

# PZTA92T1

## High Voltage Transistor

### PNP Silicon

#### Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

| Rating                                                               | Symbol    | Value      | Unit             |
|----------------------------------------------------------------------|-----------|------------|------------------|
| Collector-Emitter Voltage                                            | $V_{CEO}$ | -300       | Vdc              |
| Collector-Base Voltage                                               | $V_{CBO}$ | -300       | Vdc              |
| Emitter-Base Voltage                                                 | $V_{EBO}$ | -5.0       | Vdc              |
| Collector Current                                                    | $I_C$     | -500       | mAdc             |
| Total Power Dissipation<br>up to @ $T_A = 25^\circ\text{C}$ (Note 1) | $P_D$     | 1.5        | W                |
| Storage Temperature Range                                            | $T_{stg}$ | -65 to 150 | $^\circ\text{C}$ |
| Junction Temperature                                                 | $T_J$     | 150        | $^\circ\text{C}$ |

#### THERMAL CHARACTERISTICS

| Characteristic                                      | Symbol          | Max  | Unit               |
|-----------------------------------------------------|-----------------|------|--------------------|
| Thermal Resistance,<br>Junction-to-Ambient (Note 1) | $R_{\theta JA}$ | 83.3 | $^\circ\text{C/W}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

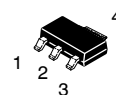
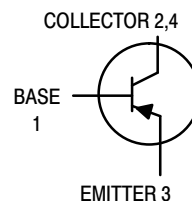
- Device mounted on a FR-4 glass epoxy printed circuit board  
1.575 in x 1.575 in x 0.0625 in; mounting pad for the collector lead = 0.93 sq in.



**ON Semiconductor®**

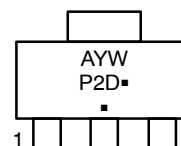
<http://onsemi.com>

### SOT-223 PACKAGE PNP SILICON HIGH VOLTAGE TRANSISTOR SURFACE MOUNT



**SOT-223  
CASE 318E-04  
STYLE 1**

#### MARKING DIAGRAM



P2D = Specific Device Code  
A = Assembly Location  
Y = Year  
W = Work Week  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

# PZTA92T1

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

| Characteristics                                                                                                                                                                             | Symbol                         | Min            | Max          | Unit          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------|--------------|---------------|
| <b>OFF CHARACTERISTICS</b>                                                                                                                                                                  |                                |                |              |               |
| Collector-Emitter Breakdown Voltage (Note 2)<br>( $I_C = -1.0\text{ mA}$ , $I_B = 0$ )                                                                                                      | $V_{(BR)CEO}$                  | -300           | —            | Vdc           |
| Collector-Base Breakdown Voltage<br>( $I_C = -100\text{ }\mu\text{A}$ , $I_E = 0$ )                                                                                                         | $V_{(BR)CBO}$                  | -300           | —            | Vdc           |
| Emitter-Base Breakdown Voltage<br>( $I_E = -100\text{ }\mu\text{A}$ , $I_C = 0$ )                                                                                                           | $V_{(BR)EBO}$                  | -5.0           | —            | Vdc           |
| Collector-Base Cutoff Current<br>( $V_{CB} = -200\text{ Vdc}$ , $I_E = 0$ )                                                                                                                 | $I_{CBO}$                      | —              | -0.25        | $\mu\text{A}$ |
| Emitter-Base Cutoff Current<br>( $V_{BE} = -3.0\text{ Vdc}$ , $I_C = 0$ )                                                                                                                   | $I_{EBO}$                      | —              | -0.1         | $\mu\text{A}$ |
| <b>ON CHARACTERISTICS</b>                                                                                                                                                                   |                                |                |              |               |
| DC Current Gain<br>( $I_C = -1.0\text{ mA}$ , $V_{CE} = -10\text{ Vdc}$ )<br>( $I_C = -10\text{ mA}$ , $V_{CE} = -10\text{ Vdc}$ )<br>( $I_C = -30\text{ mA}$ , $V_{CE} = -10\text{ Vdc}$ ) | $h_{FE}$                       | 25<br>40<br>40 | —<br>—<br>—  | —             |
| Saturation Voltages<br>( $I_C = -20\text{ mA}$ , $I_B = -2.0\text{ mA}$ )<br>( $I_C = -20\text{ mA}$ , $I_B = -2.0\text{ mA}$ )                                                             | $V_{CE(sat)}$<br>$V_{BE(sat)}$ | —<br>—         | -0.5<br>-0.9 | Vdc           |
| <b>DYNAMIC CHARACTERISTICS</b>                                                                                                                                                              |                                |                |              |               |
| Collector-Base Capacitance @ $f = 1.0\text{ MHz}$ ( $V_{CB} = -20\text{ Vdc}$ , $I_E = 0$ )                                                                                                 | $C_{cb}$                       | —              | 6.0          | pF            |
| Current-Gain — Bandwidth Product<br>( $I_C = -10\text{ mA}$ , $V_{CE} = -20\text{ Vdc}$ , $f = 100\text{ MHz}$ )                                                                            | $f_T$                          | 50             | —            | MHz           |

2. Pulse Test Conditions,  $t_p = 300\text{ }\mu\text{s}$ ,  $\delta \leq 0.02$ .

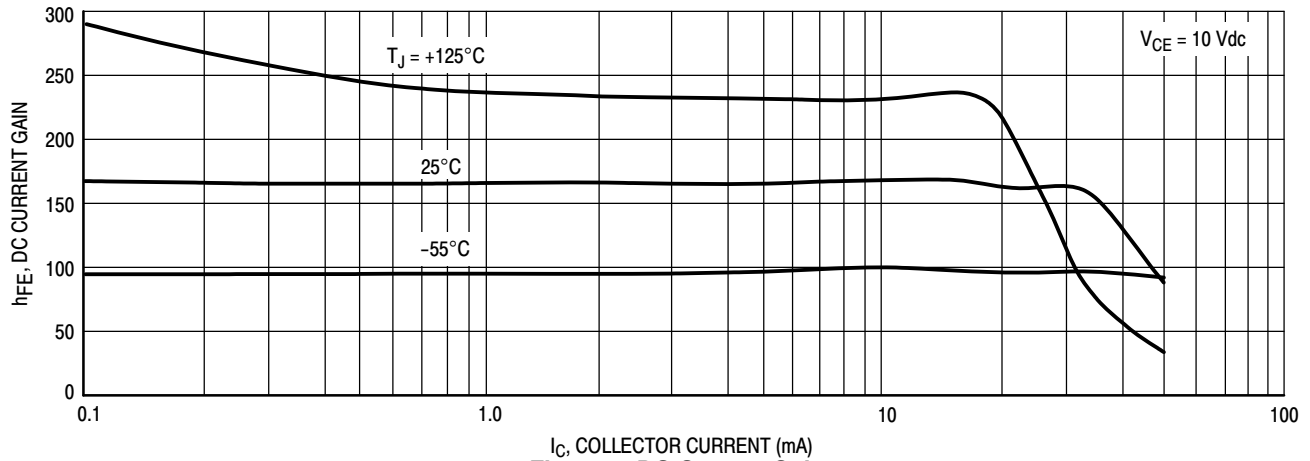


Figure 1. DC Current Gain

# PZTA92T1

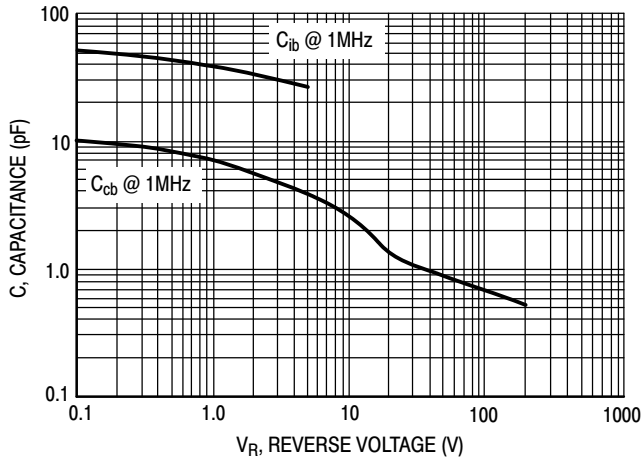


Figure 2. Capacitance

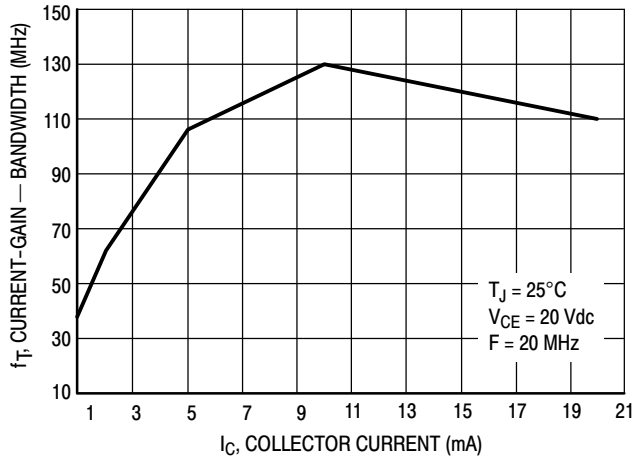


Figure 3. Current-Gain — Bandwidth

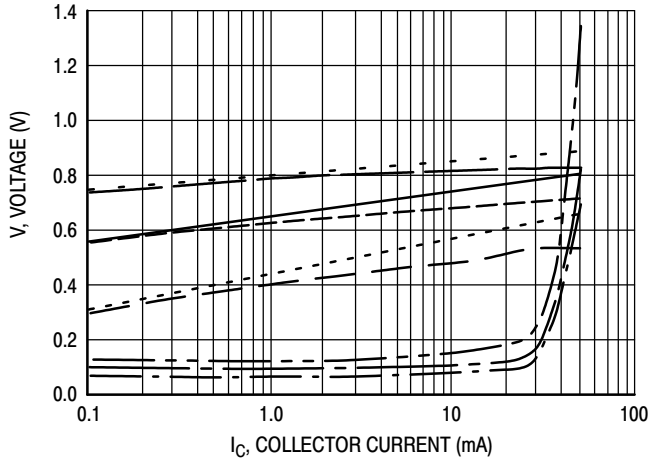


Figure 4. "ON" Voltages

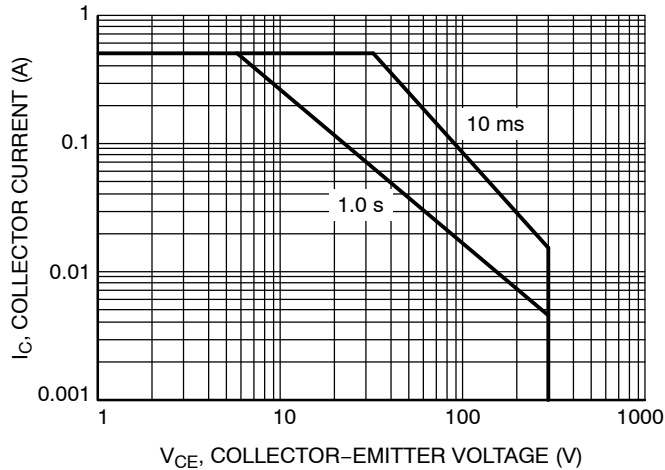


Figure 5. Safe Operating Area

## PZTA92T1

### ORDERING INFORMATION

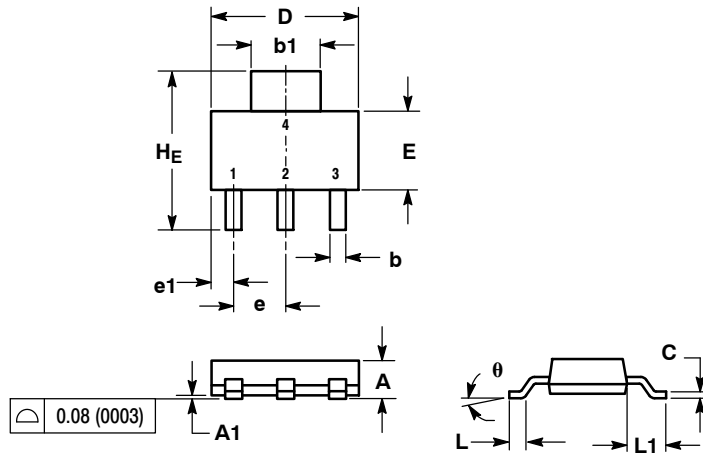
| Device    | Package              | Shipping <sup>†</sup> |
|-----------|----------------------|-----------------------|
| PZTA92T1G | SOT-223<br>(Pb-Free) | 1000 / Tape & Reel    |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# PZTA92T1

## PACKAGE DIMENSIONS

SOT-223 (TO-261)  
CASE 318E-04  
ISSUE N



### NOTES:

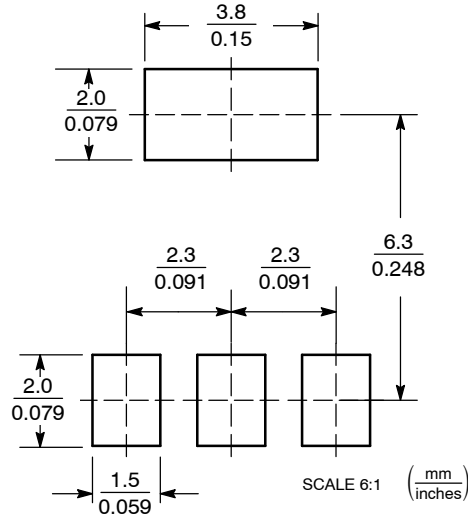
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCH.

| DIM   | MILLIMETERS |      |      | INCHES |       |       |
|-------|-------------|------|------|--------|-------|-------|
|       | MIN         | NOM  | MAX  | MIN    | NOM   | MAX   |
| A     | 1.50        | 1.63 | 1.75 | 0.060  | 0.064 | 0.068 |
| A1    | 0.02        | 0.06 | 0.10 | 0.001  | 0.002 | 0.004 |
| b     | 0.60        | 0.75 | 0.89 | 0.024  | 0.030 | 0.035 |
| b1    | 2.90        | 3.06 | 3.20 | 0.115  | 0.121 | 0.126 |
| c     | 0.24        | 0.29 | 0.35 | 0.009  | 0.012 | 0.014 |
| D     | 6.30        | 6.50 | 6.70 | 0.249  | 0.256 | 0.263 |
| E     | 3.30        | 3.50 | 3.70 | 0.130  | 0.138 | 0.145 |
| e     | 2.20        | 2.30 | 2.40 | 0.087  | 0.091 | 0.094 |
| e1    | 0.85        | 0.94 | 1.05 | 0.033  | 0.037 | 0.041 |
| L     | 0.20        |      |      | 0.008  |       |       |
| L1    | 1.50        | 1.75 | 2.00 | 0.060  | 0.069 | 0.078 |
| HE    | 6.70        | 7.00 | 7.30 | 0.264  | 0.276 | 0.287 |
| theta | 0°          |      | 10°  | 0°     |       | 10°   |

### STYLE 1:

- PIN 1. BASE
- COLLECTOR
- EMITTER
- COLLECTOR

## SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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