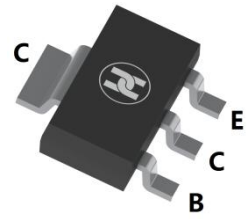
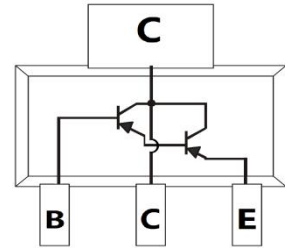


**DARLINGTON TRANSISTOR (PNP)**
**FEATURES**

- Complementary to PZTA13
- Low Voltage and High Current
- High Current Gain Applications
- 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<sub>A</sub> = 25°C unless otherwise noted)**

| Parameter                                   | Symbol           | Value     | Unit |
|---|------------------|-----------|------|
| Collector-Base Voltage                      | V <sub>CB0</sub> | -30       | V    |
| Collector-Emitter Voltage                   | V <sub>CEO</sub> | -30       | V    |
| Emitter-Base Voltage                        | V <sub>EBO</sub> | -10       | V    |
| Collector Current                           | I <sub>C</sub>   | -500      | mA   |
| Collector Power Dissipation                 | P <sub>C</sub>   | 1         | W    |
| Thermal Resistance From Junction To Ambient | R <sub>θJA</sub> | 125       | °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>   | -30   |     |      | V    | I <sub>C</sub> = -100μA, I <sub>E</sub> = 0               |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub>   | -30   |     |      | V    | I <sub>C</sub> = -100μA, I <sub>B</sub> = 0               |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub>   | -5    |     |      | V    | I <sub>E</sub> = -10μA, I <sub>C</sub> = 0                |
| Collector cut-off current            | I <sub>CBO</sub>       |       |     | -0.1 | μA   | V <sub>CB</sub> = -30V, I <sub>E</sub> = 0                |
| Emitter cut-off current              | I <sub>EBO</sub>       |       |     | -0.1 | μA   | V <sub>EB</sub> = -10V, I <sub>C</sub> = 0                |
| DC current gain                      | h <sub>FE</sub> *      | 5000  |     |      |      | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA             |
|                                      |                        | 10000 |     |      |      | V <sub>CE</sub> = -5V, I <sub>C</sub> = -100mA            |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> * |       |     | -1.5 | V    | I <sub>C</sub> = -100mA, I <sub>B</sub> = -0.1mA          |
| Base-emitter saturation voltage      | V <sub>BE</sub> *      |       |     | -2   | V    | I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5V            |
| Transition frequency                 | f <sub>T</sub>         | 125   |     |      | MHz  | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA, f = 100MHz |

\*Pulse test: pulse width ≤ 350μs, duty cycle ≤ 2%.

**MARKING: PZTA63**

**DARLINGTON TRANSISTOR (PNP)**

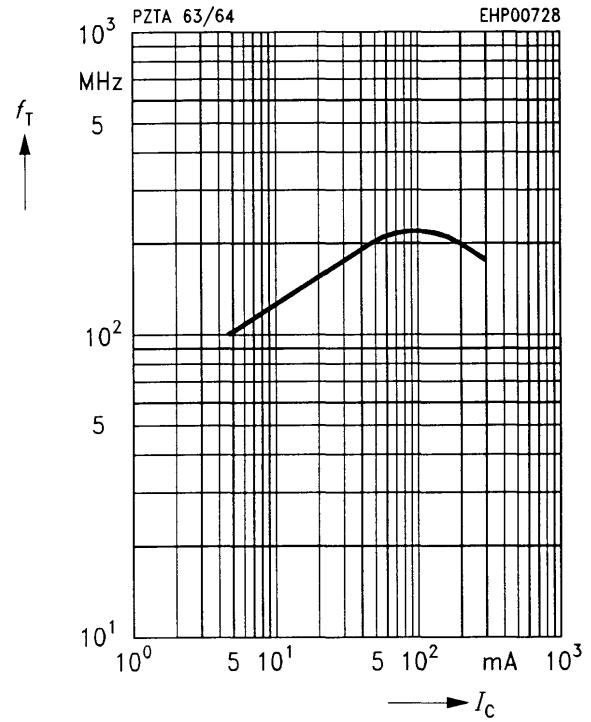
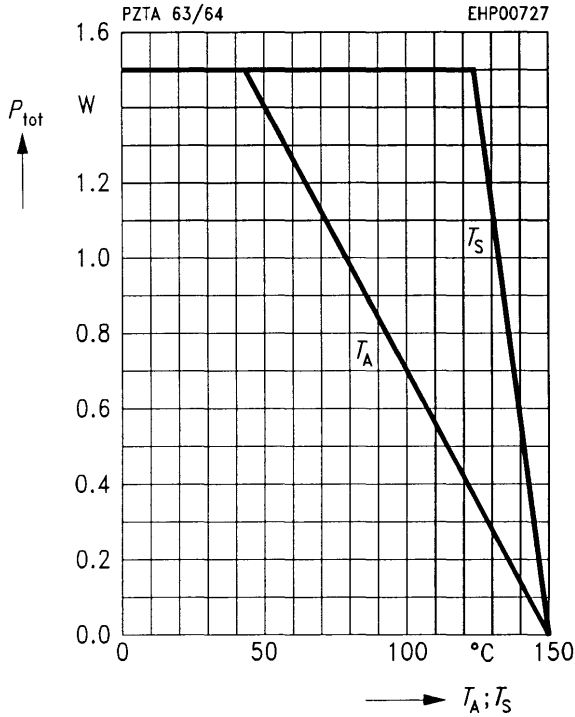
**Typical Characteristics**

**Total power dissipation**  $P_{tot} = f(T_A^*; T_S)$

\* Package mounted on epoxy

**Transition frequency**  $f_T = f(I_C)$

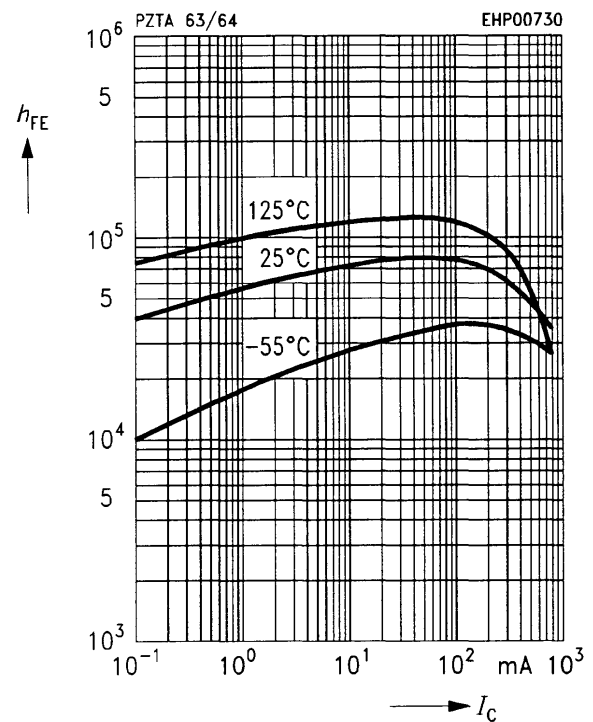
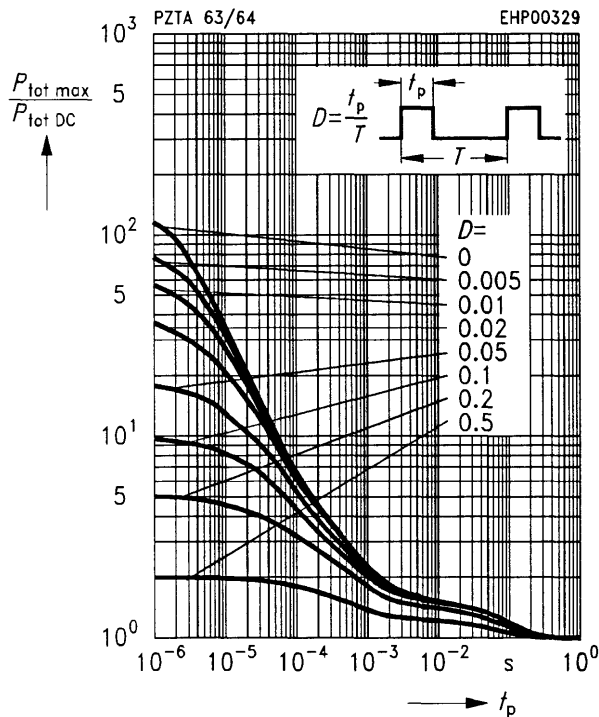
$V_{CE} = 5\text{ V}, f = 100\text{ MHz}$



**Permissible pulse load**  $P_{tot\ max} / P_{tot\ DC} = f(t_p)$

**DC current gain**  $h_{FE} = f(I_C)$

$V_{CE} = 5\text{ V}$

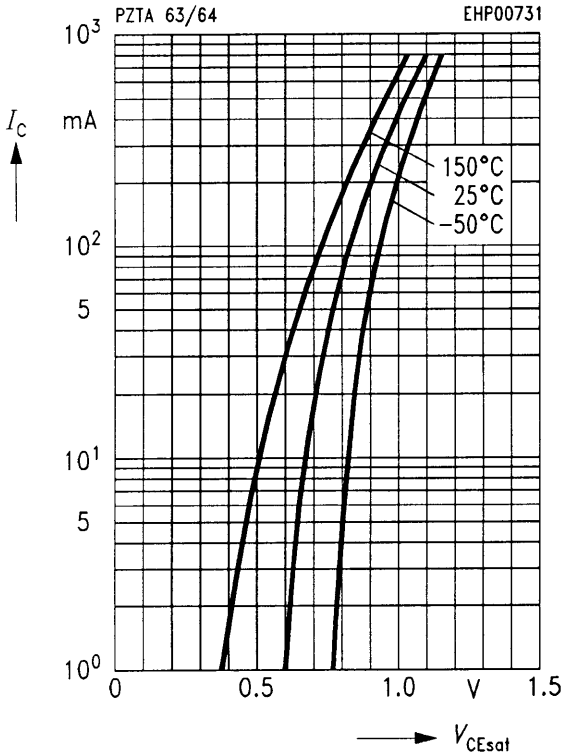


**DARLINGTON TRANSISTOR (PNP)**

**Collector-emitter saturation voltage**

$I_C = f(V_{CE\ sat})$

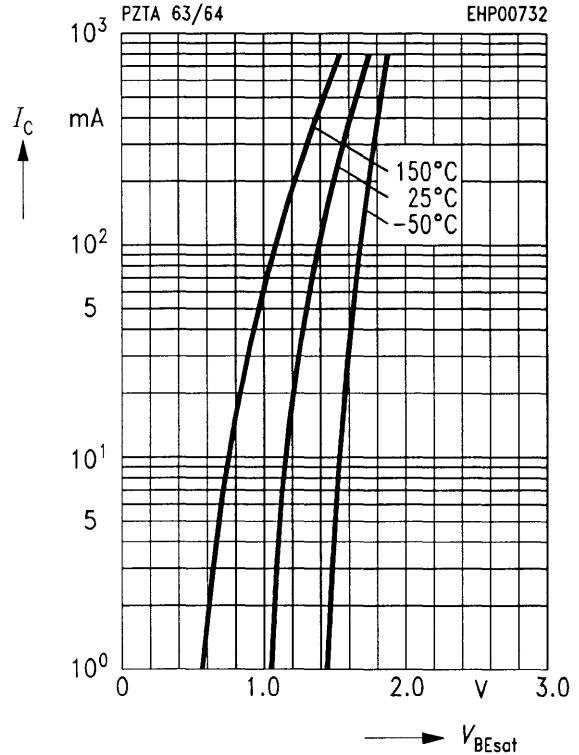
$h_{FE} = 1000$



**Base-emitter saturation voltage**

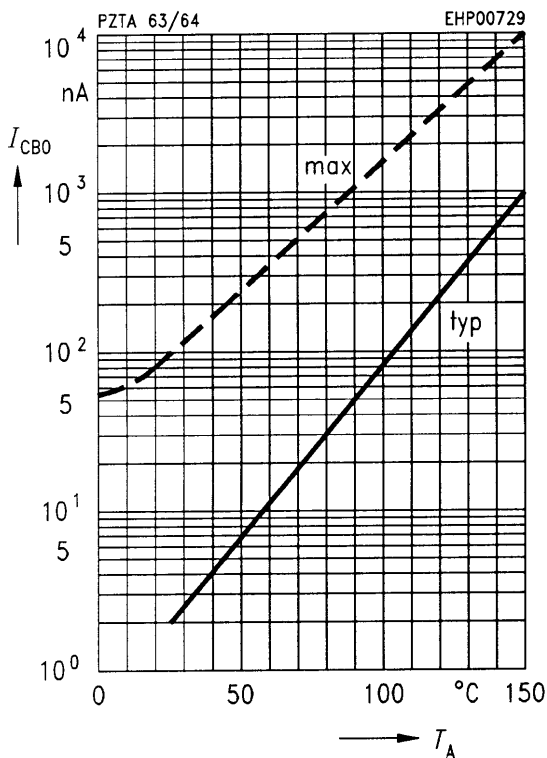
$I_C = f(V_{BE\ sat})$

$h_{FE} = 1000$



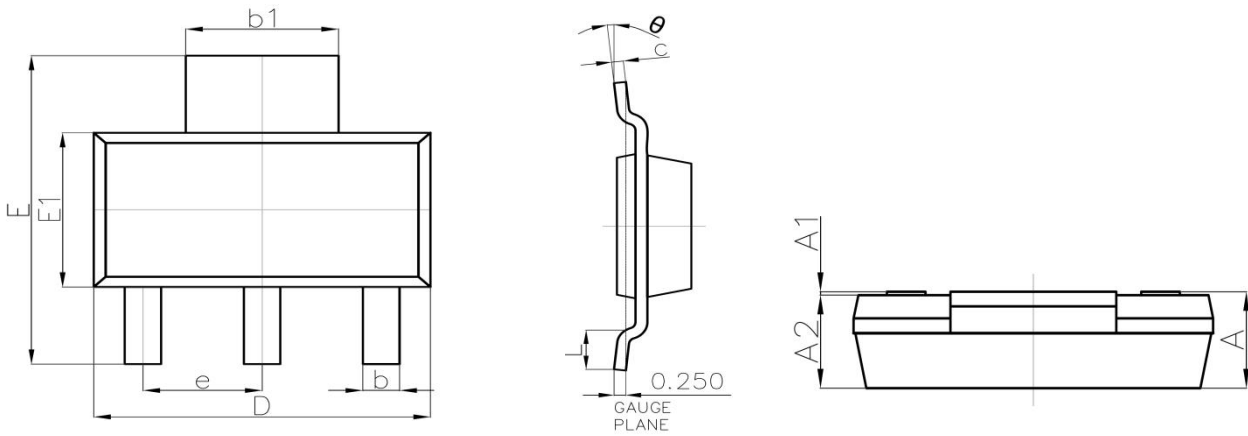
**Collector cutoff current  $I_{CB0} = f(T_A)$**

$V_{CE} = 30\ V$



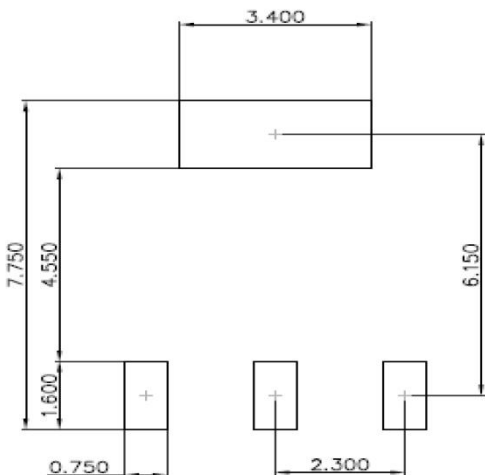
DARLINGTON TRANSISTOR (PNP)

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



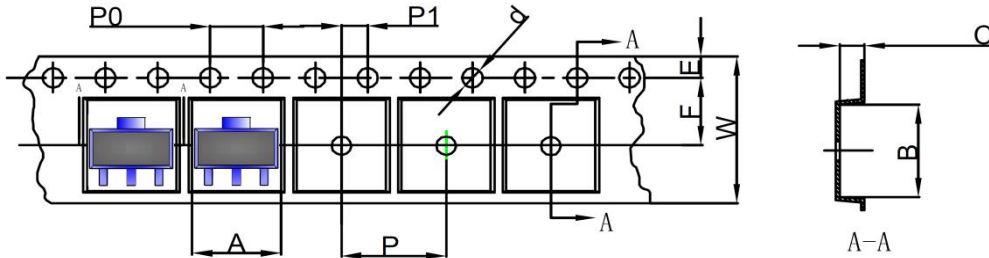
Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

DARLINGTON TRANSISTOR (PNP)

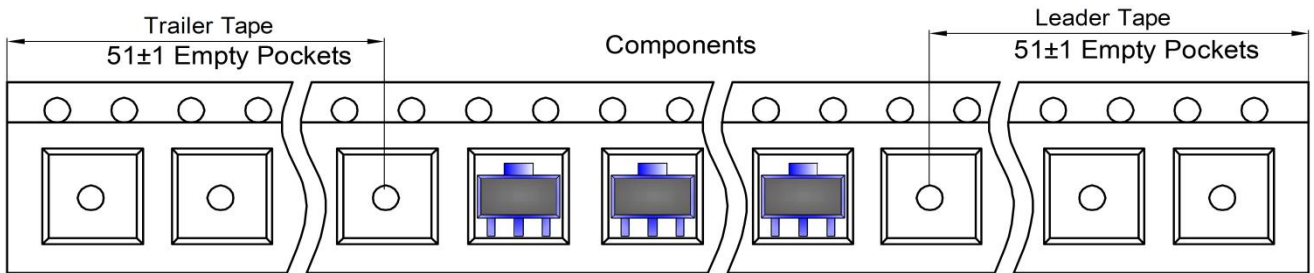
SOT-223 Tape and Reel

SOT-223 Embossed Carrier Tape

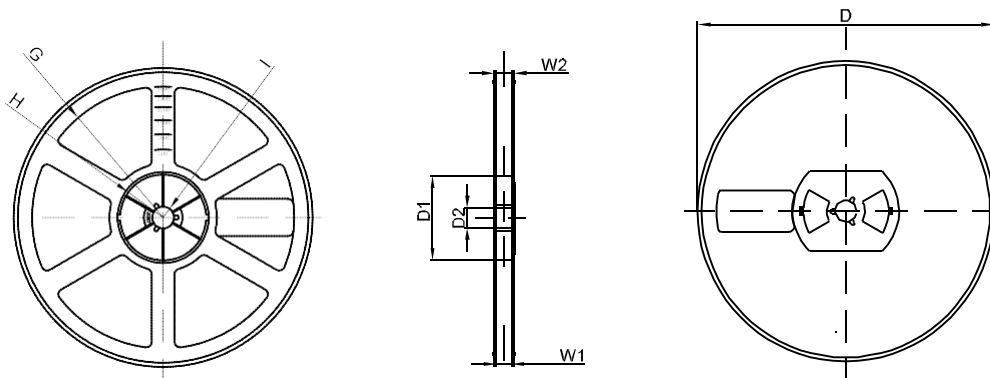


| DIMENSIONS ARE IN MILLIMETER |       |       |      |       |      |      |      |      |      |       |
|------------------------------|-------|-------|------|-------|------|------|------|------|------|-------|
| TYPE                         | A     | B     | C    | d     | E    | F    | P0   | P    | 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    |