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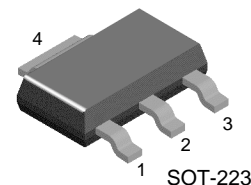


September 2006

NZT902

NPN Low Saturation Transistor

- These devices are designed with high current gain and low saturation voltage with collector currents up to 3A continuous.



1. Base 2. Collector 3. Emitter

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

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	90	V
V_{CBO}	Collector-Base Voltage	120	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	3	A
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	- 55 ~ +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 $^\circ\text{C}$.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

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

Symbol	Parameter	Value	Units
P_D	Total Device Dissipation	1	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	$^\circ\text{C/W}$

* Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm.

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$	90			V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}$	120			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}$	5			V
I_{CBO}	Collector-Base Cutoff Current	$V_{CB} = 100\text{V}$ $V_{CB} = 100\text{V}, T_a = 100^\circ\text{C}$			100 10	nA uA
I_{EBO}	Emitter-Base Cutoff Current	$V_{EB} = 4\text{V}$			100	nA
h_{FE}	DC Current Gain	$I_C = 0.1\text{A}, V_{CE} = 2\text{V}$ $I_C = 1\text{A}, V_{CE} = 2\text{V}$ $I_C = 2\text{A}, V_{CE} = 2\text{V}$	80 80 25			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 0.1\text{A}, I_B = 5.0\text{mA}$ $I_C = 1\text{A}, I_B = 100\text{mA}$ $I_C = 3\text{A}, I_B = 300\text{mA}$			50 250 600	mV mV mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 100\text{mA}$			1.25	V
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$			35	pF
f_T	Transition Frequency	$I_C = 100\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$	75			MHz

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

Typical Performance Characteristics

Figure 1. Static Characteristic

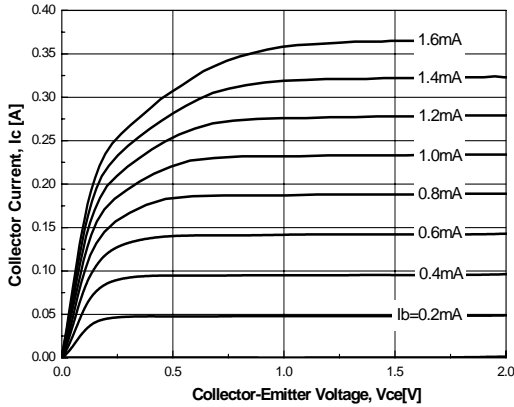


Figure 2. DC current Gain

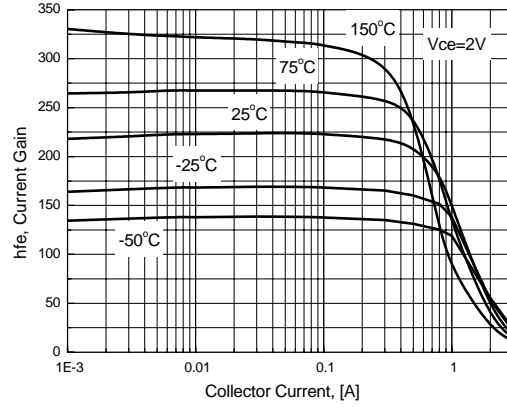


Figure 3. Collector-Emitter Saturation Voltage

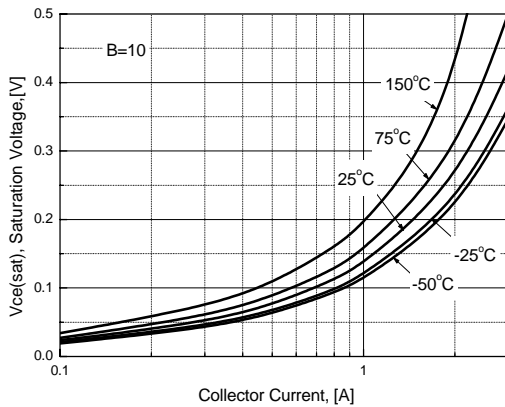


Figure 4. Base-Emitter Saturation Voltage

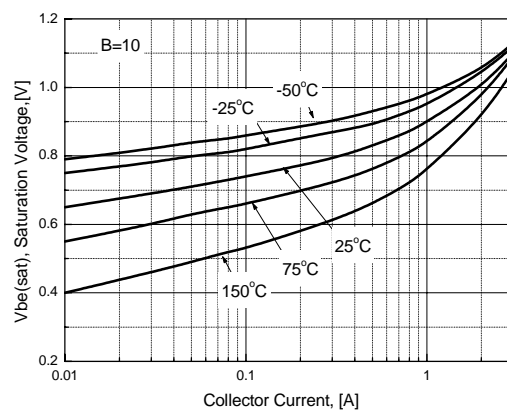


Figure 5. Output Capacitance

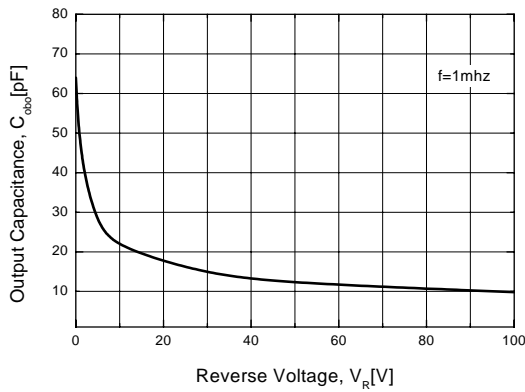
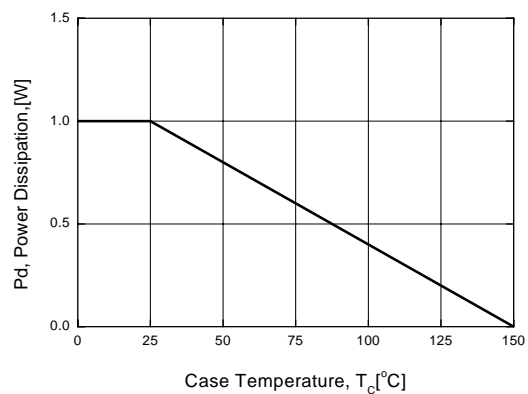
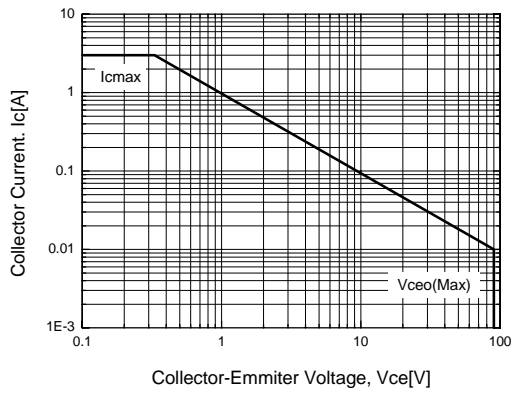


Figure 6. Power Dissipation vs Ambient Temperature



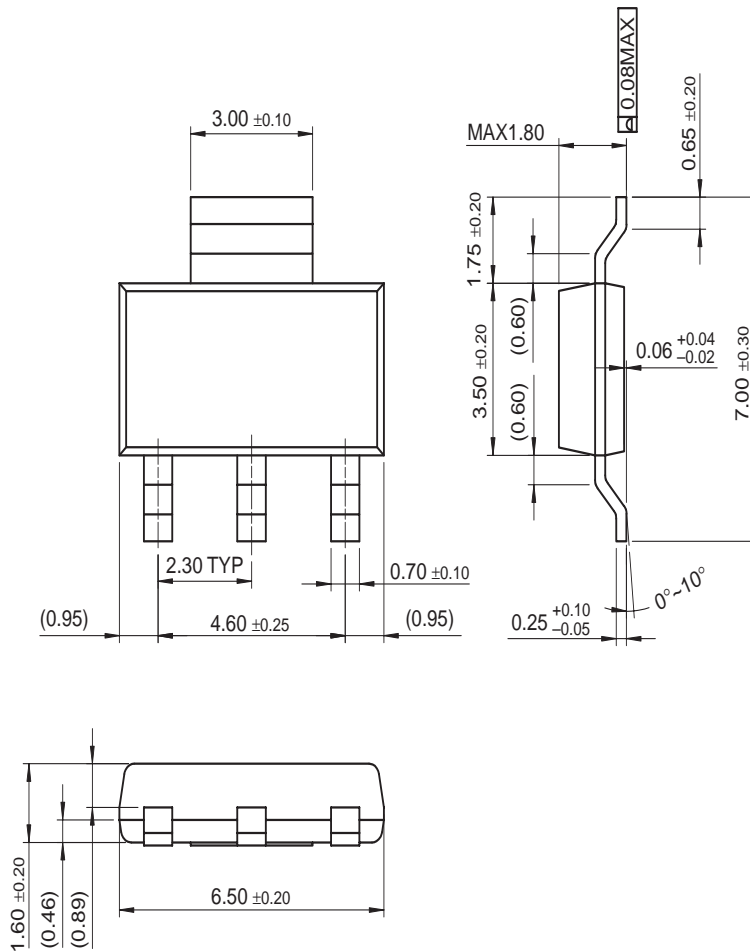
Typical Performance Characteristics

Figure 9. SOA



Mechanical Dimensions

SOT-223



Dimensions in Millimeters

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FAST®	MicroFET™	QS™	TinyBuck™	
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