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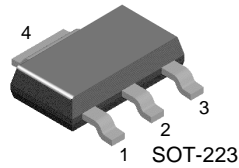
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# PZTA29

## NPN Darlington Transistor

- This device designed for applications requiring extremely high current gain at collector currents to 500mA.
- Sourced from process 03.



1. Base 2.4. Collector 3. Emitter

### Absolute Maximum Ratings \* $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CES}$	Collector-Emitter Voltage	100	V
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	12	V
$I_C$	Collector Current - Continuous	800	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady limits. The factory should be consulted on application involving pulsed or low duty cycle operations

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

Symbol	Parameter	Conditions	Min.	Max	Units
<b>Off Characteristics</b>					
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu\text{A}, V_{BE} = 0$	100		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	100		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}, I_C = 0$	12		V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 80\text{V}, I_E = 0$		100	nA
$I_{CES}$	Collector Cutoff Current	$V_{CE} = 80\text{V}, V_{BE} = 0$		500	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 10\text{V}, I_C = 0$		100	nA
<b>On Characteristics</b>					
$h_{FE}$	DC Current Gain	$V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$ $V_{CE} = 5.0\text{V}, I_C = 100\text{mA}$	10,000 10,000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 0.01\text{mA}$ $I_C = 100\text{mA}, I_B = 0.1\text{mA}$		1.2 1.5	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100\text{mA}, V_{CE} = 5.0\text{V}$		2.0	V
<b>Small Signal characteristics</b>					
$f_T$	Current Gain Bandwidth Product	$I_C = 10\text{mA}, V_{CE} = 5.0\text{V}, f = 100\text{MHz}$	125		MHz
$C_{obo}$	Output Capacitance	$V_{CB} = 1.0\text{V}, I_E = 0, f = 1.0\text{MHz}$		8.0	pF

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

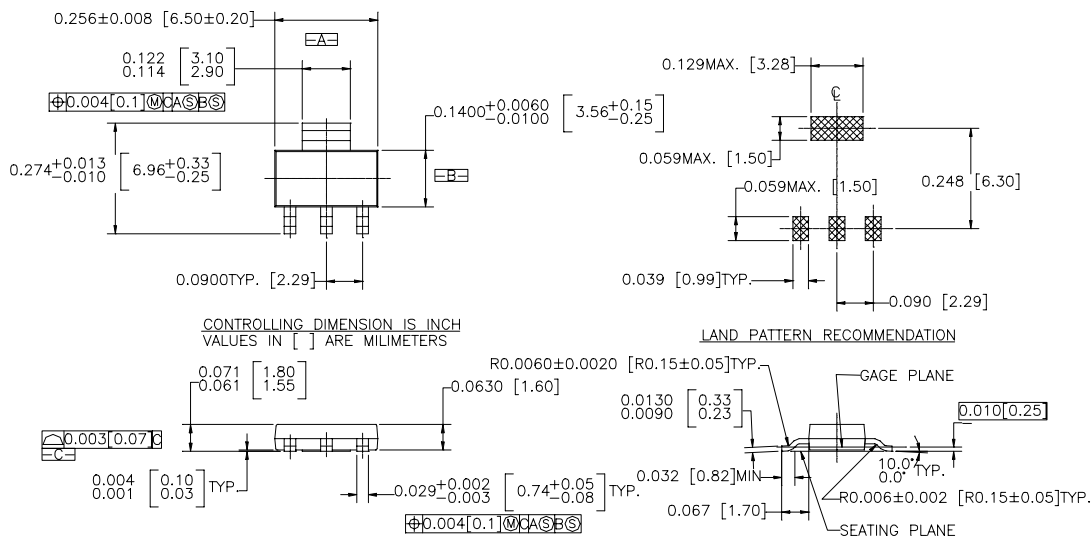
**Thermal Characteristics**  $T_a = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	1,000	mW
	Derate above $25^\circ\text{C}$	8.0	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4PCB  $36\text{mm} \times 18\text{mm} \times 1.5\text{mm}$ ; mounting pad for the collector lead min.  $6\text{cm}^2$

# Mechanical Dimensions

## SOT-223



NOTES : UNLESS OTHERWISE SPECIFIED  
 1. STANDARD LEAD FINISH TO BE 150 MICRONS/ 3.81 MICROMETERS  
 MINIMUM TIN/LEAD (SOLDER) ON COPPER.  
 2. REFERENCE JEDEC REGISTRATION TO-261, VARIATION AA, ISSUE A, DATED JAN 1990

SOT223, 4 LEADS

Dimensions in Millimeters

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