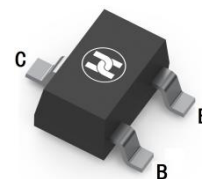
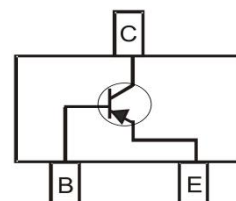


**BIPOLAR TRANSISTOR (PNP)**
**FEATURES**

- Complementary to BC846W
- Ideally suited for automatic insertion
- For switching and AF amplifier applications
- Surface Mount device


**SOT-323**

**MECHANICAL DATA**

- Case: SOT-323
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)

**MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)**

| Parameter                                   | Symbol           | Value     | Unit |
|---|------------------|-----------|------|
| Collector-Base Voltage                      | V <sub>CB0</sub> | -80       | V    |
| Collector-Emitter Voltage                   | V <sub>CEO</sub> | -65       | V    |
| Emitter-Base Voltage                        | V <sub>EBO</sub> | -5        | V    |
| Collector Current                           | I <sub>C</sub>   | -100      | mA   |
| Collector Power Dissipation                 | P <sub>C</sub>   | 150       | mW   |
| Thermal Resistance From Junction To Ambient | R <sub>θJA</sub> | 833       | °C/W |
| Junction Temperature                        | T <sub>J</sub>   | 150       | °C   |
| Storage Temperature                         | T <sub>STG</sub> | -55 ~+150 | °C   |

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)**

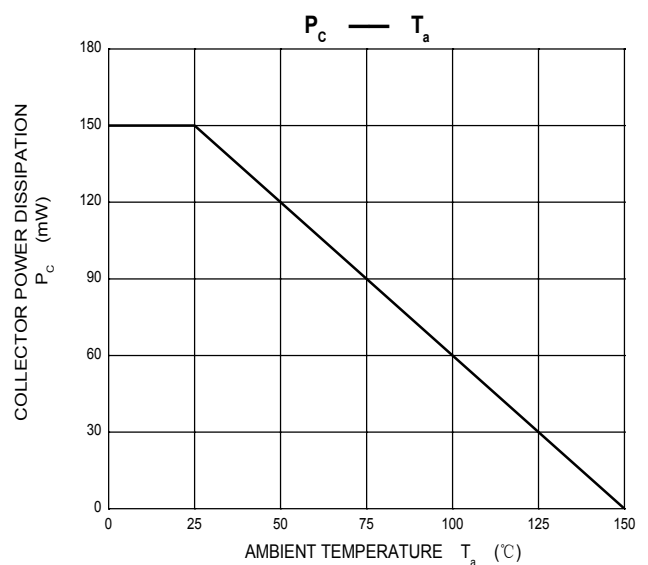
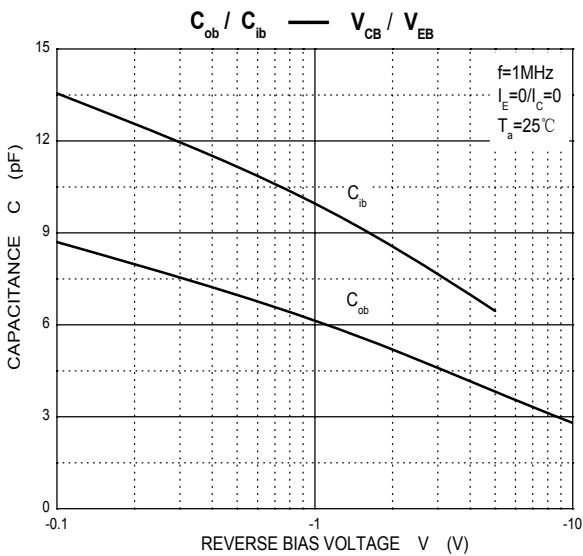
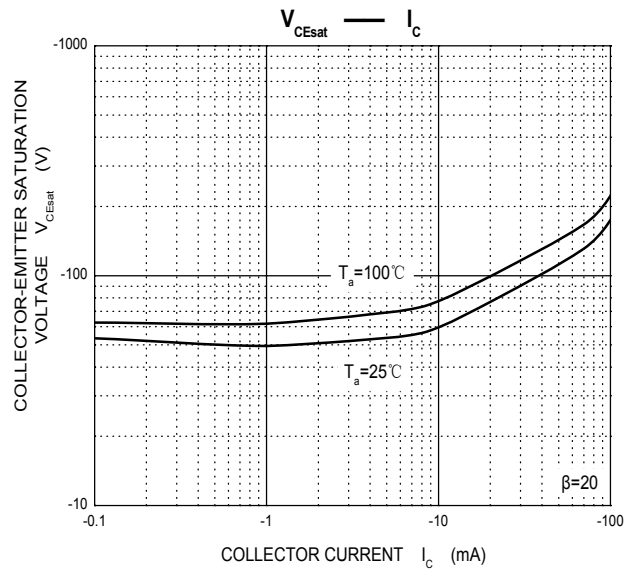
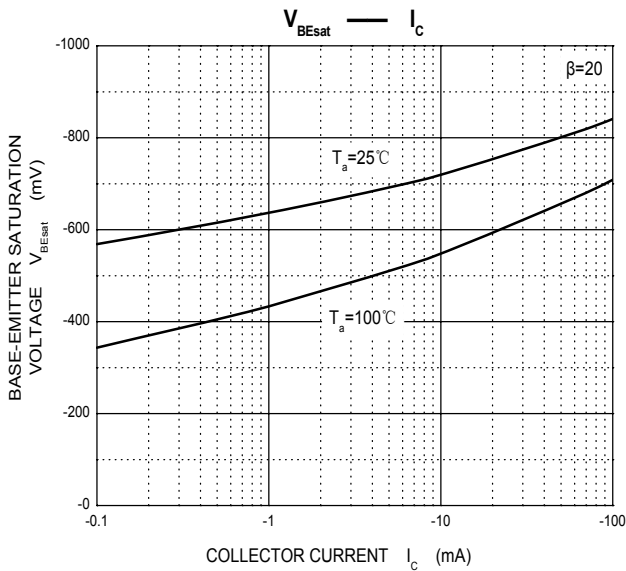
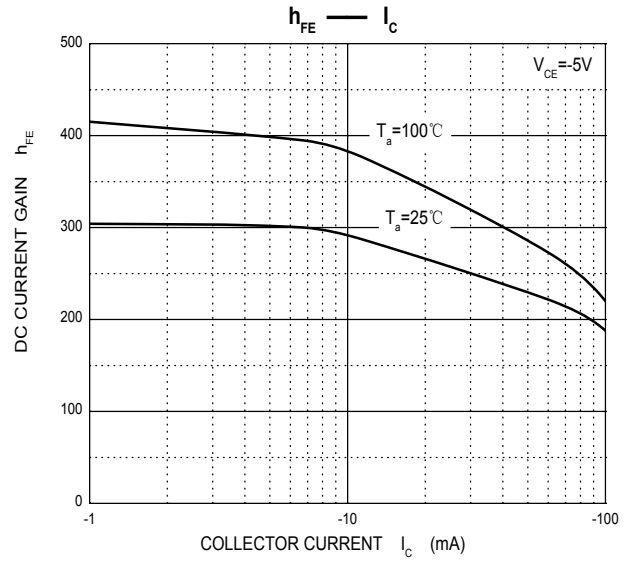
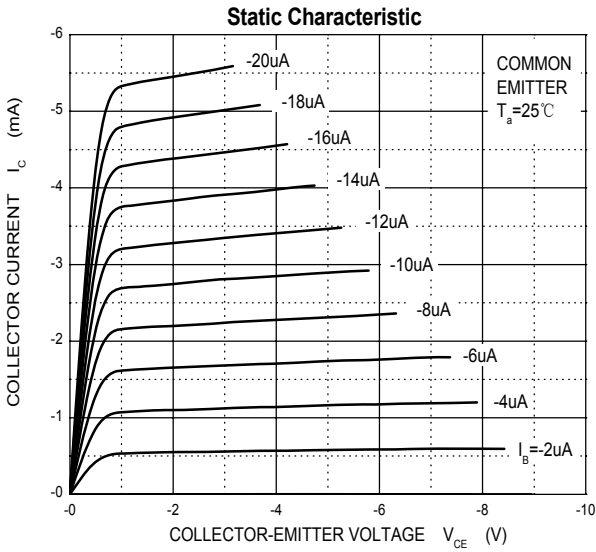
| Parameter                            | Symbol               | Min | Typ | Max   | Unit | Conditions  |
|--------------------------------------|----------------------|-----|-----|-------|------|---|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | -80 |     |       | V    | I <sub>C</sub> =-10uA, I <sub>E</sub> =0              |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | -65 |     |       | V    | I <sub>C</sub> =-10mA, I <sub>B</sub> =0              |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | -5  |     |       | V    | I <sub>E</sub> =-1uA, I <sub>C</sub> =0               |
| Collector cut-off current            | I <sub>CB0</sub>     |     |     | -15   | nA   | V <sub>CB</sub> =-30V, I <sub>E</sub> =0              |
| DC current gain                      | h <sub>FE</sub>      | 125 |     | 475   |      | V <sub>CE</sub> =-5V, I <sub>C</sub> =-2mA            |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> |     |     | -0.65 | V    | I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA          |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> |     |     | -1.1  | V    | I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA          |
| Transition frequency                 | f <sub>T</sub>       | 100 |     |       | MHz  | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA, f=100MHz |
| Collector output capacitance         | C <sub>ob</sub>      |     |     | 4.5   | pF   | V <sub>CB</sub> =-10V, f=1MHz                         |

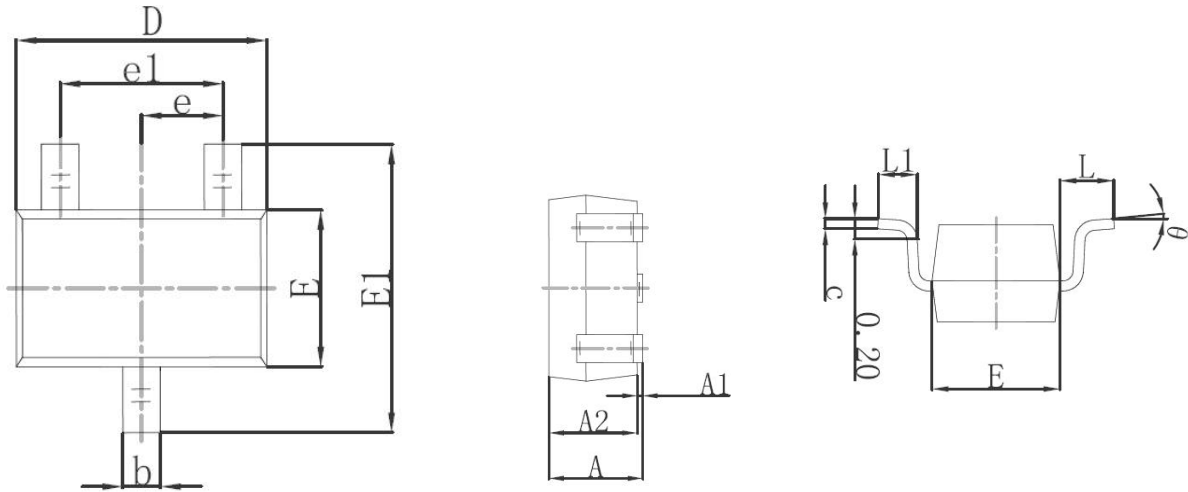
**CLASSIFICATION OF h<sub>FE</sub>**

| Rank    | 856AW   | 856BW   |
|---------|---------|---------|
| Range   | 125-250 | 220-475 |
| Marking | 3A      | 3B      |

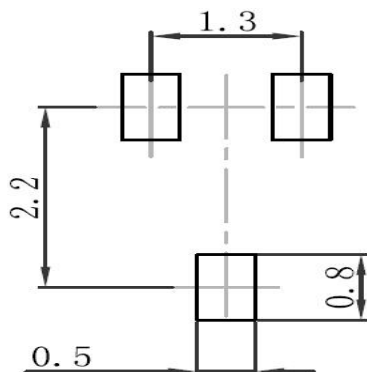
**BIPOLAR TRANSISTOR (PNP)**

**Typical Characteristics**

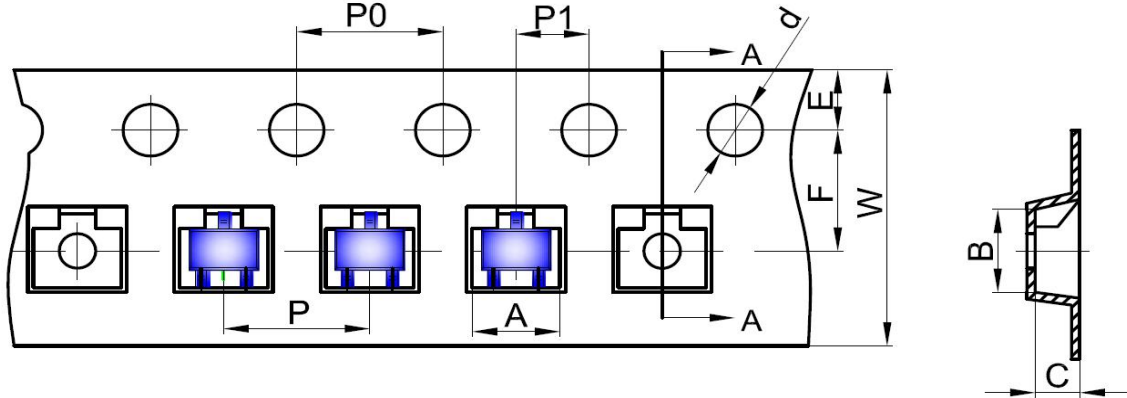


**BIPOLAR TRANSISTOR (PNP)**
**SOT-323 Package Outline Dimensions**


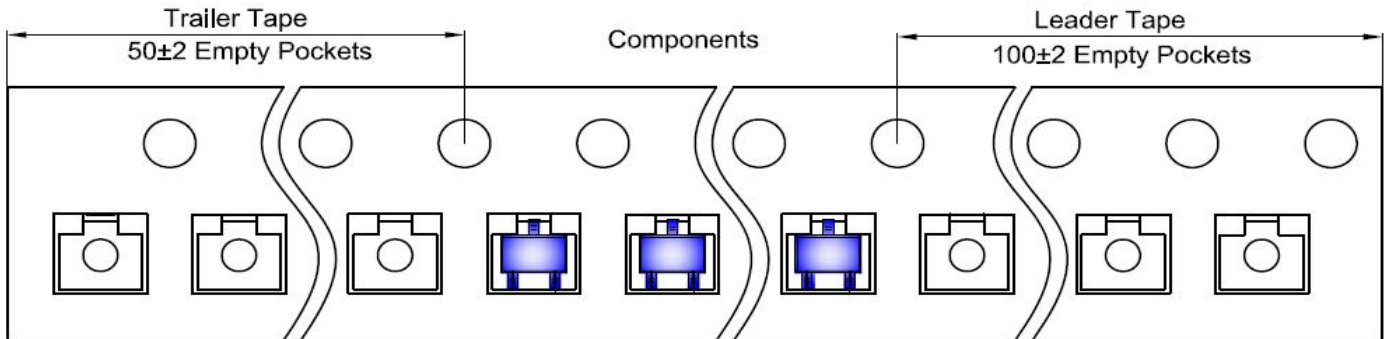
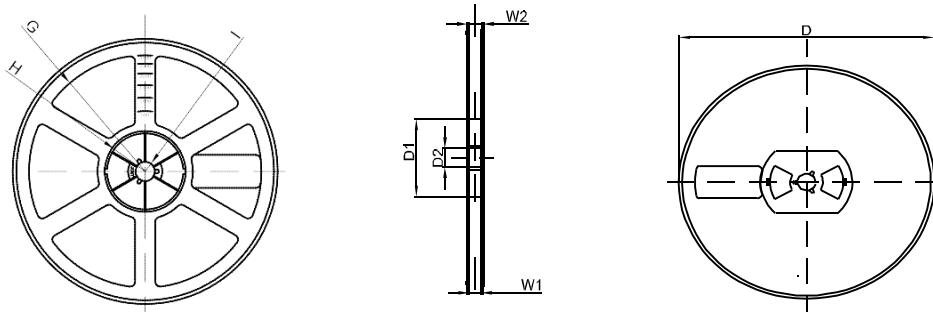
| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min.                      | Max.  | Min.                 | Max.  |
| A        | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.000 | 0.035                | 0.039 |
| b        | 0.200                     | 0.400 | 0.008                | 0.016 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.000                     | 2.200 | 0.079                | 0.087 |
| E        | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1       | 2.150                     | 2.450 | 0.085                | 0.096 |
| e        | 0.650TYP                  |       | 0.026TYP             |       |
| e1       | 1.200                     | 1.400 | 0.047                | 0.055 |
| L        | 0.525REF                  |       | 0.021REF             |       |
| L1       | 0.260                     | 0.460 | 0.010                | 0.018 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |

**SOT-323 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-323 Tape and Reel**
**SOT-323 Embossed Carrier Tape**


| DIMENSIONS ARE IN MILLIMETER |      |      |      |       |      |      |      |      |      |      |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| TYPE                         | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |
| SOT-323                      | 2.25 | 2.55 | 1.19 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |
| TOLERANCE                    | ±0.1 | ±0.1 | ±0.1 | ±0.1  | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 |

**SOT-323 Tape Leader and Trailer**

**SOT-323 Reel**


| DIMENSIONS ARE IN MILLIMETER |      |       |       |     |        |       |      |       |
|------------------------------|------|-------|-------|-----|--------|-------|------|-------|
| REEL OPTION                  | D    | D1    | D2    | G   | H      | I     | W1   | W2    |
| 7" DIA                       | Ø178 | 54.40 | 13.00 | R78 | R25.60 | R6.50 | 9.50 | 12.30 |
| TOLERANCE                    | ±2   | ±1    | ±1    | ±1  | ±1     | ±1    | ±1   | ±1    |