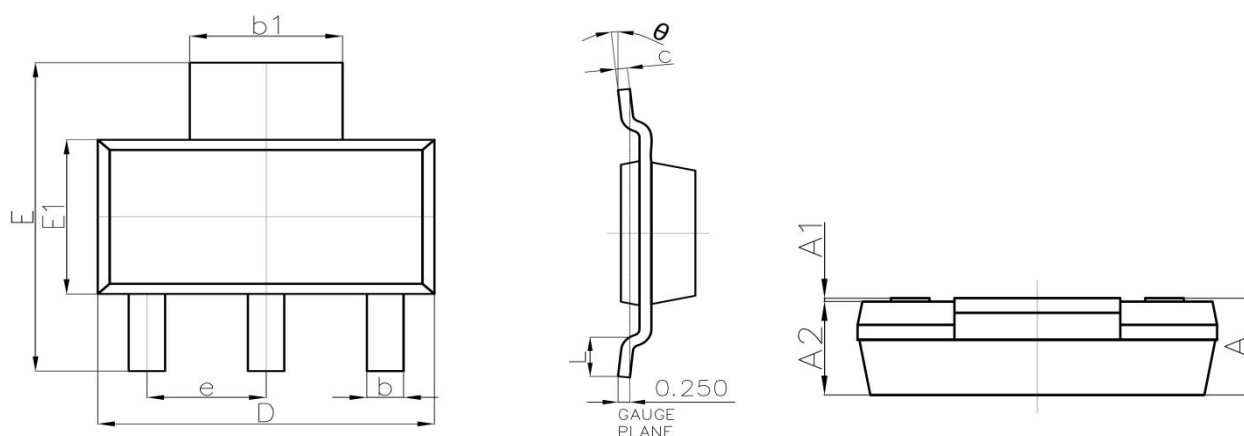
| Parameter                            | Symbol        | Min | Typ | Max  | Unit | Conditions                                                         |
|--------------------------------------|---------------|-----|-----|------|------|--------------------------------------------------------------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | -60 |     |      | V    | $I_C = -10\mu\text{A}$ , $I_E = 0$                                 |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | -60 |     |      | V    | $I_C = -10\text{mA}$ , $I_B = 0$                                   |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | -5  |     |      | V    | $I_E = -10\mu\text{A}$ , $I_C = 0$                                 |
| Collector cut-off current            | $I_{CBO}$     |     |     | -10  | nA   | $V_{CB} = -50\text{V}$ , $I_E = 0$                                 |
| Emitter cut-off current              | $I_{EBO}$     |     |     | -50  | nA   | $V_{EB} = -5\text{V}$ , $I_C = 0$                                  |
| DC current gain                      | $h_{FE}$      | 75  |     |      |      | $V_{CE} = -10\text{V}$ , $I_C = -0.1\text{mA}$                     |
|                                      |               | 100 |     |      |      | $V_{CE} = -10\text{V}$ , $I_C = -1\text{mA}$                       |
|                                      |               | 100 |     |      |      | $V_{CE} = -10\text{V}$ , $I_C = -10\text{mA}$                      |
|                                      |               | 100 |     | 300  |      | $V_{CE} = -10\text{V}$ , $I_C = -150\text{mA}$                     |
|                                      |               | 50  |     |      |      | $V_{CE} = -10\text{V}$ , $I_C = -500\text{mA}$                     |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ |     |     | -0.4 | V    | $I_C = -150\text{mA}$ , $I_B = -15\text{mA}$                       |
|                                      |               |     |     | -1.6 | V    | $I_C = -500\text{mA}$ , $I_B = -50\text{mA}$                       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ |     |     | -1.3 | V    | $I_C = -150\text{mA}$ , $I_B = -15\text{mA}$                       |
|                                      |               |     |     | -2.6 | V    | $I_C = -500\text{mA}$ , $I_B = -50\text{mA}$ , $f = 100\text{MHz}$ |
| Transition frequency                 | $f_T$         | 200 |     |      | MHz  | $V_{CE} = -20\text{V}$ , $I_C = -50\text{mA}$                      |
| Collector capacitance                | $C_C$         |     |     | 8    | pF   | $V_{CB} = -10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$             |
| Emitter capacitance                  | $C_E$         |     |     | 30   | pF   | $V_{EB} = -2\text{V}$ , $I_C = 0$ , $f = 1\text{MHz}$              |
| Delay time                           | $t_d$         |     |     | 12   | nS   | $I_C = -150\text{mA}$ , $I_{B1} = -I_{B2} = -15\text{mA}$          |
| Rise time                            | $t_r$         |     |     | 30   | nS   |                                                                    |
| Storage time                         | $t_s$         |     |     | 300  | nS   |                                                                    |
| Fall time                            | $t_f$         |     |     | 65   | nS   |                                                                    |

**MARKING: ZT2907A**

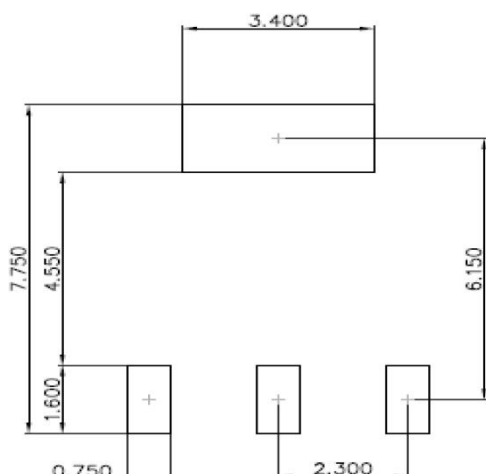
## BIPOLAR TRANSISTOR (PNP)

### Typical Characteristics

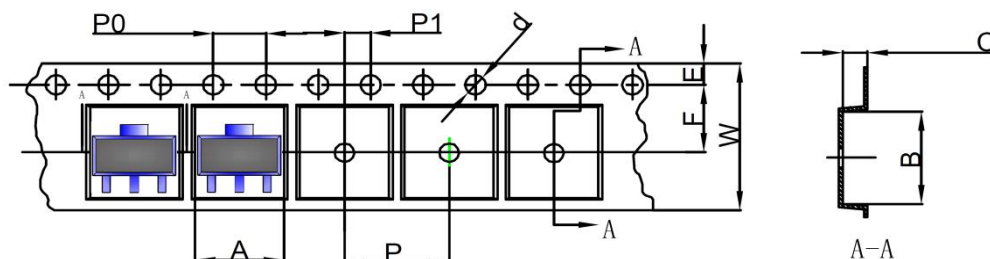


**BIPOLAR TRANSISTOR (PNP)**
**SOT-223 Package Outline Dimensions**


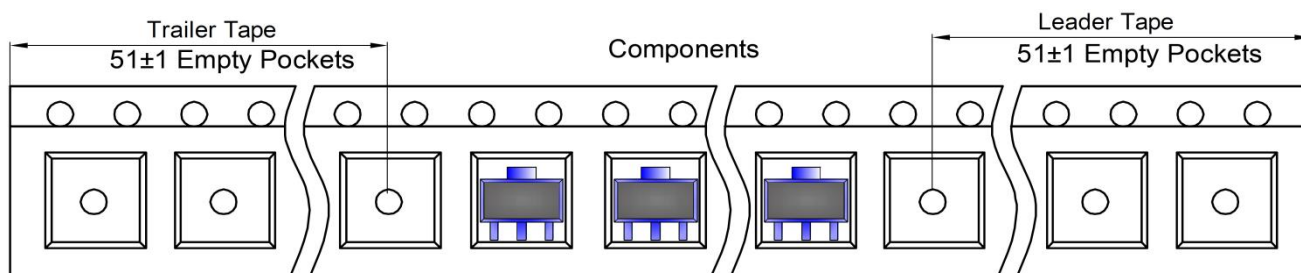
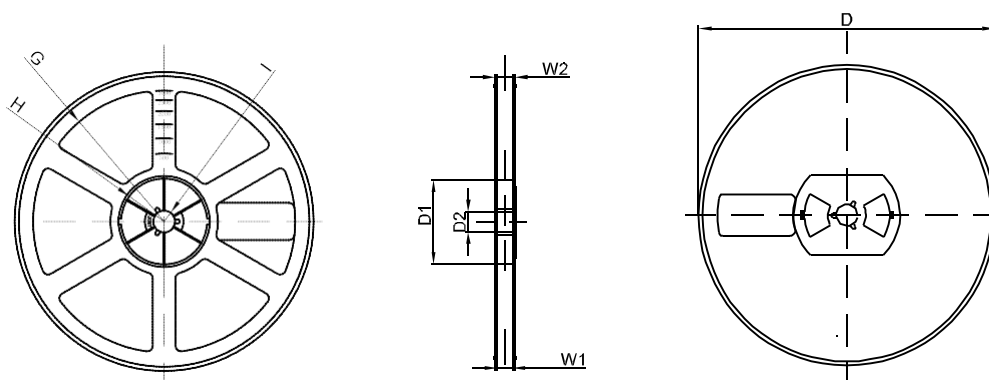
| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | —                         | 1.800 | -----                | 0.071 |
| A1     | 0.020                     | 0.100 | 0.001                | 0.004 |
| A2     | 1.500                     | 1.700 | 0.059                | 0.067 |
| b      | 0.660                     | 0.840 | 0.026                | 0.033 |
| b1     | 2.900                     | 3.100 | 0.114                | 0.122 |
| c      | 0.230                     | 0.350 | 0.009                | 0.014 |
| D      | 6.300                     | 6.700 | 0.248                | 0.264 |
| E      | 6.700                     | 7.300 | 0.264                | 0.287 |
| E1     | 3.300                     | 3.700 | 0.130                | 0.146 |
| e      | 2.300(BSC)                |       | 0.091(BSC)           |       |
| L      | 0.750                     | ----- | 0.030                | ----- |
| θ      | 0°                        | 10°   | 0°                   | 10°   |

**SOT-223 Suggested Pad Layout**

**Note:**

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

**BIPOLAR TRANSISTOR (PNP)**
**SOT-223 Tape and Reel**
**SOT-223 Embossed Carrier Tape**


|           | DIMENSIONS ARE IN MILLIMETER |       |      |       |      |      |      |      |      |       |
|-----------|------------------------------|-------|------|-------|------|------|------|------|------|-------|
| TYPE      | A                            | B     | C    | d     | E    | F    | P0   | P    | P1   | W     |
| SOT-223   | 6.765                        | 7.335 | 1.88 | Ø1.50 | 1.75 | 5.50 | 4.00 | 4.00 | 2.00 | 12.00 |
| TOLERANCE | ±0.1                         | ±0.1  | ±0.1 | ±0.1  | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1  |

**SOT-223 Tape Leader and Trailer**

**SOT-223 Reel**


|             | DIMENSIONS ARE IN MILLIMETER |        |       |         |        |       |       |       |
|-------------|------------------------------|--------|-------|---------|--------|-------|-------|-------|
| REEL OPTION | D                            | D1     | D2    | G       | H      | I     | W1    | W2    |
| 13" DIA     | Ø330.00                      | 100.00 | 13.00 | R151.00 | R56.00 | R6.50 | 12.40 | 17.60 |
| TOLERANCE   | ±2                           | ±1     | ±1    | ±1      | ±1     | ±1    | ±1    | ±1    |