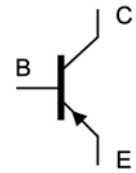
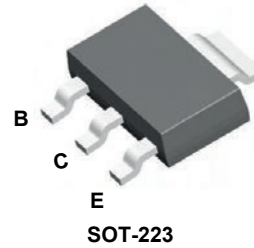


## Features

- High voltage driver applications



Schematic Diagram

## Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                        | Symbol          | Value       | Unit                 |
|--------------------------------------------------|-----------------|-------------|----------------------|
| Collector-Base Voltage                           | $V_{CBO}$       | -300        | V                    |
| Collector-Emitter Voltage                        | $V_{CEO}$       | -300        | V                    |
| Emitter-Base Voltage                             | $V_{EBO}$       | -5          | V                    |
| Collector Current - Continuous                   | $I_C$           | -0.2        | A                    |
| Collector Current - Pulsed                       | $I_{CM}$        | -0.5        | A                    |
| Collector Power Dissipation                      | $P_C$           | 1           | W                    |
| Thermal Resistance From Junction to Ambient      | $R_{\theta JA}$ | 125         | $^{\circ}\text{C/W}$ |
| Operation Junction and Storage Temperature Range | $T_J, T_{stg}$  | -55 to +150 | $^{\circ}\text{C}$   |

## Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                            | Symbol        | Test Conditions                                         | Min  | Typ | Max  | Unit |
|--------------------------------------|---------------|---------------------------------------------------------|------|-----|------|------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C=-0.1\text{mA}, I_E=0$                              | -300 | -   | -    | V    |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C=-1\text{mA}, I_B=0$                                | -300 | -   | -    | V    |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E=-0.1\text{mA}, I_C=0$                              | -5   | -   | -    | V    |
| Collector Cut-Off Current            | $I_{CBO}$     | $V_{CB}=-200\text{V}, I_E=0$                            | -    | -   | -250 | nA   |
| Emitter Cut-Off Current              | $I_{EBO}$     | $V_{EB}=-3\text{V}, I_C=0$                              | -    | -   | -100 | nA   |
| DC Current Gain                      | $h_{FE(1)}$   | $V_{CE}=-10\text{V}, I_C=-1\text{mA}$                   | 25   | -   | -    | -    |
|                                      | $h_{FE(2)}$   | $V_{CE}=-10\text{V}, I_C=-10\text{mA}$                  | 40   | -   | -    | -    |
|                                      | $h_{FE(3)}$   | $V_{CE}=-10\text{V}, I_C=-30\text{mA}$                  | 25   | -   | -    | -    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-20\text{mA}, I_B=-2\text{mA}$                     | -    | -   | -0.5 | V    |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=-20\text{mA}, I_B=-2\text{mA}$                     | -    | -   | -0.9 | V    |
| Transition Frequency                 | $f_T$         | $V_{CE}=-20\text{V}, I_C=-10\text{mA}, F=100\text{MHz}$ | 50   | -   | -    | MHz  |
| Collector Output Capacitance         | $C_{ob}$      | $V_{CB}=-20\text{V}, I_E=0, F=1\text{MHz}$              | -    | -   | 6    | pF   |

## Typical Electrical Characteristic Curves

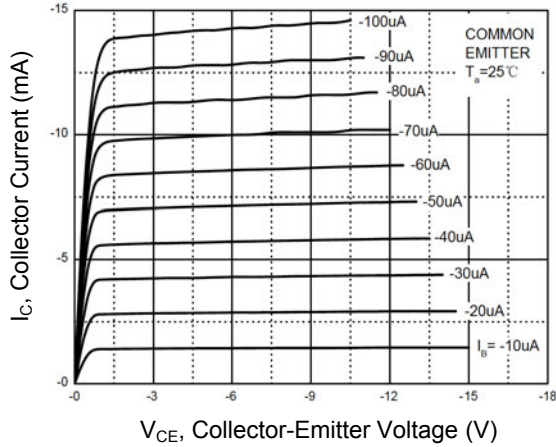


Figure 1. Static Characteristic

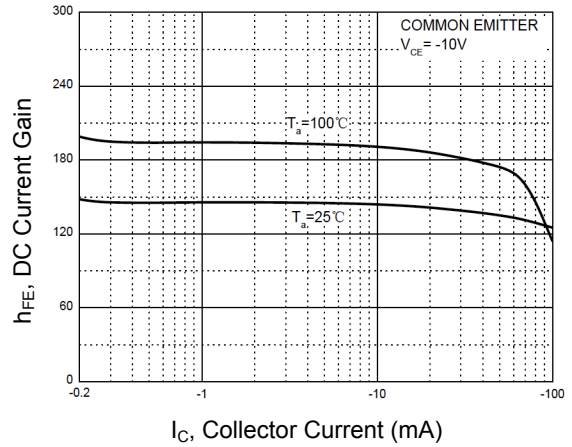


Figure 2.  $h_{FE} - I_C$

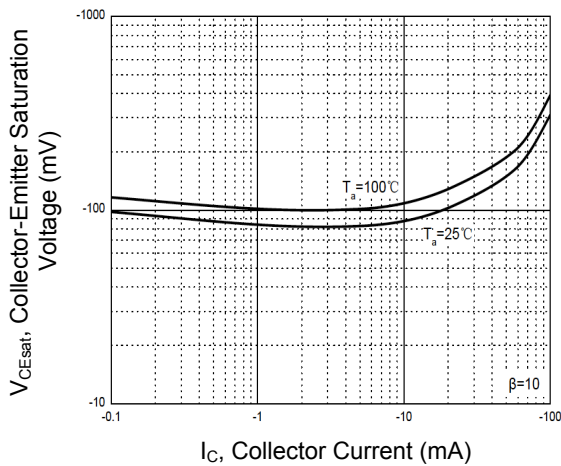


Figure 3.  $V_{CEsat} - I_C$

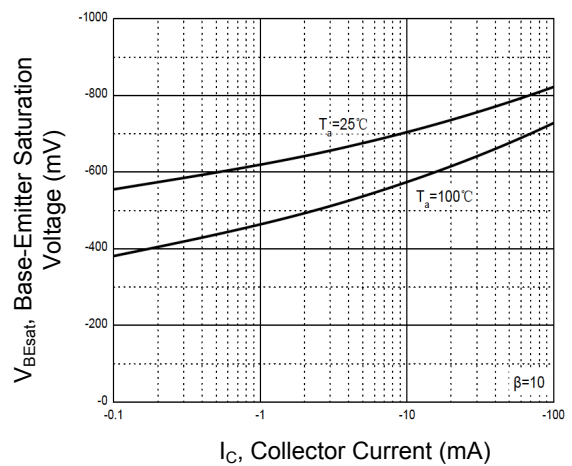


Figure 4.  $V_{BEsat} - I_C$

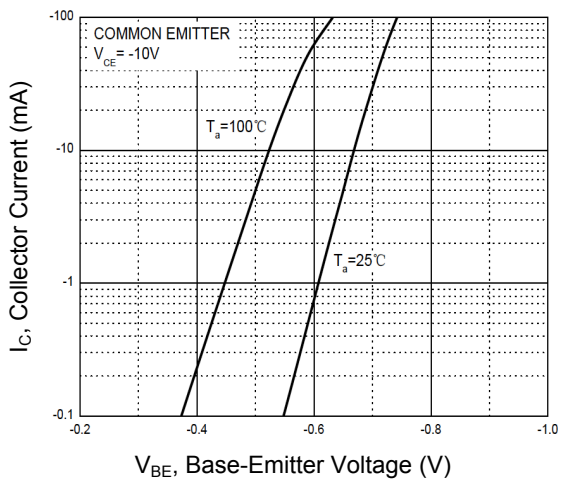


Figure 5.  $I_C - V_{BE}$

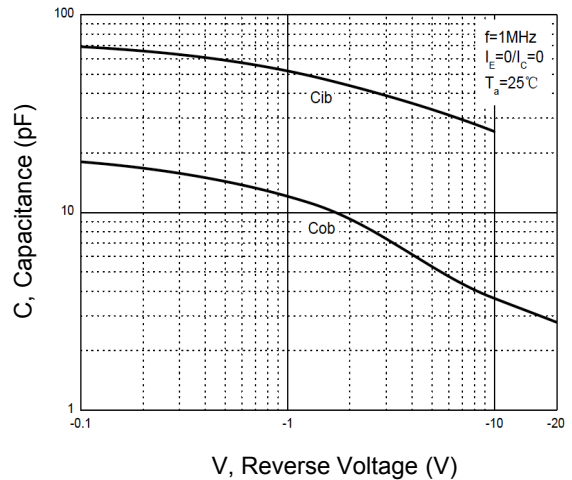


Figure 6.  $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

## Typical Electrical Characteristic Curves

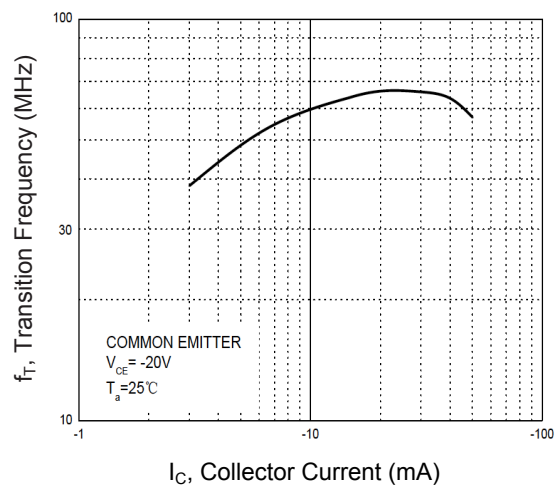


Figure 7.  $f_T - I_C$

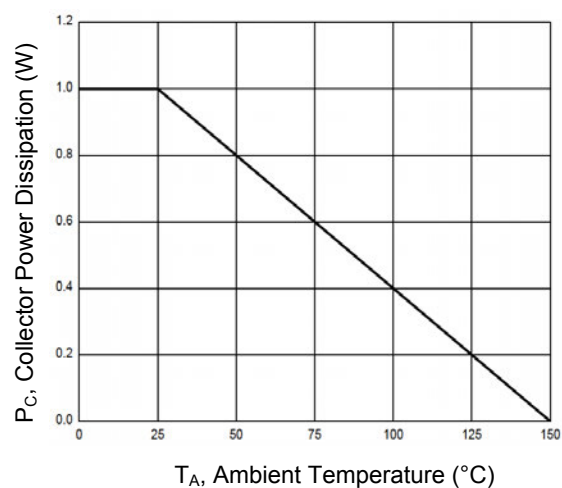
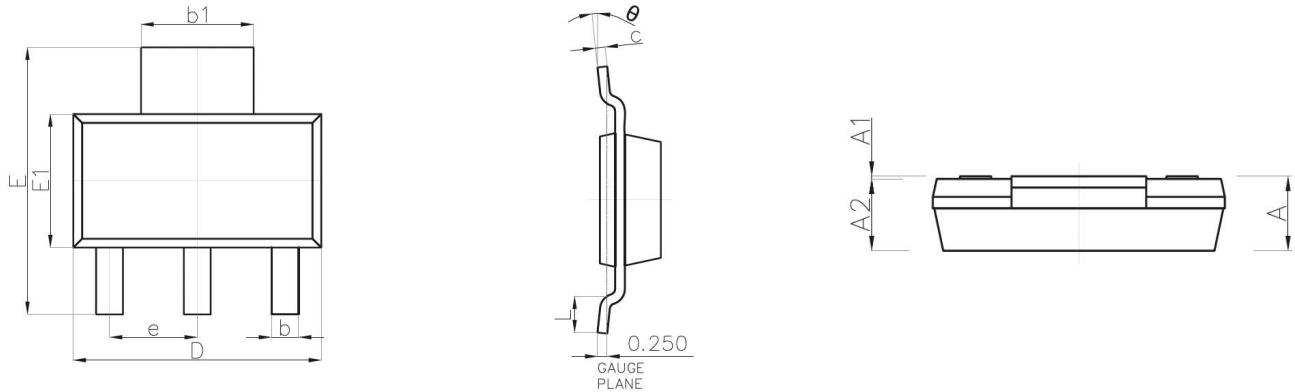


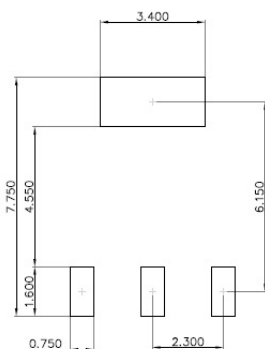
Figure 8.  $P_C - T_a$

## Package Outline Dimensions (SOT-223)



| 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°   |

## Recommended 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.

## Order Information

| Device | Package | Marking | Quantity        | HSF Status     |
|--------|---------|---------|-----------------|----------------|
| PZTA92 | SOT-223 | ZTA92   | 2,500pcs / Reel | RoHS Compliant |