

# High Voltage Transistor

## PNP Silicon

### PZTA92T1G, NSVPZTA92T1G

#### Features

- Complement to PZTA42T1G
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

| Rating                                                            | Symbol           | Value       | Unit |
|-------------------------------------------------------------------|------------------|-------------|------|
| Collector-Emitter Voltage                                         | V <sub>CEO</sub> | -300        | Vdc  |
| Collector-Base Voltage                                            | V <sub>CBO</sub> | -300        | Vdc  |
| Emitter-Base Voltage                                              | V <sub>EBO</sub> | -5.0        | Vdc  |
| Collector Current                                                 | I <sub>C</sub>   | -500        | mAdc |
| Total Power Dissipation<br>up to @ T <sub>A</sub> = 25°C (Note 1) | P <sub>D</sub>   | 1.5         | W    |
| Storage Temperature Range                                         | T <sub>stg</sub> | -65 to +150 | °C   |
| Junction Temperature                                              | T <sub>J</sub>   | 150         | °C   |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

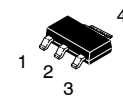
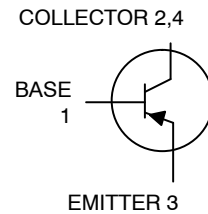
- Device mounted on a FR-4 glass epoxy printed circuit board  
1.575 in x 1.575 in x 0.0625 in; mounting pad for the collector lead = 0.93 sq in.

#### THERMAL CHARACTERISTICS

| Characteristic                                      | Symbol           | Max  | Unit |
|-----------------------------------------------------|------------------|------|------|
| Thermal Resistance,<br>Junction-to-Ambient (Note 2) | R <sub>θJA</sub> | 83.3 | °C/W |

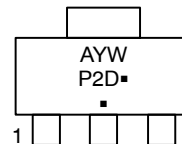
- Device mounted on a FR-4 glass epoxy printed circuit board  
1.575 in x 1.575 in x 0.0625 in; mounting pad for the collector lead = 0.93 sq in.

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



SOT-223  
CASE 318E  
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

| Device                     | Package              | Shipping <sup>†</sup> |
|----------------------------|----------------------|-----------------------|
| PZTA92T1G,<br>NSVPZTA92T1G | SOT-223<br>(Pb-Free) | 1,000 / Tape & Reel   |
| NSVPZTA92T3G               | SOT-223<br>(Pb-Free) | 4,000 / 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 Specification Brochure, BRD8011/D.

# PZTA92T1G, NSVPZTA92T1G

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

| Characteristics                                                                                                                                                                          | Symbol                                       | Min            | Max          | Unit |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------|--------------|------|
| <b>OFF CHARACTERISTICS</b>                                                                                                                                                               |                                              |                |              |      |
| Collector-Emitter Breakdown Voltage (Note 3)<br>(I <sub>C</sub> = -1.0 mA, I <sub>B</sub> = 0)                                                                                           | V <sub>(BR)CEO</sub>                         | -300           | -            | Vdc  |
| Collector-Base Breakdown Voltage<br>(I <sub>C</sub> = -100 μA, I <sub>E</sub> = 0)                                                                                                       | V <sub>(BR)CBO</sub>                         | -300           | -            | Vdc  |
| Emitter-Base Breakdown Voltage<br>(I <sub>E</sub> = -100 μA, I <sub>C</sub> = 0)                                                                                                         | V <sub>(BR)EBO</sub>                         | -5.0           | -            | Vdc  |
| Collector-Base Cutoff Current<br>(V <sub>CB</sub> = -200 Vdc, I <sub>E</sub> = 0)                                                                                                        | I <sub>CBO</sub>                             | -              | -0.25        | μA   |
| Emitter-Base Cutoff Current<br>(V <sub>BE</sub> = -3.0 Vdc, I <sub>C</sub> = 0)                                                                                                          | I <sub>EBO</sub>                             | -              | -0.1         | μA   |
| <b>ON CHARACTERISTICS</b>                                                                                                                                                                |                                              |                |              |      |
| DC Current Gain<br>(I <sub>C</sub> = -1.0 mA, V <sub>CE</sub> = -10 Vdc)<br>(I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -10 Vdc)<br>(I <sub>C</sub> = -30 mA, V <sub>CE</sub> = -10 Vdc) | h <sub>FE</sub>                              | 25<br>40<br>40 | -<br>-<br>-  | -    |
| Saturation Voltages<br>(I <sub>C</sub> = -20 mA, I <sub>B</sub> = -2.0 mA)<br>(I <sub>C</sub> = -20 mA, I <sub>B</sub> = -2.0 mA)                                                        | V <sub>CE(sat)</sub><br>V <sub>BE(sat)</sub> | -<br>-         | -0.5<br>-0.9 | Vdc  |
| <b>DYNAMIC CHARACTERISTICS</b>                                                                                                                                                           |                                              |                |              |      |
| Collector-Base Capacitance @ f = 1.0 MHz<br>(V <sub>CB</sub> = -20 Vdc, I <sub>E</sub> = 0)                                                                                              | C <sub>cb</sub>                              | -              | 6.0          | pF   |
| Current-Gain – Bandwidth Product<br>(I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -20 Vdc, f = 100 MHz)                                                                                    | f <sub>T</sub>                               | 50             | -            | MHz  |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Pulse Test Conditions, t<sub>p</sub> = 300 μs, δ 0.02.

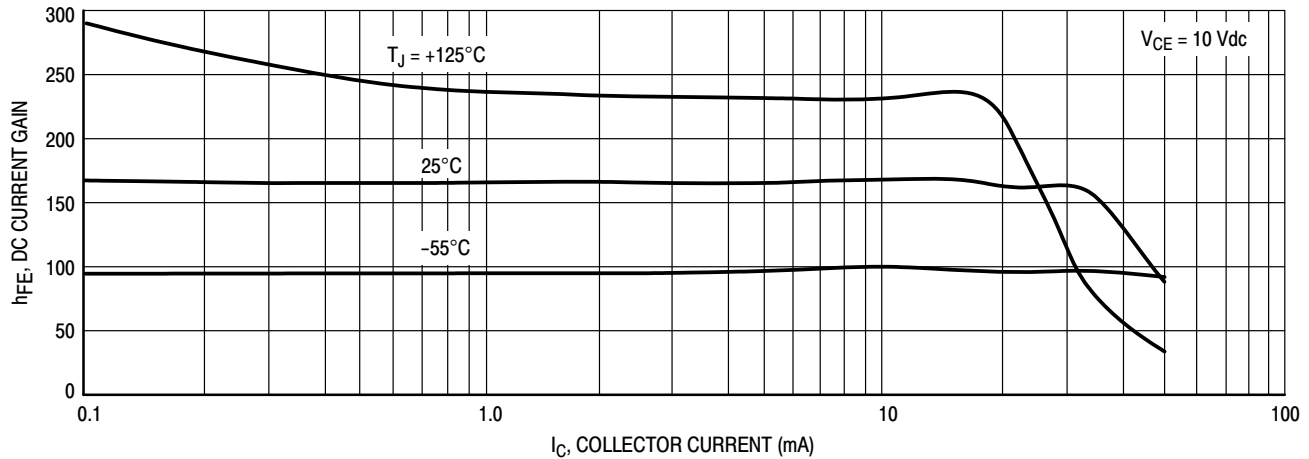


Figure 1. DC Current Gain

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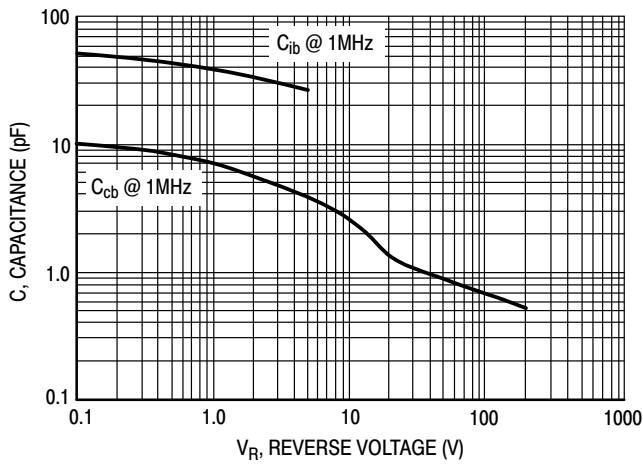


Figure 2. Capacitance

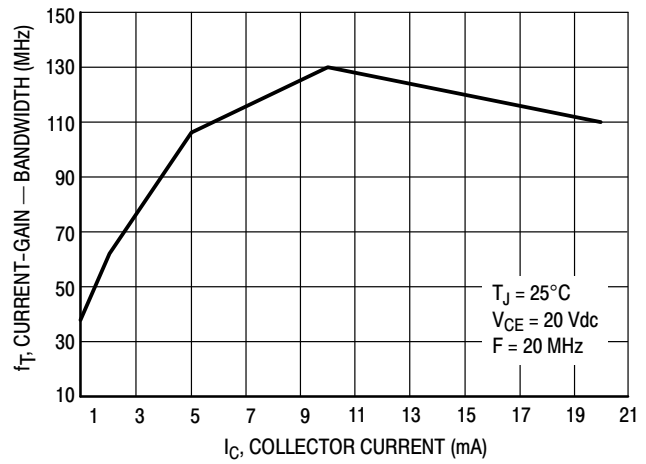


Figure 3. Current-Gain - Bandwidth

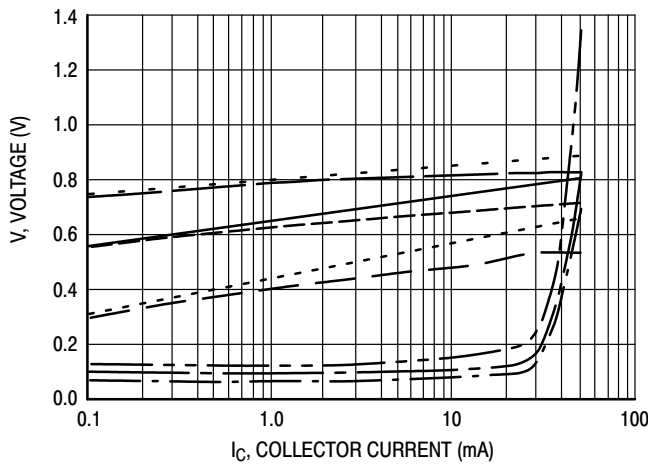


Figure 4. "ON" Voltages

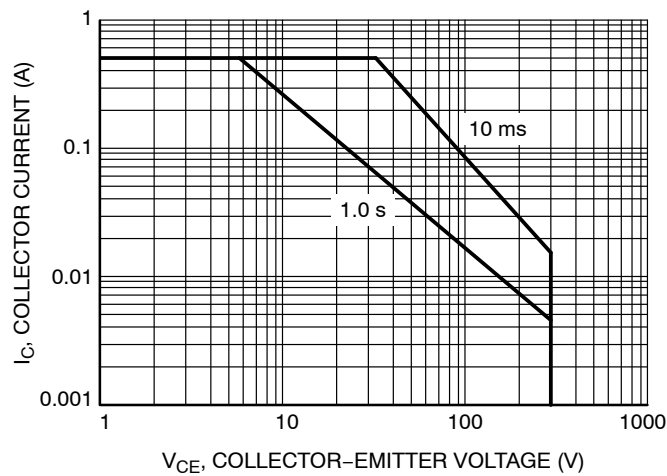
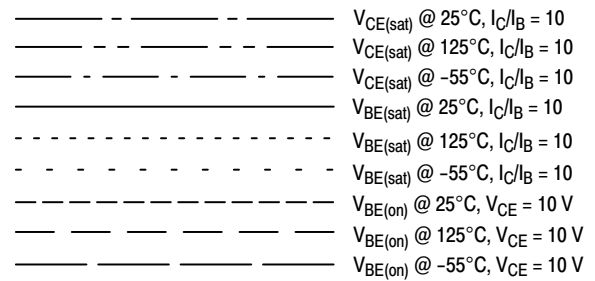


Figure 5. Safe Operating Area

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