

# PZT751T1G

## PNP Silicon Planar Epitaxial Transistor

This PNP Silicon Epitaxial transistor is designed for use in industrial and consumer applications. The device is housed in the SOT-223 package which is designed for medium power surface mount applications.

### Features

- High Current: 2.0 A
- The SOT-223 Package can be soldered using wave or reflow.
- SOT-223 package ensures level mounting, resulting in improved thermal conduction, and allows visual inspection of soldered joints. The formed leads absorb thermal stress during soldering, eliminating the possibility of damage to the die
- NPN Complement is PZT651T1
- 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	$V_{CEO}$	60	Vdc
Collector-Base Voltage	$V_{CBO}$	80	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current	$I_C$	2.0	Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ (Note 1) Derate above $25^\circ\text{C}$	$P_D$	0.8 6.4	W mW/ $^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to 150	$^\circ\text{C}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient in Free Air	$R_{\theta JA}$	156	$^\circ\text{C}/\text{W}$
Maximum Temperature for Soldering Purposes Time in Solder Bath	$T_L$	260 10	$^\circ\text{C}$ Sec

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.

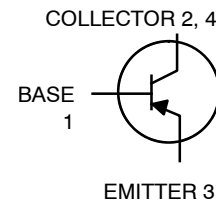
1. Device mounted on a FR-4 glass epoxy printed circuit board using minimum recommended footprint.



**ON Semiconductor®**

<http://onsemi.com>

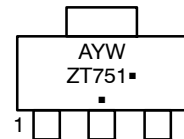
## SOT-223 PACKAGE HIGH CURRENT PNP SILICON TRANSISTOR SURFACE MOUNT



### MARKING DIAGRAM



SOT-223  
CASE 318E  
STYLE 1



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

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping
PZT751T1G	SOT-223 (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.

# PZT751T1G

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

Characteristics	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage ( $I_C = 10\text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	60	-	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 100\text{ }\mu\text{Adc}$ , $I_E = 0$ )	$V_{(BR)CBO}$	80	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\text{ }\mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	-	Vdc
Base-Emitter Cutoff Current ( $V_{EB} = 4.0\text{ Vdc}$ )	$I_{EBO}$	-	0.1	$\mu\text{Adc}$
Collector-Base Cutoff Current ( $V_{CB} = 80\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	-	100	nAdc
<b>ON CHARACTERISTICS (Note 2)</b>				
DC Current Gain ( $I_C = 50\text{ mAdc}$ , $V_{CE} = 2.0\text{ Vdc}$ ) ( $I_C = 500\text{ mAdc}$ , $V_{CE} = 2.0\text{ Vdc}$ ) ( $I_C = 1.0\text{ Adc}$ , $V_{CE} = 2.0\text{ Vdc}$ ) ( $I_C = 2.0\text{ Adc}$ , $V_{CE} = 2.0\text{ Vdc}$ )	$h_{FE}$	75 75 75 40	- - - -	-
Collector-Emitter Saturation Voltages ( $I_C = 2.0\text{ Adc}$ , $I_B = 200\text{ mAdc}$ ) ( $I_C = 1.0\text{ Adc}$ , $I_B = 100\text{ mAdc}$ )	$V_{CE(sat)}$	- -	0.5 0.3	Vdc
Base-Emitter Voltages ( $I_C = 1.0\text{ Adc}$ , $V_{CE} = 2.0\text{ Vdc}$ )	$V_{BE(on)}$	-	1.0	Vdc
Base-Emitter Saturation Voltage ( $I_C = 1.0\text{ Adc}$ , $I_B = 100\text{ mAdc}$ )	$V_{BE(sat)}$	-	1.2	Vdc
Current-Gain-Bandwidth ( $I_C = 50\text{ mAdc}$ , $V_{CE} = 5.0\text{ Vdc}$ , $f = 100\text{ MHz}$ )	$f_T$	75	-	MHz

2. Pulse Test: Pulse Width  $\leq 300\text{ }\mu\text{s}$ , Duty Cycle = 2.0%.

# PZT751T1G

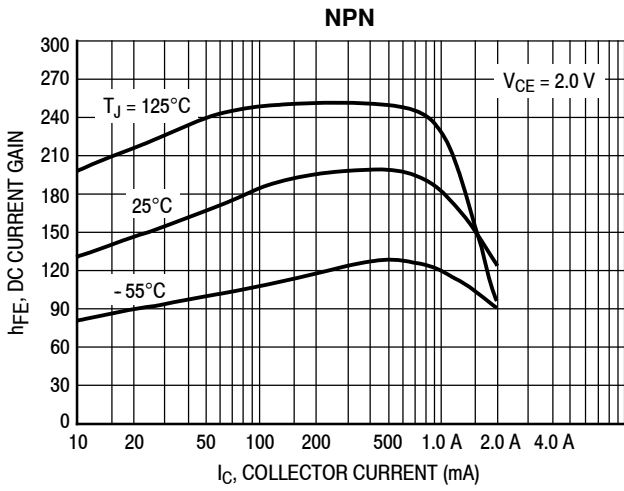


Figure 1. Typical DC Current Gain

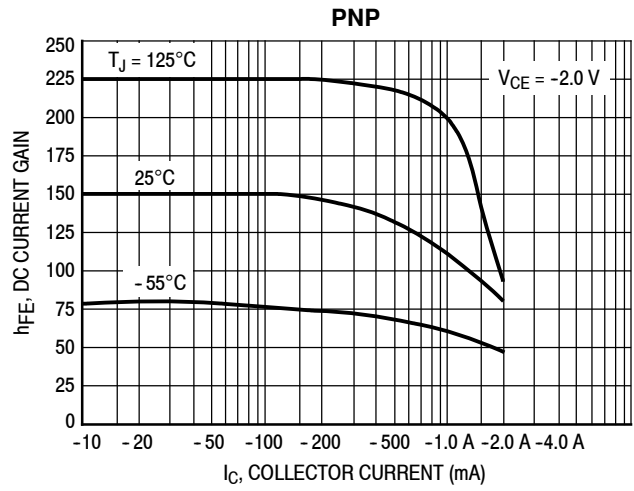


Figure 2. Typical DC Current Gain

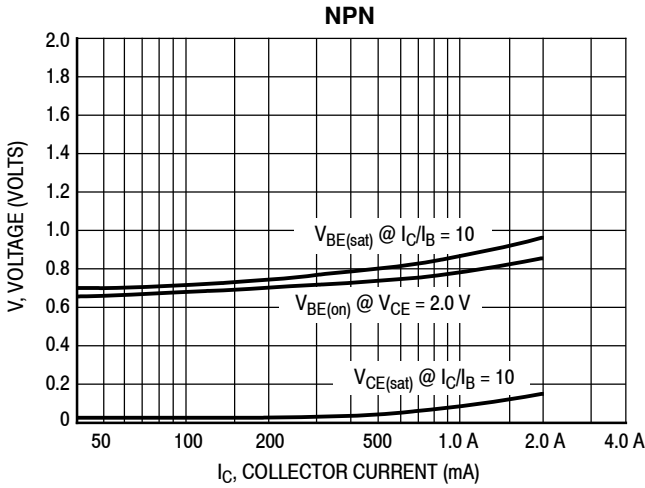


Figure 3. On Voltages

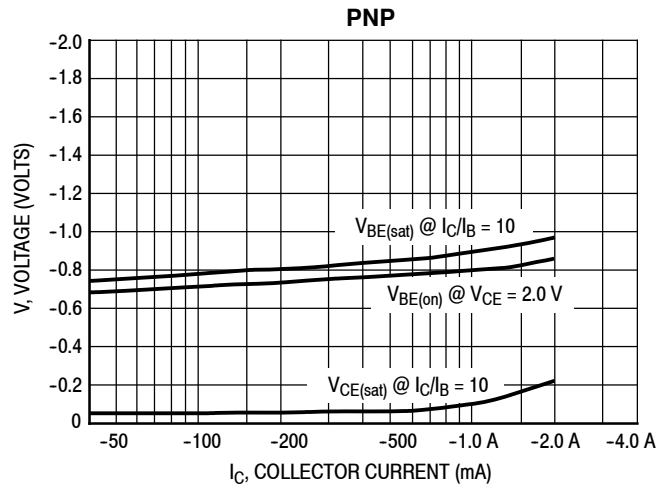


Figure 4. On Voltages

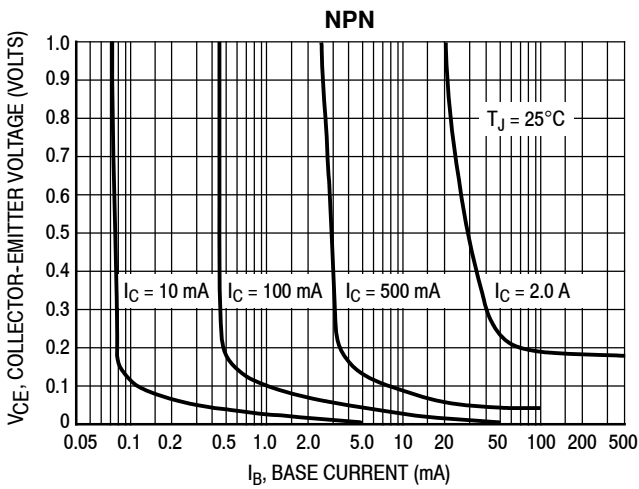


Figure 5. Collector Saturation Region

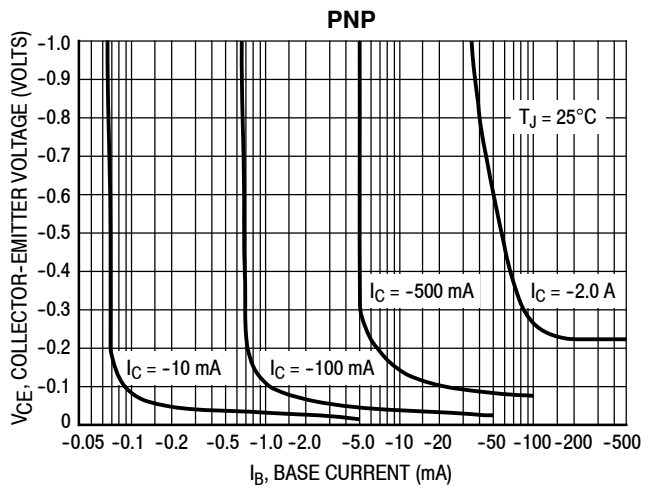
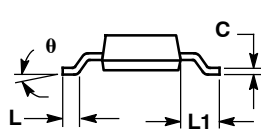
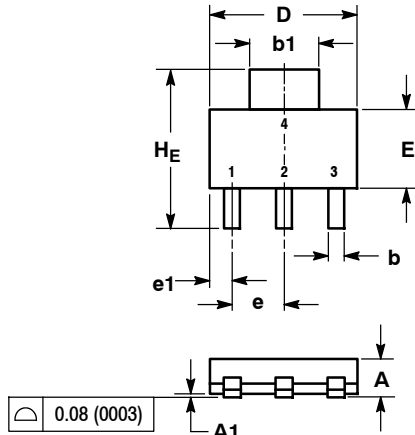


Figure 6. Collector Saturation Region

# PZT751T1G

## PACKAGE DIMENSIONS

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

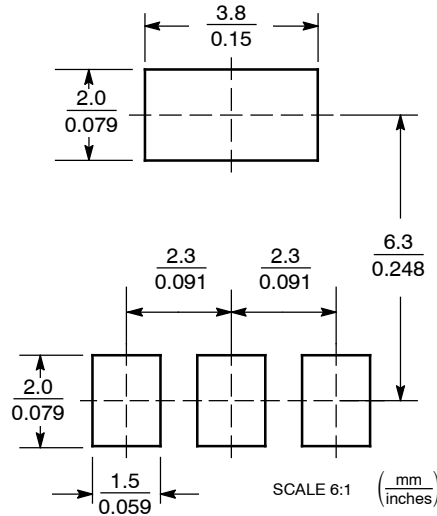


NOTES:  
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.  
2. CONTROLLING DIMENSION: INCH

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
θ	0°	-	10°	0°	-	10°

STYLE 1:  
PIN 1. BASE  
2. COLLECTOR  
3. EMITTER  
4. 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.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

### PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:  
Literature Distribution Center for ON Semiconductor  
P.O. Box 5163, Denver, Colorado 80217 USA  
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free  
USA/Canada  
Europe, Middle East and Africa Technical Support:  
Phone: 421 33 790 2910  
Japan Customer Focus Center  
Phone: 81-3-5773-3850

ON Semiconductor Website: [www.onsemi.com](http://www.onsemi.com)  
Order Literature: <http://www.onsemi.com/orderlit>  
For additional information, please contact your local Sales Representative