

# PZTA96ST1G

## High Voltage Transistor

### PNP Silicon

#### Features

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

#### MAXIMUM RATINGS

| Rating                                                             | Symbol    | Value       | Unit             |
|--------------------------------------------------------------------|-----------|-------------|------------------|
| Collector-Emitter Voltage                                          | $V_{CEO}$ | -450        | Vdc              |
| Collector-Base Voltage                                             | $V_{CBO}$ | -450        | Vdc              |
| Emitter-Base Voltage                                               | $V_{EBO}$ | -5.0        | Vdc              |
| Collector Current                                                  | $I_C$     | -500        | mAdc             |
| Total Power Dissipation Up to<br>$T_A = 25^\circ\text{C}$ (Note 1) | $P_D$     | 1.5         | W                |
| Storage Temperature Range                                          | $T_{stg}$ | -65 to +150 | $^\circ\text{C}$ |
| Junction Temperature                                               | $T_J$     | 150         | $^\circ\text{C}$ |

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 glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.059 in.; mounting pad for the collector lead min. 0.93 in<sup>2</sup>.

#### THERMAL CHARACTERISTICS

| Characteristic                                      | Symbol          | Max  | Unit             |
|-----------------------------------------------------|-----------------|------|------------------|
| Thermal Resistance,<br>Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 83.3 | $^\circ\text{C}$ |

- Device mounted on a glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.059 in.; mounting pad for the collector lead min. 0.93 in<sup>2</sup>.

#### ELECTRICAL CHARACTERISTICS (Note 3)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

#### OFF CHARACTERISTICS

|                                                                              |               |      |      |           |
|------------------------------------------------------------------------------|---------------|------|------|-----------|
| Collector-Emitter Breakdown Voltage<br>( $I_C = -1.0$ mAdc, $I_B = 0$ )      | $V_{(BR)CEO}$ | -450 | -    | Vdc       |
| Collector-Emitter Breakdown Voltage<br>( $I_C = -100$ $\mu$ Adc, $I_E = 0$ ) | $V_{(BR)CBO}$ | -450 | -    | Vdc       |
| Emitter-Base Breakdown Voltage<br>( $I_E = -10$ $\mu$ Adc, $I_C = 0$ )       | $V_{(BR)EBO}$ | -5.0 | -    | Vdc       |
| Collector-Base Cutoff Current<br>( $V_{CB} = -400$ Vdc, $I_E = 0$ )          | $I_{CBO}$     | -    | -0.1 | $\mu$ Adc |
| Emitter-Base Cutoff Current<br>( $V_{BE} = -4.0$ Vdc, $I_C = 0$ )            | $I_{EBO}$     | -    | -0.1 | $\mu$ Adc |

#### ON CHARACTERISTICS

|                                                                                                         |                                |    |              |     |
|---------------------------------------------------------------------------------------------------------|--------------------------------|----|--------------|-----|
| DC Current Gain (Note 4)<br>( $I_C = -10$ mAdc, $V_{CE} = -10$ Vdc)                                     | $h_{FE}$                       | 50 | 150          | -   |
| Saturation Voltages<br>( $I_C = -20$ mAdc, $I_B = -2.0$ mAdc)<br>( $I_C = -20$ mAdc, $I_B = -2.0$ mAdc) | $V_{CE(sat)}$<br>$V_{BE(sat)}$ | -  | -0.6<br>-1.0 | Vdc |

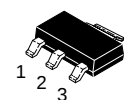
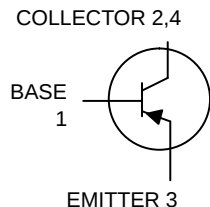
- $T_A = 25^\circ\text{C}$  unless otherwise noted.

- Pulse Test: Pulse Width  $\leq 300$   $\mu$ s; Duty Cycle = 2.0%.



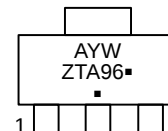
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SOT-223 (TO-261)  
CASE 318E  
STYLE 1

#### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
W = Work Week  
■ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

| Device     | Package              | Shipping†        |
|------------|----------------------|------------------|
| PZTA96ST1G | SOT-223<br>(Pb-Free) | 1000/Tape & Reel |

†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.

TYPICAL CHARACTERISTICS

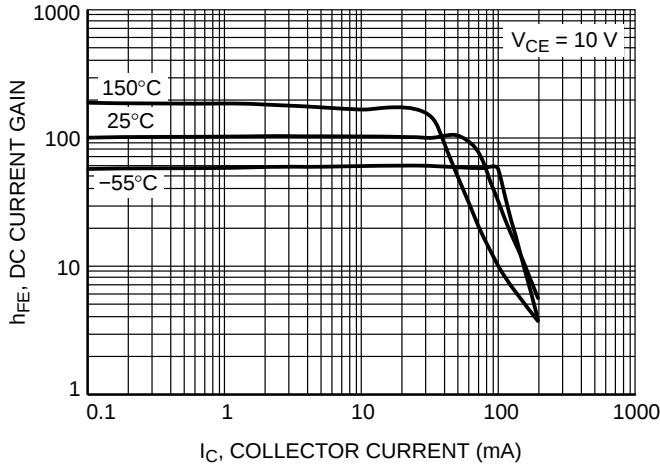


Figure 1. DC Current Gain

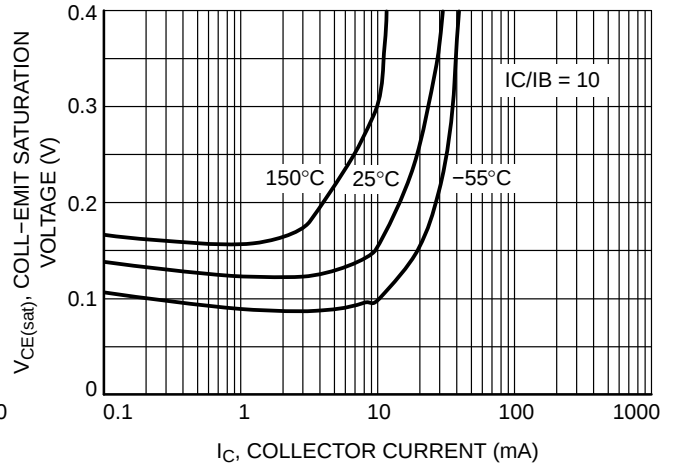


Figure 2. Collector-Emitter Saturation Voltage

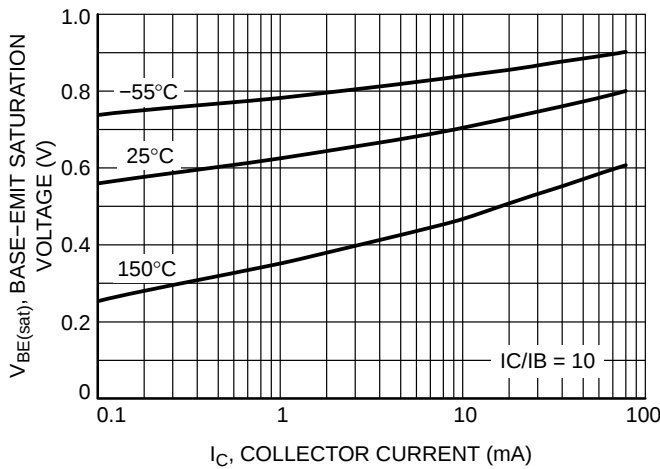


Figure 3. Base-Emitter Saturation Voltage

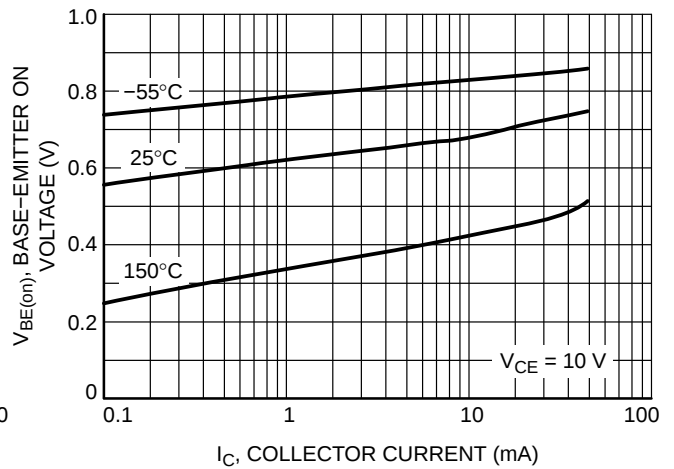


Figure 4. Base-Emitter "On" Voltage

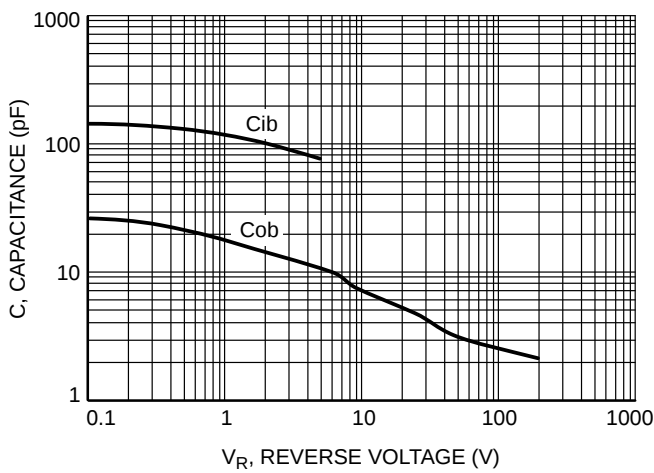


Figure 5. Capacitances

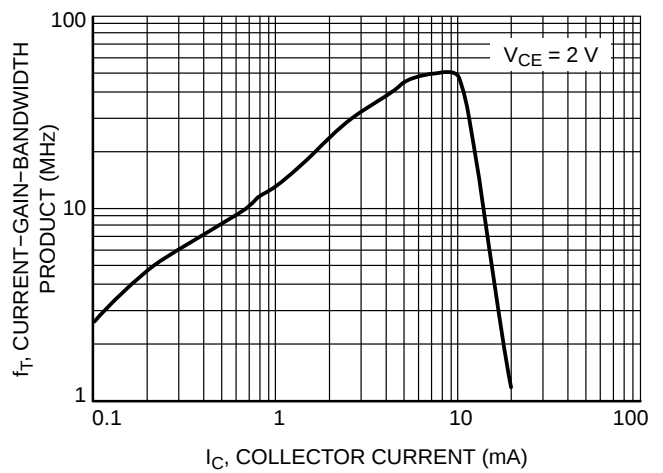


Figure 6. Current-Gain-Bandwidth Product

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

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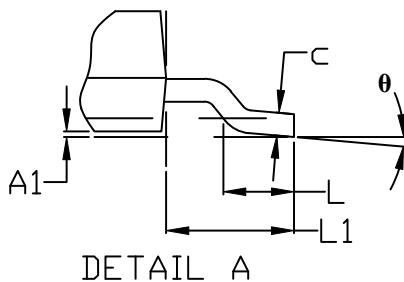
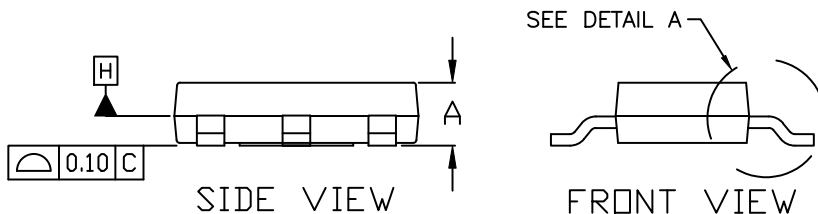
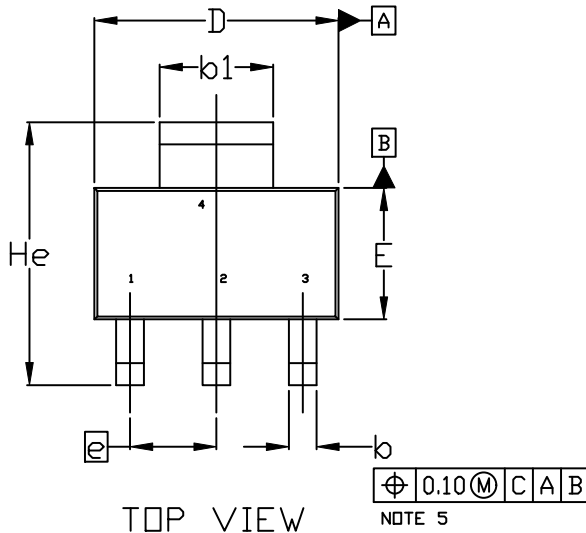
ON



SCALE 1:1

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

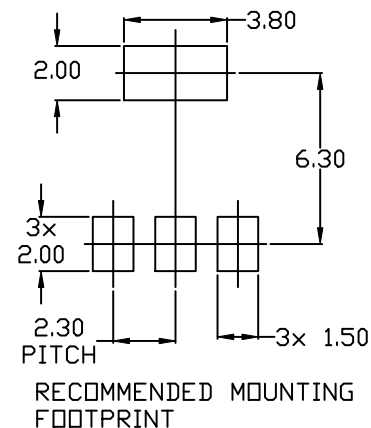
DATE 02 OCT 2018



## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSIONS D & E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.200MM PER SIDE.
4. DATUMS A AND B ARE DETERMINED AT DATUM H.
5. A1 IS DEFINED AS THE VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.
6. POSITIONAL TOLERANCE APPLIES TO DIMENSIONS b AND b1.

| MILLIMETERS |          |      |      |
|-------------|----------|------|------|
| DIM         | MIN.     | NOM. | MAX. |
| A           | 1.50     | 1.63 | 1.75 |
| A1          | 0.02     | 0.06 | 0.10 |
| b           | 0.60     | 0.75 | 0.89 |
| b1          | 2.90     | 3.06 | 3.20 |
| c           | 0.24     | 0.29 | 0.35 |
| D           | 6.30     | 6.50 | 6.70 |
| E           | 3.30     | 3.50 | 3.70 |
| e           | 2.30 BSC |      |      |
| L           | 0.20     | ---  | ---  |
| L1          | 1.50     | 1.75 | 2.00 |
| He          | 6.70     | 7.00 | 7.30 |
| θ           | 0°       | ---  | 10°  |



|                         |                         |                                                                                                                                                                                     |
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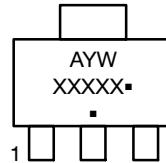
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**SOT-223 (TO-261)**  
**CASE 318E-04**  
**ISSUE R**

DATE 02 OCT 2018

|                                                                              |                                                                             |                                                                               |                                                                       |                                                                       |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>STYLE 1:</b><br>PIN 1. BASE<br>2. COLLECTOR<br>3. EMITTER<br>4. COLLECTOR | <b>STYLE 2:</b><br>PIN 1. ANODE<br>2. CATHODE<br>3. NC<br>4. CATHODE        | <b>STYLE 3:</b><br>PIN 1. GATE<br>2. DRAIN<br>3. SOURCE<br>4. DRAIN           | <b>STYLE 4:</b><br>PIN 1. SOURCE<br>2. DRAIN<br>3. GATE<br>4. DRAIN   | <b>STYLE 5:</b><br>PIN 1. DRAIN<br>2. GATE<br>3. SOURCE<br>4. GATE    |
| <b>STYLE 6:</b><br>PIN 1. RETURN<br>2. INPUT<br>3. OUTPUT<br>4. INPUT        | <b>STYLE 7:</b><br>PIN 1. ANODE 1<br>2. CATHODE<br>3. ANODE 2<br>4. CATHODE | <b>STYLE 8:</b><br>CANCELLED                                                  | <b>STYLE 9:</b><br>PIN 1. INPUT<br>2. GROUND<br>3. LOGIC<br>4. GROUND | <b>STYLE 10:</b><br>PIN 1. CATHODE<br>2. ANODE<br>3. GATE<br>4. ANODE |
| <b>STYLE 11:</b><br>PIN 1. MT 1<br>2. MT 2<br>3. GATE<br>4. MT 2             | <b>STYLE 12:</b><br>PIN 1. INPUT<br>2. OUTPUT<br>3. NC<br>4. OUTPUT         | <b>STYLE 13:</b><br>PIN 1. GATE<br>2. COLLECTOR<br>3. EMITTER<br>4. COLLECTOR |                                                                       |                                                                       |

**GENERIC  
MARKING DIAGRAM\***



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

(Note: Microdot may be in either location)  
 \*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

|                         |                         |                                                                                                                                                                                  |
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